

Report No. 29825-PE

# Peru Opportunities for All Peru Poverty Assessment

December 2005

Poverty Reduction and Economic Management Sector Unit  
Latin America and the Caribbean Region



Document of the World Bank

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## CURRENCY EQUIVALENTS

Currency Unit = Nuevos Soles

## FISCAL YEAR

January 1—December 31

## MAIN ABBREVIATIONS AND ACRONYMS

ATM	Automatic Teller Machine	LED	Local Economic Development Project
BCR	<i>Banco Central de Reserva</i>		
CAS	Country Assistance Strategy	LSMS	Living Standards Measurement Surveys
CCT	Conditional Cash Transfer		
CD	Caloric deficit	MEF	Ministry of Economics and Finance
COFOPRI	<i>Comisión de Formalización de la Propiedad Informal</i>	OLS	Ordinary Least Squares
CPI	Consumer Price Index	PACFO	<i>Proyecto de Alimentación Complementaria para Grupos en Mayor Riesgo</i>
CTS	<i>Compensación por tiempo de servicios</i>		
DHS	Demographic and Health Surveys	PDPUP	<i>Proyecto de Derechos de Propiedad Urbanos</i>
ENAH	<i>Encuesta Nacional de Hogares</i>	PER	Public Expenditure Review
ENNIV	<i>Encuesta de Nacional Niveles de Vida</i>	PPP	Public-Private Partnership
ESSALUD	<i>Instituto de Seguridad Social y Salud</i>	PRA	<i>Proyecto de Reducción y Alivio a la Pobreza</i>
FONAVI	<i>Fondo Nacional de la Vivienda</i>	PRONAMACHS	<i>Programa Nacional de Manejo de Cuencas Hidrográficas y Conservación de Suelos</i>
FONCODES	<i>Fondo Nacional de Compensación y Desarrollo Social</i>		
GDP	Gross Domestic Product	RPU	<i>Registro Predial Urbano</i>
GOP	Government of Peru	SIS	<i>Seguro Integral de Salud</i>
HH	Head of Household	SMEs	Small and Medium Enterprises
ICA	Investment Climate Assessment	SNIP	National Public Investment System
IMF	International Monetary Fund		
INCAGRO	<i>Innovación y Competitividad para el Agro Peruano</i>	SUNAT	<i>Superintendencia Nacional de Administración Tributaria</i>
INEI	<i>Instituto Nacional de Estadísticas e Información</i>	UBN	Unsatisfied Basic Need
LAC	Latin America and the Caribbean	VAT	Value-Added Tax

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## ACKNOWLEDGEMENTS

The Peru Poverty Assessment was prepared by a team led by Carolina Sanchez-Paramo and including Marina Bassi, Javier Escobal, Norman Loayza, Leonardo Lucchetti, Rossana Polastri and Walter Sosa. Valuable research assistance was provided by Magdalena Bendini, Pablo Lavado, Marco Ortiz and Guillermo Vuletin.

Many thanks are due to:

- Ariel Fiszbein, Peter Lanjouw, Humberto Lopez, Edmundo Murrugarra and Pedro Olinto as peer reviewers.
- Lorena Alcazar, Lisa Bhansali, Leah Belsky, Juan Chacaltana, Daniel Cotlear, Jishnu Das, Franz Drees-Gross, Adolfo Figueroa, Vicente Fretes-Cibils, Javier Herrera, Aart Kray, Teresa Lamas, Jose Roberto Lopez-Calix, Gilberto Moncada, Eduardo Moron, John Newman, Jaime Saavedra, Renzo Rossini, Cornelia Tesliuc and Gustavo Yamada for valuable inputs and comments.
- Farid Matuk, Nancy Hidalgo and the rest of the Household Survey Group in the *Instituto Nacional de Estadísticas e Información* (INEI) for granting the team access to the data used for the analysis and providing constant technical assistance and support.
- Fernando Zavala and his team at the Ministry of Finance, members of the Peru Country Team and staff at the World Bank office in Lima for support in Washington and Peru.
- Anne Pillay, Michael Geller and Christopher Humphrey for invaluable help in the preparation of the final document.



## **OPORTUNIDADES PARA TODOS**

### **PRINCIPALES MENSAJES Y RECOMENDACIONES EN MATERIA DE POLÍTICAS**

1. El Perú enfrenta altos niveles de pobreza y desigualdad. En 2004, un poco más de la mitad de la población del Perú era pobre y cerca del 20 por ciento vivía en la pobreza extrema. Aunque es difícil hacer comparaciones regionales debido a la utilización de diferentes líneas de pobreza en cada país, los niveles de pobreza en el Perú son inferiores a los de Ecuador y Colombia pero están por encima de los de Argentina y Brasil si consideramos una línea de pobreza de 2 dólares por día. Los niveles de pobreza son significativamente más altos en las áreas rurales, mientras las áreas urbanas —y en particular el área metropolitana de Lima— presentan el mayor grado de desigualdad. La desigualdad, medida por medio del coeficiente de Gini, era de 0,43, un nivel inferior al promedio latinoamericano, que es de 0,52, pero todavía elevado según estándares internacionales.
2. En los últimos años los índices de pobreza han tardado en reaccionar frente al impresionante crecimiento económico del país. Luego de mostrar una disminución durante la década de 1990, la pobreza aumentó tras la crisis económica de 1998, mientras la pobreza extrema se mantuvo estable. La recuperación económica iniciada en 2001 ha tenido un fuerte impacto positivo en la reducción de la pobreza extrema, pero el avance en materia de tasas de pobreza se ha limitado a las áreas rurales.
3. Uno de los propósitos fundamentales de este informe es explicar por qué el crecimiento no se ha traducido en una reducción más rápida del nivel de pobreza. El primer motivo es simplemente que la reducción de la pobreza toma tiempo, sobre todo teniendo en cuenta el patrón de volatilidad económica que se ha presentado en el Perú durante las últimas décadas, hecho que hace que los empresarios sean renuentes a invertir en actividades generadoras de empleo. Además, tras los años de alta inversión de la década de 1990, a los que siguió la crisis de 1998, muchas empresas han tenido capacidad instalada ociosa que apenas ahora, después de cinco años de crecimiento, se está resolviendo. Por lo tanto, el buen manejo macroeconómico de los últimos años está comenzando a dar frutos desde el punto de vista de la reducción de la pobreza y la generación de empleo, y es probable que estos efectos se aceleren si el gobierno mantiene políticas macroeconómicas sólidas.
4. Este informe también señala los diversos obstáculos que impiden que el crecimiento económico lleve a una mayor reducción de la pobreza en el Perú, y que deben enfrentarse reformando las políticas gubernamentales. El crecimiento se ha concentrado en las industrias dedicadas a la extracción de recursos naturales, que tienen un alto coeficiente de capital y generan poco empleo, y en los sectores agrícola de las áreas rurales e informal de las urbanas, caracterizados por una baja productividad y, por lo tanto, un bajo crecimiento de los salarios. El fortalecimiento del vínculo entre el crecimiento y la existencia de un mayor número de empleos mejor remunerados requiere intervenciones con políticas microeconómicas que eleven los incentivos para la generación de empleo en el sector formal y diversifiquen la actividad económica hacia áreas con mayor intensidad de mano de obra, como son las exportaciones no tradicionales. Aunque esa diversificación ha comenzado —así lo demuestra el rápido crecimiento de las exportaciones no tradicionales en los últimos años— una reforma de las políticas puede contribuir a ese proceso. Estas reformas deben estar acompañadas de medidas para mejorar el capital humano y el acceso a los servicios públicos por los pobres, lo que haría que el acceso a las oportunidades económicas fuera más equitativo.

## NATURALEZA, DISTRIBUCIÓN Y EVOLUCIÓN DE LA POBREZA

5. En 2004, un poco más de la mitad de la población del Perú vivía en la pobreza<sup>1</sup> mientras cerca de una quinta parte vivía en la pobreza extrema (véase la tabla 1). Los niveles de pobreza son significativamente más altos y más profundos en las áreas rurales, en comparación con las urbanas. En las áreas rurales, la pobreza alcanza el 72 por ciento y la pobreza extrema el 40 por ciento, mientras en las áreas urbanas esas tasas son del 40 por ciento y el 8 por ciento respectivamente. En la sierra y en la selva los niveles de pobreza también son más altos y más profundos en comparación con la costa.<sup>2</sup> La mayoría de las variaciones en las tasas de pobreza entre las regiones se puede atribuir a las variaciones en las características de los hogares y en el acceso a los servicios básicos y a la infraestructura de vías de comunicación, más que a las diferencias geográficas como la altitud y la temperatura. En otras palabras, los hogares comparables tienen probabilidades similares de ser pobres, independientemente de las características geográficas de su región de residencia. La desigualdad, medida por medio del coeficiente de Gini, es del 0,43 en el país, pero es inferior en las áreas rurales, en particular en la parte rural de la costa, y en Lima presenta el nivel más alto.

**Tabla 1. Indicadores de la pobreza en 2004**

	Pobreza			Pobreza extrema			Coeficiente de Gini
	Tasa	Brecha	Severidad	Tasa	Brecha	Severidad	
<b>Nacional</b>	51,6	18,0	8,4	19,2	5,3	2,1	0,43
<b>Área de residencia</b>							
Urbana	40,3	12,4	5,3	7,9	1,8	0,7	0,39
Rural	72,5	28,3	14,1	40,3	11,7	4,8	0,32
<b>Región geográfica</b>							
Costa urbana	37,1	10,6	4,5	6,2	1,4	0,5	0,34
Lima Metropolitana	36,6	10,4	4,1	3,4	0,6	0,2	0,40
Costa rural	53,5	16,4	7,0	14,6	3,1	0,5	0,32
Sierra	67,7	27,2	13,9	36,5	10,9	4,5	0,39
Selva	59,5	19,7	8,8	26,4	6,3	2,2	0,36

*Fuente:* cálculos de los autores a partir de datos de la Encuesta Nacional de Hogares (ENAH) de 2004, realizada por el Instituto Nacional de Estadística e Informática (INEI). La muestra anual cubre el periodo de enero a diciembre de 2004.

6. La pobreza aumentó de manera significativa como resultado de la crisis económica de 1998 y después se ha mantenido estable alrededor del nuevo nivel al que llegó luego de la crisis, mientras la pobreza extrema no se vio afectada por la crisis y ha disminuido desde 2001. Esto indica que aunque la pobreza ha tardado en reaccionar al crecimiento económico, tal reacción ha comenzado y ha tenido el mayor impacto en los más pobres de los pobres.

7. Sin embargo, la evolución de la tasa nacional de pobreza oculta diferencias importantes entre las áreas urbanas y las rurales y de una región a otra. Mientras la tasa de pobreza aumentó entre 1997 y

<sup>1</sup> Las tasas de pobreza de este informe se basan en el gasto en lugar del ingreso, porque el gasto suele permanecer más estable durante el transcurso de un año y además porque en las encuestas de hogares se tiende a reportar el gasto con más exactitud que el ingreso.

<sup>2</sup> Por lo general, al Perú se le divide en tres regiones geográficas: la "sierra" (las montañas), la "selva" y la "costa".

2000 en las áreas urbanas y en las rurales, entre 2001 y 2003 se mantuvo estable en las primeras pero disminuyó en las segundas (véase la tabla 2). Del mismo modo, después de los aumentos generalizados en todas las regiones debido a la crisis, la pobreza siguió aumentando ligeramente en Lima, mientras en la selva disminuyó y en el resto del país se mantuvo estable.

**Tabla 2. Porcentaje de la población que vive por debajo de la línea de pobreza, 2001-04**

Zona geográfica	2001	2002	2003	2004
Urbana	42,0	41,0	39,5	40,3
Rural	77,1	77,7	75,7	72,5
Total nacional	54,3	53,8	52,2	51,6

*Fuente:* cálculos de los autores a partir de datos de las ENAHO 2001-04 (INEI).

Las cifras de 2001 y 2002 corresponden al cuarto trimestre del año.

Las cifras de 2003 corresponden a mayo-diciembre.

Las cifras de 2004 corresponden a enero-diciembre.

8. En comparación con lo anterior, la evolución de la pobreza extrema fue similar entre las áreas urbanas y las rurales, y entre una región y otra durante ese periodo. La pobreza extrema se mantuvo estable entre 1997 y 2000 y mejoró a un ritmo constante entre 2001 y 2004 (véase la tabla 3). Las mejoras en la pobreza extrema se concentraron en las áreas rurales y en los departamentos más pobres, entre ellos Ayacucho, Apurímac, Cusco y Cajamarca. Durante este periodo también se presentaron mejoras significativas en la brecha de pobreza y en la severidad, que se redujeron de 20,9 a 18,5 y de 10,7 a 8,9 respectivamente entre 2001 y 2004.

**Tabla 3. Porcentaje de la población por debajo de la línea de pobreza extrema, 2001-04**

Zona geográfica	2001	2002	2003	2004
Urbana	10,2	9,4	8,9	7,9
Rural	49,8	51,7	45,9	40,3
Total nacional	24,1	24,2	21,9	19,2

*Fuente:* cálculos de los autores a partir de datos de las ENAHO 2001-04 (INEI).

Las cifras de 2001 y 2002 corresponden al cuarto trimestre del año.

Las cifras de 2003 corresponden a mayo-diciembre.

Las cifras de 2004 corresponden a enero-diciembre.

9. La pobreza, medida por el índice de necesidades básicas insatisfechas (NBI), ha disminuido a un ritmo constante durante los últimos diez años a medida que se expandía el acceso a la infraestructura y los servicios básicos. La parte de la población que tenía por lo menos una NBI ha bajado de 57 por ciento en 1993 a 40 por ciento en 2003. El avance ha sido importante tanto en las áreas urbanas como en las rurales, ya que durante este periodo el índice de NBI ha bajado de 42 por ciento a 25 por ciento en las áreas urbanas y de 90 por ciento a 71 por ciento en las rurales. Sin embargo, la mayoría de la disminución se dio durante la década de 1990, antes de que los niveles de inversión pública se recortaran significativamente, hecho que frenó el ritmo de avance en el acceso a los servicios básicos.

10. La divergencia entre la evolución de las medidas monetarias de la pobreza y las no monetarias, que son más estructurales, durante un periodo de significativa perturbación económica no es algo que se presente exclusivamente en el Perú. El Ecuador tuvo una experiencia similar durante la crisis de 1998-99 e inmediatamente después de la dolarización de 2000, cuando la pobreza monetaria aumentó de manera considerable como resultado de la desfavorable situación económica, pero el índice de NBI continuó descendiendo, siguiendo su tendencia de largo plazo.

## CRECIMIENTO Y POBREZA: PERSPECTIVA GENERAL

11. La relación entre crecimiento económico y pobreza es más débil en el Perú que en otros países del mundo. Es decir, el Perú necesita crecer a un ritmo más acelerado que otros países para reducir la pobreza o incluso para evitar que aumente. En los últimos años esta débil relación entre crecimiento y pobreza ha sido una consecuencia directa de la naturaleza del crecimiento económico en el Perú, que no ha tenido una base suficientemente amplia debido a cuatro factores. En primer lugar, el crecimiento per cápita fue relativamente lento entre 1997 y 2004. Es decir, aunque la economía creció, no lo hizo al mismo ritmo en que aumentó la población. Durante ese periodo el ingreso y el consumo per cápita se redujeron en -1,6 por ciento y -14 por ciento respectivamente, según los datos de la ENAHO.<sup>3</sup>

12. En segundo lugar, el crecimiento estaba sesgado hacia sectores con un alto coeficiente de capital y una baja demanda de mano de obra —como la minería—, o hacia sectores con baja productividad laboral y niveles salariales bajos —como la agricultura—, aunque recientemente los niveles de empleo también han estado creciendo en otros sectores, como los textiles y las exportaciones no tradicionales. Los sectores minería y agricultura crecieron a tasas anuales de 7,6 por ciento y 3,5 por ciento entre 1997 y 2004. Durante ese periodo el empleo en el sector minero creció 3,6 por ciento, mientras el empleo en el sector agrícola creció 4,6 por ciento. Del mismo modo, los salarios crecieron a una tasa anual de 12,4 por ciento en el sector minero, mientras en el sector agrícola disminuyeron -1,8 por ciento. Sin embargo, no es probable que el crecimiento de los salarios en el sector minero haya beneficiado a los pobres, dada la composición de la fuerza de trabajo empleada en el sector, que tiende a ser relativamente calificada.

13. En tercer lugar, históricamente el crecimiento ha sido muy volátil. Desde 1965 hasta el periodo 2001-05, el Perú nunca había disfrutado de más de cuatro años consecutivos con tasas de crecimiento superiores al 3,5 por ciento y, en cambio, había tenido trece años con tasas de crecimiento inferiores al 2 por ciento y siete años con tasas de crecimiento negativas. A su vez, la volatilidad se ha traducido en altos niveles de incertidumbre entre los empleadores y otros agentes económicos, factor que ha debilitado los incentivos para invertir y contratar a nuevos trabajadores. Este legado de crecimiento volátil se está superando de manera gradual mediante un manejo macroeconómico prudente y políticas de disciplina fiscal del gobierno.

14. En cuarto lugar, la inversión y la creación de empleo en el Perú han sido bajas porque existe una significativa capacidad instalada ociosa como resultado del deterioro económico de 1998-99. La utilización de la capacidad instalada ha aumentado desde 2000, pero todavía una proporción considerable permanece subutilizada. Aproximadamente el 30 por ciento de los empleadores declaró que estaba utilizando el 60 por ciento o menos de la capacidad instalada de su empresa en 2003, lo que representa una reducción respecto del nivel de 2000, que era del 37 por ciento; mientras un 38 por ciento declaró que estaba utilizando más del 80 por ciento de su capacidad, lo que representa un aumento respecto al nivel de 2000, que era del 19 por ciento. Los últimos datos disponibles indican que el promedio de utilización de la capacidad instalada era de 74 por ciento en octubre de 2005. Del mismo modo, los empleadores se mostraban cautelosos en lo que se refiere a la contratación de nuevos empleados. En 2003, el 15 por ciento de los empleadores declaró que estaba dispuesto a contratar a nuevos empleados y más del 20 por ciento que estaba dispuesto a despedir a empleados actuales. En 2000, esas cifras eran del 10 por ciento y el 30 por ciento respectivamente.

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<sup>3</sup> Esto contrasta con los datos de las cuentas nacionales, que muestran que el producto bruto interno (PBI) per cápita creció 2,5 por ciento durante el mismo periodo. Sin embargo, la pobreza se mide utilizando la ENAHO.



15. Como resultado de los últimos tres factores mencionados —la volatilidad económica, el crecimiento en los sectores con un alto coeficiente de capital y la capacidad instalada ociosa— las tasas de generación de empleo aunque positivas han sido insuficientes, y de inversión se han mantenido bajas, y debido a eso el crecimiento no ha beneficiado a los pobres en las áreas urbanas. Aunque el empleo en empresas con más de diez trabajadores se ha recuperado desde 2000, todavía permanece en niveles inferiores a los existentes antes de la crisis. Es más: la tasa de ocupación se ha mantenido constante, e incluso se ha reducido ligeramente desde 2000, a la par que la composición del empleo se ha inclinado hacia una mayor informalidad. El número de horas trabajadas también ha aumentado ligeramente, lo que indica que las necesidades de mano de obra se pueden haber atendido por medio del uso más intensivo de los actuales trabajadores y no mediante nuevas contrataciones. Del mismo modo, aunque los niveles de inversión han aumentado en términos reales desde 2003, las tasas de inversión han disminuido a un ritmo constante como porcentaje del PBI desde 1998.

16. El análisis precedente indica que las políticas macroeconómicas orientadas a mantener y fortalecer el crecimiento económico y a reducir la incertidumbre pueden garantizar que el crecimiento económico no solo sea sostenible sino que contribuya a la reducción de la pobreza. La mayoría de esas políticas macroeconómicas ya se aplican y deben continuar. Sin embargo, para fortalecer aún más el vínculo entre crecimiento económico y reducción de la pobreza se deben complementar con reformas microeconómicas que ofrezcan mayores incentivos para invertir y contratar a nuevos trabajadores tanto en las áreas urbanas como en las rurales, y para elevar el nivel del capital humano en la fuerza de trabajo y hacer que las oportunidades económicas sean más igualitarias, aspectos que se comentan a continuación.

## **OPORTUNIDADES ECONÓMICAS PARA LOS POBRES DE LAS ÁREAS URBANAS**

17. Las mejoras recientes en los niveles promedio de empleo y salarios en las áreas urbanas no se han traducido en menores tasas de pobreza urbana. Ello se debe a que tales mejoras se han concentrado entre los trabajadores formales y más educados, empleados en compañías más grandes, y no se han extendido al sector informal, en el que está empleada la mayoría de los pobres. La ocupación (la cantidad total de trabajadores) aumentó en un promedio anual de 4 por ciento entre 2000 y 2004. Sin embargo, como la tasa de participación en la fuerza de trabajo también aumentó, la tasa de ocupación se mantuvo constante o incluso disminuyó ligeramente durante ese periodo. Entre 1997 y 2004, los salarios de los gerentes y empleados de oficina del sector formal aumentaron de 117 a 158 y de 94 a 104 respectivamente (en un índice de salarios con una base de 100), mientras los de los obreros pasaron de 86 a 89.

18. La existencia de débiles conexiones entre las empresas grandes y las pequeñas, que ha impedido que el crecimiento de las primeras se filtre hacia las segundas, ha agravado la ausencia de avances en el empleo y en los salarios de los pobres. En 2004, el 62 por ciento de las empresas grandes le vendía como máximo el 20 por ciento de su producción a las microempresas y pequeñas empresas y el 46 por ciento le compraba como máximo el 20 por ciento de los insumos a las microempresas y pequeñas empresas, mientras sólo el 1,2 por ciento de las empresas grandes le vendía más del 80 por ciento de su producción a las microempresas y pequeñas empresas y el 4,1 por ciento le compraba más del 80 por ciento de los insumos a las microempresas y pequeñas empresas.

19. Las futuras disminuciones en la pobreza urbana dependerán de la capacidad de la economía urbana para generar empleos más productivos y mejor remunerados, sobre todo en los sectores que emplean a los pobres. El resto de esta sección analiza las limitaciones actuales para la creación de empleo urbano por las empresas grandes, medianas y pequeñas, y recomienda políticas para enfrentarlas. Presta especial atención a las rigideces del mercado laboral y al papel de la legislación laboral. En la medida en que la mayoría de los pobres de las áreas urbanas está empleada en empresas pequeñas e informales,

también estudia los incentivos para que las empresas informales se formalicen y los factores determinantes de la productividad en las actividades informales, y hace recomendaciones al respecto.

### **La eliminación de las limitaciones a la generación de empleo urbano**

20. El 25 por ciento de las empresas manufactureras que participaron en el *Estudio sobre el clima de inversión en el Perú* (Banco Mundial 2003) declaró que, si no enfrentara limitaciones, le gustaría aumentar el número de trabajadores que emplea de manera permanente, mientras menos del 5 por ciento dijo que lo disminuiría y el 70 por ciento sostuvo que lo mantendría en el nivel actual. Los motivos de las diferencias entre la cantidad actual y la deseada de empleados contratados y despedidos varían un tanto según el tamaño de la empresa. Sin embargo, queda claro que los costos laborales no salariales y los costos de los despidos establecidos por la ley, y en menor medida la incertidumbre sobre la demanda futura de los productos de la empresa, constituyen los motivos fundamentales de esa diferencia.

21. En teoría, las condiciones del empleo permanente en el Perú son buenas y existe un alto grado de protección en comparación con el de otros países de la región y del mundo. Por ejemplo, en 1999 se calculaba que el costo promedio de un despido equivalía a 13,8 salarios mensuales promedio, una cifra inferior a la de 1987, que era de 15,0, pero bastante más alta que el promedio regional de 5,5 o que el promedio de 1,5 existente en los países industrializados de habla inglesa. Del mismo modo, la ley protege las relaciones laborales y, en menor medida, el acceso a la seguridad social. Sin embargo, es relativamente fácil eludir estas disposiciones contratando a los nuevos trabajadores con contratos temporales en lugar de permanentes o funcionando en el sector informal. Por ejemplo, el empleo temporal y por horas representa el 20 por ciento de todo el empleo asalariado en el sector privado y el 50 por ciento de todo el empleo por contrato en Lima Metropolitana.

22. Como resultado de lo anterior, los mercados laborales en el Perú son flexibles *de facto*, aunque esa flexibilidad conlleva el costo de una protección laboral y un acceso a la seguridad social bajos y distribuidos de manera poco uniforme. Solo el 18 por ciento del empleo urbano y el 52 por ciento del empleo asalariado está contratado en términos que cumplen plenamente con la legislación laboral peruana, mientras en América Latina y el Caribe esos porcentajes son del 40 por ciento y el 60 por ciento respectivamente. Del mismo modo, el incumplimiento de las normas sobre salario mínimo equivale a un poco menos de una cuarta parte de la población pertinente del Perú, mientras en América Latina y el Caribe ese porcentaje es del 10 por ciento. Esta dicotomía entre los altos niveles de protección *de iure* y los bajos niveles de protección *de facto* es común a otros países de la región en los que los esfuerzos por hacer que la ley se cumpla son débiles y la incidencia de la informalidad es elevada.

23. El impacto de la legislación laboral se extiende más allá del empleo formal permanente y afecta los niveles totales de empleo y la composición del empleo, como lo ha documentado de manera exhaustiva la bibliografía sobre los mercados laborales del Perú y de otros países. Esos patrones se deben en gran medida a las diferencias de los costos salariales y no salariales entre el empleo permanente y el temporal (e informal). Las siguientes son dos medidas que reducirían esas diferencias sin aumentar el costo relativo del empleo formal:

- **Reducir los costos de los despidos con el propósito de aumentar los incentivos para contratar.** Los costos de los despidos se podrían reducir de varias formas. El enfoque más drástico requiere una reducción de las indemnizaciones por despido. Esta medida se podría aplicar solamente a los nuevos contratos, o bien se podría considerar la posibilidad de pagarles compensación a los trabajadores contratados de conformidad con el régimen anterior. Entre los enfoques menos drásticos podría estar

un aumento de los periodos de prueba para los nuevos trabajadores y un uso más flexible de los “motivos económicos” como causa de los despidos.

- **Reducir los costos no salariales.** El Perú está entre los países de la región que tienen la legislación más generosa en lo que respecta a vacaciones pagadas, junto con Brasil y Panamá. Esto no sólo es muy costoso para los empleadores (especialmente teniendo en cuenta la baja productividad laboral), sino que en realidad sólo un porcentaje pequeño de los trabajadores disfruta del periodo de vacaciones, hecho que indica que a los actuales niveles de ingreso los trabajadores están dispuestos a vender tiempo libre a cambio de un ingreso adicional. Un enfoque más flexible podría ser que las vacaciones estuvieran en función de la experiencia del trabajador o del tiempo que ha ejercido su cargo y, por lo tanto, de su productividad laboral.

### **Proporcionar incentivos para la formalización**

24. El alto nivel de empleo informal del Perú es costoso para los hogares, las empresas y el gobierno. La baja productividad entre las empresas informales se traduce en ingresos más bajos para quienes están empleados en el sector: el ingreso laboral promedio por hora en el sector informal es inferior en un 50 por ciento al del sector formal, inclusive cuando se comparan trabajadores similares en empleos similares. Los trabajadores del sector informal también carecen de acceso a la protección social vinculada al empleo: por ejemplo, a prestaciones de salud y a las pensiones o a las indemnizaciones por despido. Aunque algunos de esos trabajadores pueden haber renunciado voluntariamente a esas prestaciones a cambio de salarios más elevados o de mayor flexibilidad, más del 50 por ciento de los pobres que trabajan en el sector informal lo hacen de manera involuntaria, según los estudios. Las empresas informales también enfrentan diversos obstáculos costosos, entre ellos el acceso limitado al crédito, a las asociaciones empresariales y a los programas del gobierno que promueven las actividades económicas y las exportaciones. Desde el punto de vista del gobierno, el incumplimiento en el pago del impuesto a las ventas y de los impuestos laborales entre las empresas informales tiene un impacto negativo en los ingresos tributarios.

25. Los altos niveles de informalidad y los bajos niveles de generación de empleo permanente se pueden atribuir a los lentos y costosos procedimientos de registro de las empresas, a los complejos procedimientos para que estas presenten sus declaraciones tributarias y a las inflexibles normas laborales (que resultan particularmente onerosas para las pequeñas empresas). Ya comentamos las políticas para reducir los costos del empleo (permanente). Entre las otras intervenciones dirigidas a proporcionar incentivos para la formalización de las pequeñas empresas y aumentar su acceso al crédito podría estar la racionalización de:

- **Los procedimientos de registro de las pequeñas empresas.** Una reducción de los trámites de tal manera que los costos de los procedimientos de registro bajen a un nivel equiparable al de sus competidores más cercanos de dentro y fuera de la región haría más fácil que las empresas cumplieran con ellos. La legislación recientemente aprobada para implementar un sistema especial simplificado de registro para las microempresas y las pequeñas empresas, y para permitirles que hagan aportes más reducidos a los sistemas de pensiones y de salud, constituye un paso en esa dirección. Desafortunadamente, la puesta en marcha de estas y otras reformas contempladas en la nueva ley no ha tenido hasta ahora los efectos deseados, pues solo 3.500 empresas informales se han registrado formalmente. Sería importante comprender los motivos del limitado impacto de esas medidas.

- **Los mecanismos para presentar declaraciones tributarias.** Ya existe un régimen especial y simplificado para que las microempresas y las pequeñas empresas presenten sus declaraciones, pero estas y otras empresas se podrían beneficiar con una mayor simplificación. Por ejemplo, se podría considerar la posibilidad de establecer la presentación basada en características fácilmente observables de las empresas y de acuerdo con tablas tributarias predeterminadas. Tales sistemas facilitan la presentación de declaraciones a las empresas que no se apoyan en sistemas de contabilidad totalmente formales, que con frecuencia son costosos, e incluso a empresas que interactúan con un gran número de socios informales.

## **Elevar la productividad de la pequeña empresa informal**

26. Aunque la promoción de la formalidad en el sector privado debe ser una prioridad, el hecho de que el sector informal es muy grande en el Perú también constituye una realidad. Aproximadamente la mitad de los pobres urbanos que trabajan lo hacen por cuenta propia, todos ellos en el sector informal, y un 30 por ciento más trabaja para microempresas o pequeñas empresas, muchas de las cuales también son informales. Del mismo modo, el 40 por ciento de todos los empresarios informales (empleados por cuenta propia o no) son pobres, mientras entre los empresarios formales esa proporción es del 15 por ciento. Por consiguiente, identificar los factores determinantes de la productividad de las actividades informales e implementar políticas orientadas a elevarla es fundamental para ayudar a los pobres urbanos a superar la pobreza.

27. Existe una variación significativa en la productividad de las pequeñas empresas informales, en las que la productividad se mide en función del valor agregado por trabajador. Esta variación se puede atribuir a las diferencias en las características de los empresarios, los trabajadores y las empresas. Debido a esto, los menores niveles de productividad entre los empresarios pobres, y por consiguiente los más bajos salarios que reciben sus trabajadores, se pueden atribuir a los más bajos niveles educativos tanto de los empleadores como de los empleados, a los menores niveles de integración a los mercados y al menor acceso a la infraestructura básica.

28. Las diferencias entre los empresarios pobres y los no pobres en lo que respecta a sus prácticas comerciales y las características de sus empresas no son el producto de factores independientes sino interrelacionados. Por ejemplo, el uso de prácticas de mercado y el acceso al capital y a la infraestructura guardan correlación con la ubicación de la empresa. Es más probable que las empresas que operan en locales comerciales utilicen algún tipo de contabilidad y que empleen una proporción mayor de trabajadores remunerados que las que funcionan en las calles o en las casas de sus propietarios. Además, el acceso a maquinarias y a otras herramientas es mayor entre las empresas que funcionan en locales comerciales o no comerciales que entre aquellas que operan en las calles, mientras el uso de un vehículo es mucho más frecuente entre estas últimas, en parte debido a que lo utilizan como sustituto de un local propiamente dicho. Por último, el manejo de un negocio desde un local comercial guarda correlación con un mayor acceso a los servicios de telefonía y agua potable.

29. Entonces, se podrían alcanzar niveles más altos de productividad entre los trabajadores informales por cuenta propia y las pequeñas empresas informales con estas medidas:

- **Mejorar el nivel de capacitación tanto de los empresarios como de los trabajadores asalariados.** El aumento general del nivel de capacitación de la fuerza laboral se puede lograr invirtiendo en la educación formal (que se comenta más adelante, en el párrafo 40) y mejorando la pertinencia y la cobertura del sistema de capacitación. No es necesario que el sector público sea el proveedor de la capacitación. En lugar de eso el Estado puede ofrecer incentivos para que las empresas contraten la

capacitación que desean con proveedores privados debidamente acreditados. El programa ProJoven, que proporciona capacitación a trabajadores jóvenes, se podría extender para cubrir otros grupos demográficos.

- **Aumentar el acceso a los locales comerciales y el uso de prácticas de mercado.** A los pequeños empresarios que operan en las calles se les podrían ofrecer espacios comerciales en mercados u otros emplazamientos a cambio de un alquiler. Ese alquiler podría aumentar con el paso del tiempo para facilitar la inversión en las primeras etapas y también para reflejar los posibles aumentos futuros de productividad. El mayor acceso a estos espacios serviría como plataforma para el suministro económico de infraestructura básica y servicios comerciales como prácticas de gerencia y de contabilidad, acceso simplificado al crédito y servicios legales, lo que a su vez se traduciría en una más alta productividad. También ayudaría a descongestionar las calles y las áreas en las que funcionan esos negocios mejorando el tráfico y disminuyendo los peligros.

## **OPORTUNIDADES ECONÓMICAS PARA LOS POBRES DE LAS ÁREAS RURALES**

30. Los hogares de las áreas rurales obtienen la mayoría de sus ingresos a partir de actividades agrícolas, pero existen diferencias importantes entre los hogares pobres y los no pobres en lo que se refiere a sus estrategias para generar ingresos. Los hogares pobres tienden a depender exclusivamente de la agricultura, mientras los no pobres tienden a participar también en actividades no agrícolas. Es más: existe una mayor probabilidad de que los hogares pobres dependan de una sola fuente de ingresos, mientras los no pobres tienen una mayor capacidad para diversificar el riesgo relacionado con la generación de ingresos al no depender exclusivamente de una fuente determinada. Alrededor de la mitad de los hogares rurales obtiene la totalidad de sus ingresos del trabajo por cuenta propia en el sector agrícola, mientras el resto combina la agricultura con otros tipos de trabajo. Las tasas de pobreza son significativamente más altas entre aquellos empleados en el sector agrícola (80 por ciento) que entre los que trabajan en sectores diferentes al agrícola (60 por ciento).

31. La mayor parte de las variaciones en los ingresos de los hogares de las áreas rurales se debe a la variación de los ingresos no agrícolas procedentes del trabajo asalariado. Es más: la participación del ingreso agrícola disminuye a medida que aumenta el ingreso total. Aunque estos hechos simplificados parecen indicar que el empleo no agrícola proporciona una vía para salir de la pobreza, en realidad la mayoría de los hogares de las áreas rurales tiende a obtener ingresos tanto del sector agrícola como de los sectores no agrícolas: es decir que dependen de estrategias generadoras de ingreso en lugar de depender de sectores o actividades determinados. La capacidad de un hogar de implementar una estrategia generadora de ingreso rentable determina su estatus en términos de pobreza.

32. La participación en estas estrategias generadoras de ingreso está en función de las características y atributos de los hogares. Los mejores atributos de los hogares (como un nivel de educación superior) y el acceso a la infraestructura y a los servicios públicos les permiten usar estrategias que incluyan actividades no agrícolas, mientras la propiedad de activos agrícolas y la falta de liquidez hacen que sea más caro para los hogares abandonar las estrategias que incluyen actividades agrícolas.

33. En los hogares, tanto la productividad agrícola como el ingreso laboral guardan una correlación positiva con el capital humano (como un nivel de educación superior) y el acceso al crédito, a los servicios básicos, las telecomunicaciones y la infraestructura de vías de comunicación. En el ámbito regional, el rendimiento de las actividades agrícolas y asalariadas depende de la profundidad y el dinamismo de los mercados regionales y de los niveles totales de productividad. La densidad de población y el acceso a la infraestructura son mayores en la costa que en otras áreas, a pesar de las importantes mejoras alcanzadas durante la década de 1990 en la sierra y en la selva. Ambos factores podrían contribuir a crear mercados más integrados y dinámicos en las áreas rurales, y a conectar mejor a las áreas

urbanas y rurales. Por consiguiente, para superar las diferencias regionales, se deben realizar inversiones orientadas a mejorar el retorno a los activos, servicios y mercados en esas áreas que están rezagadas.

34. Al evaluar las diferentes alternativas de políticas para el sector rural es preciso considerar tres aspectos importantes. En primer lugar, la naturaleza de la pobreza rural es heterogénea y varía significativamente de una región a otra, de modo que las intervenciones y los proyectos tienen que tener en cuenta las particularidades locales para garantizar una eficacia máxima. En segundo lugar, debido a que la tierra es escasa en relación con la población que debe mantener y al hecho de que la productividad agrícola es baja, muchas de las personas que están empleadas en la actualidad en actividades agrícolas tendrían que mejorar de manera espectacular su productividad o abandonar la agricultura para salir de la pobreza. Esto implica que la estrategia de desarrollo rural para el Perú debe ser multisectorial y tener presente la interacción entre las actividades agrícolas y las no agrícolas. En tercer lugar, es importante advertir que en las zonas rurales ya existen varios programas que apoyan intervenciones en las áreas que identificamos antes y que proporcionan una estructura por medio de la cual el gobierno puede esforzarse por alcanzar la meta de tener un crecimiento rural inclusivo. Sin embargo, estos programas adolecen de diversos problemas que deben ser resueltos si se quiere que las futuras intervenciones sean eficaces.

35. Teniendo en cuenta las anteriores consideraciones, y si se quiere que los pobres de las áreas rurales se beneficien de las oportunidades económicas que genera el crecimiento económico general, tres áreas fundamentales requieren la acción del gobierno:

- **Integrar a las áreas rurales a los mercados nacionales para aumentar las oportunidades económicas.** Las acciones más obvias para facilitar los contactos entre agentes y el transporte de mercancías entre las áreas rurales y urbanas son simplemente el mejoramiento de la red de carreteras, y en particular de los sistemas secundarios y terciarios, para permitir a los productores llevar sus productos a los mercados de una manera rápida y económica, y la inversión en telecomunicaciones en las áreas rurales, para permitir que los residentes rurales tengan un acceso oportuno a la información pertinente sobre los mercados. El sector público también puede tomar medidas para facilitar la transmisión de conocimientos y tecnología de las áreas urbanas a las rurales y para desarrollar relaciones económicas estables que garanticen una demanda constante de productos agrícolas y no agrícolas para el procesamiento industrial y/o la exportación y crear incentivos para la producción a granel.
- **Mejorar el acceso al crédito entre los productores rurales.** El crédito rural está restringido por las dificultades de muchos productores, especialmente aquellos que tienen fondos pequeños, para cumplir los requisitos administrativos y las garantías que exigen las instituciones financieras. Por ello, la mayoría del crédito existente es informal o lo suministran pequeñas cooperativas de ahorro y crédito. Esas cooperativas, así como otras instituciones con propósitos similares, como los grupos de crédito para mujeres, deben fortalecerse. Las disposiciones sobre crédito deben modificarse para permitir el uso como garantía de los activos familiares, como la maquinaria o el ganado, y tomar precauciones para no aumentar el riesgo del crédito y el incumplimiento en los pagos, complementando el mayor acceso con un mejor seguimiento. Al mismo tiempo deben continuar los esfuerzos por aumentar la titulación de tierras. También es necesario tener en cuenta la alta preponderancia de la propiedad comunitaria de la tierra entre las poblaciones indígenas y el impacto negativo que eso puede tener en la capacidad de las personas que viven en esas comunidades para acceder al crédito.
- **Mejorar los niveles del capital humano en las áreas rurales.** La mejora de los niveles y estándares educativos en las áreas rurales se puede lograr con una serie de intervenciones que incluye: (i) la expansión de la educación bilingüe mediante el suministro de materiales de enseñanza y aprendizaje adecuados y el reclutamiento y capacitación de maestros que hablen el quechua; (ii) la expansión de la educación secundaria por medio de la educación formal o la educación a distancia; (iii) la creación de incentivos para asistir a la escuela mediante programas de transferencia condicionada de dinero o

mejoras en los programas de alimentación y nutrición que se ofrecen en las escuelas (en el párrafo 38 se proporcionan más detalles sobre el tema de la educación). La asistencia técnica también se puede mejorar. El proyecto Innovación y Competitividad para el Agro Peruano (INCAGRO), el Proyecto de Reducción y Alivio a la Pobreza (PRA) y el Fondo de Cooperación para el Desarrollo Social (FONCODES) ofrecen algunos servicios de extensión pública, pero una gran cantidad de pequeños cultivadores y de residentes pobres de áreas rurales todavía está excluida debido a su alto costo. Por eso son necesarios mayores esfuerzos que apoyen el suministro de asistencia técnica basada en la demanda y acompañada por asistencia sobre comercialización y gerencia.

## ACCESO A LOS SERVICIOS PÚBLICOS Y A LAS INSTITUCIONES PÚBLICAS

36. El acceso a los servicios públicos es un asunto relevante en diferentes campos, esencial para ayudar a los pobres a desarrollar capital humano y también para proteger a los vulnerables, tanto en las áreas rurales como en las urbanas. También es un ámbito directamente susceptible a la selección de políticas, y por consiguiente es un blanco probable de mejoras que contribuyan a fortalecer los vínculos entre el crecimiento económico y la reducción de la pobreza. El acceso a los servicios públicos como la asistencia a la salud, la educación y la protección social es bajo entre los pobres, entre los grupos indígenas y en las áreas rurales. Los pobres también tienen menos probabilidades que los no pobres de entrar en contacto con diferentes instituciones públicas, que van desde las oficinas de los gobiernos central y local hasta los bancos estatales y el sistema judicial.

37. Este informe no ofrece un análisis profundo de los sectores de educación, salud y protección social (estos aspectos se comentan en *Peru: Accountability in the Social Sectors, 2005*), sino que toma nota de las principales cuestiones en esos campos, y específicamente de su relación con el mejoramiento del capital humano de los trabajadores que buscan superar la pobreza.

38. El sector educación presenta diversas debilidades críticas que reducen su impacto en los pobres, tanto en las áreas urbanas como en las rurales. Muchos pobres consideran que no vale la pena asumir el costo de oportunidad que representa la educación, lo que disminuye la demanda de esta. En vista de que la calidad de la educación es baja y las oportunidades disponibles al egresar de las escuelas son limitadas, muchas familias prefieren hacer que sus hijos trabajen y recibir un ingreso adicional, incluso si es pequeño, en lugar de que asistan a la escuela. Esto sucede sobre todo en las áreas rurales, que no tienen suficientes buenos maestros pues estos prefieren trabajar en las áreas urbanas. Además, el ausentismo de los maestros es muy elevado en las áreas rurales. La asistencia a las escuelas indígenas es especialmente baja, en buena parte porque no existen suficientes planes de estudios bilingües o biculturales para la población indígena. Otro problema, que también es más pronunciado en las áreas rurales, es la oferta limitada de cupos de preescolar y secundaria, que tienen bajas tasas de matrícula.

39. Elevar la calidad y la cobertura de la educación requiere políticas de incentivos a la demanda y a la oferta, como:

- **Promover una mayor demanda de educación.** Es posible inducir aumentos de la demanda de educación reduciendo de hecho sus costos (tanto de los directos como de los de oportunidad) por medio de programas de transferencia condicionada de dinero (PTC) o becas, y mediante la implementación de horarios de estudios flexibles que permitan a los niños y a los jóvenes participar en otras actividades durante el día. El Perú lanzó recientemente un PTC llamado “Juntos” (el cuadro 5.3 del informe principal contiene detalles) y podría aprender de experiencias similares en la región, como “Bolsa Familia” en Brasil, “Oportunidades” en México y “Bono de Desarrollo Humano” en Ecuador.

- **Mejorar la asignación y la calidad de los maestros.** En las áreas rurales se han puesto en marcha planes pilotos de incentivos para mejorar la asistencia de los maestros. Tales planes se deben expandir a escala nacional y complementar con el suministro de capacitación y materiales para los maestros, sobre todo en las áreas de educación bilingüe y multigrado. También será importante garantizar que el proceso de descentralización no limite la capacidad de las autoridades para administrar los recursos del sector de una manera eficaz y eficiente.
- **Mejorar la oferta y la calidad de la educación bilingüe.** Para mejorar la asistencia de los estudiantes indígenas y especialmente de las niñas a las escuelas es necesario elevar el número de maestros capacitados en educación bilingüe y multigrado y diseñar y distribuir en esas escuelas los materiales didácticos correspondientes. Hacia el futuro, los esfuerzos por eliminar las barreras culturales al acceso deben aprovechar la mayor responsabilidad del sector frente a las autoridades locales y los usuarios que ha generado el proceso de descentralización.
- **Aumentar la oferta de educación preescolar y secundaria.** Es factible lograr mejoras en la oferta de educación preescolar por medio de modalidades de educación no formal, como los centros de educación infantil manejados por mujeres, que reciben capacitación y apoyo financiero del gobierno a cambio del suministro de servicios básicos de educación. Se pueden lograr mejoras en la oferta de educación secundaria poniendo en práctica modalidades alternativas y más flexibles de educación, como la educación a distancia.

40. El sector salud también enfrenta obstáculos relacionados con la demanda y la oferta que le impiden tener un impacto mayor en el mejoramiento de las vidas de los pobres. El Seguro Integral de Salud (SIS), que elimina las cuotas que pagan los usuarios y reembolsa por el sistema de honorarios por servicios todos los costos variables en que hayan incurrido los proveedores públicos durante el suministro de un paquete básico de prestaciones (principalmente los medicamentos esenciales), ha sido un paso importante en el mejoramiento del acceso de los pobres a la asistencia a la salud básica, pero el costo sigue siendo un problema para muchos de ellos. Además, el sistema de asistencia a la salud no cubre de manera suficiente a la población indígena, en parte porque no todas las clínicas son sensibles a los asuntos culturales relacionados con la prestación de servicios de salud a este sector poblacional. Las cuestiones administrativas también son un problema: en el Perú distintos proveedores suministran servicios de salud, según el Ministerio de Salud y EsSalud. La existencia de múltiples proveedores con diferentes mandatos podría ser la causa de ineficiencias en la asignación de recursos y en el uso de la capacidad existente.

41. Como en el caso de la educación, elevar la calidad y la cobertura de los servicios de salud requiere políticas de incentivos a la demanda y a la oferta, como los siguientes:

- **Elevar la demanda de servicios de salud reduciendo los costos para los pobres.** Aunque el SIS ha representado una innovación importante, es preciso realizar mayores esfuerzos para reducir los costos directos y de oportunidad de la asistencia a la salud para los pobres. Hacer que los servicios de salud sean más accesibles para los pobres, y sobre todo para aquellos que son más vulnerables, como las madres, los bebés y los ancianos, debe ser una prioridad. El SIS también debe reducir la asignación excesiva de recursos a la atención terciaria y concentrarse en los niveles primario y secundario. El gobierno debe considerar la posibilidad de expandir los servicios subsidiados y de establecer un programa de transferencia condicionada de dinero relacionado con la asistencia a la salud.
- **Reducir las barreras culturales en la asistencia a la salud.** Tener en cuenta las expectativas culturales y las creencias de los indígenas en todo el sistema de salud puede eliminar o al menos mitigar el impacto de las barreras culturales. La adopción, en 1994, del modelo de los Centros de Administración Compartida, CLAS, que se basa en la participación de las comunidades locales en la



planificación y la administración de los centros primarios de asistencia a la salud, ha constituido un avance importante en esa dirección y debe expandirse.

- **Aumentar la eficiencia de los proveedores públicos de servicios de salud y la coordinación entre ellos.** Para mejorar la eficiencia del sistema de salud, el Ministerio de Salud (MINSA) ha firmado una serie de acuerdos de gestión con las autoridades regionales de salud. Estos acuerdos vinculan los recursos con el desempeño y los resultados. Hacia el futuro, entre los principales desafíos relacionados con esos acuerdos de gestión están el seguimiento y la publicación de los resultados de su ejecución. Además, para potenciar al máximo el uso de la capacidad actual, el MINSA ha tratado de lograr una mejor coordinación con EsSalud. Ello ha resultado difícil desde el punto de vista político, pero los esfuerzos deben continuar. Eso será particularmente importante en un ámbito cada vez más descentralizado en el que el riesgo de fragmentación del sistema puede aumentar de manera significativa.

## **EXPOSICIÓN AL RIESGO Y MOVILIDAD SOCIAL**

42. La baja productividad, los bajos niveles de ingreso y las limitadas oportunidades económicas no son las únicas barreras que los pobres deben superar. Su restringida capacidad para protegerse contra el riesgo por medio de la diversificación de los ingresos y para ahorrar hace que los pobres sean más vulnerables a los shocks económicos. Del mismo modo, los bajos niveles de movilidad social, medidos como la correlación entre la experiencia de los padres y los logros de los hijos, tienden a perpetuar las desigualdades en lo que se refiere a ingresos y capital.

### **Riesgo y vulnerabilidad**

43. Aproximadamente el 20 por ciento de los hogares informó que sufrió un shock en 2003. Tanto los hogares pobres como los no pobres estuvieron sujetos a shocks y tenían probabilidades de perder ingresos y activos como resultado de estos. Los shocks económicos fueron más frecuentes en las áreas urbanas, mientras los desastres naturales lo fueron en las rurales. Además, dentro de las áreas urbanas y rurales era más probable que los hogares pobres experimentaran desastres naturales y accidentes, mientras era más probable que los no pobres sufrieran shocks económicos.

44. Al intentar sobrellevar los shocks, los hogares pobres tendían a emplear estrategias basadas en aumentar la oferta de mano de obra o reducir el consumo, mientras era más probable que los hogares no pobres dependieran de estrategias basadas en activos, como reducir los ahorros, o estrategias orientadas a los mercados, como solicitar préstamos o hacer efectiva una póliza de seguros.

45. Las estrategias que emplearon los pobres fueron menos eficaces que aquellas que usaron los no pobres para ayudar a sus hogares a superar el impacto de los shocks. Las estrategias a las que recurrieron los pobres tienen una eficacia reducida, ya que existe un límite al número de horas que pueden trabajar las personas y es difícil bajar el consumo por debajo del nivel de subsistencia. Los hogares que se encuentran más cerca de esos límites cuando se presenta un shock tendrán más dificultades para superar sus efectos. En vista de que esos hogares tienden a ser los más necesitados, esto genera un círculo vicioso de pobreza y vulnerabilidad. Por consiguiente, las intervenciones orientadas a mejorar la capacidad de los hogares pobres para ahorrar y tener acceso a los mercados financieros, así como su acceso a medidas eficaces de protección social, pueden contribuir bastante a romper ese círculo vicioso.

46. Para dotar a los pobres de los mecanismos para ayudarse a sí mismos cuando se presentan shocks se requiere intervenciones destinadas a ampliar su base de activos, aumentar su acceso a los

servicios e instrumentos financieros y facilitar el uso de seguros de larga enfermedad o invalidez y de seguros de riesgos catastróficos. Además, las medidas de protección social del sector público para los pobres deben mejorar su focalización y su capacidad para reaccionar con rapidez a las crisis.

- **Ayudar a los pobres a ampliar su base de activos.** Aparte de las intervenciones destinadas a aumentar la productividad y los ingresos de los pobres, que ya han sido discutidas, el gobierno debe tomar medidas para mejorar el acceso a la vivienda y a la tierra y la seguridad de estos, que son con frecuencia los activos más valiosos de los pobres. Aumentar el acceso a viviendas adecuadas en las áreas urbanas y promover la titulación de la tierra y la vivienda tanto en las áreas urbanas como en las rurales les permitiría a los hogares pobres usar esos activos como garantías para la obtención de créditos en caso de necesidad. La titulación también contribuiría en mucho a la activación de los mercados de vivienda y terrenos, que actualmente tienen un volumen muy escaso de operaciones, especialmente en las áreas rurales, y por ende elevaría el valor de esos activos para el momento en que la liquidez sea necesaria. Otra opción es mejorar las transferencias públicas a los pobres por medio de un programa de transferencia condicionada de dinero, un paso que el Perú ya está considerando (véase el cuadro 5.3 del informe principal). Esos programas logran el doble objetivo de proporcionar un alivio de corto plazo a la pobreza y promover las inversiones en capital humano a mediano plazo.
- **Aumentar el acceso a los servicios financieros.** Se podría salvar la brecha que existe entre los pobres y el sistema financiero mediante la expansión de los servicios de cajero automático a las áreas pobres y el suministro de programas de introducción al tema financiero para los hogares pobres. También se podría lograr un mayor contacto entre los hogares pobres y el sistema bancario mediante la canalización a través de los bancos de los pagos que realizan los programas sociales, como se hace por ejemplo en Ecuador con el Bono de Desarrollo Humano. También se pueden crear instrumentos financieros concebidos para los pobres, como las cuentas de ahorro que pagan intereses más bajos pero no exigen un saldo mínimo, o instrumentos de base comunitaria como los planes rotatorios de ahorro y crédito.
- **Facilitar el acceso de los pobres a un ingreso mínimo y a los seguros de riesgos catastróficos.** El acceso a un ingreso mínimo se puede suministrar en la modalidad de los programas temporales de asistencia social condicionada al trabajo, un ejemplo de los cuales es el programa “A Trabajar” del Perú, o en la forma de pensiones no contributivas en el caso de personas mayores o discapacitadas, una opción cuya sostenibilidad fiscal se tendría que estudiar cuidadosamente antes de su implementación. Los hogares pobres pueden tener acceso a seguros de riesgos catastróficos a través del gobierno o de proveedores privados. Aunque el suministro de seguros de desastre por el sector privado es bastante común en los países desarrollados y entre los hogares acomodados, la liquidación irregular de los siniestros, la carencia de títulos de propiedad de las viviendas y las tierras y la vivienda de calidad inferior hacen que sea difícil asegurar a los pobres. Sin embargo, existen experiencias exitosas en este aspecto en áreas urbanas, como la de Manizales en Colombia, que pueden ofrecer lecciones útiles.
- **Aumentar el acceso de los pobres urbanos y rurales a programas eficaces de protección social.** La implementación de un sistema de pensiones no contributivas para los ancianos necesitados podría ayudar a prevenir el riesgo de pobreza en la tercera edad, sujeta a la limitación de sostenibilidad fiscal ya mencionada. Del mismo modo, los programas que entiendan los factores determinantes del riesgo de los jóvenes (las características individuales, las experiencias de la familia, y los efectos que tengan los pares y el vecindario) y que hagan énfasis en la prevención (por ejemplo, que minimicen el riesgo para el ingreso futuro por medio del suministro de incentivos para terminar la educación secundaria), pueden contribuir a reducir la vulnerabilidad y el riesgo entre los jóvenes. Además, los programas de búsqueda de empleo y colocación laboral y los servicios de guardería infantil para las madres pobres

pueden aumentar la participación en el mercado laboral entre los hogares pobres, especialmente los de las áreas urbanas. En el sector rural, intervenciones como la introducción de nuevas semillas y variedades de pastura y la oferta de capacitación agrícola básica pueden contribuir a mejorar la seguridad alimentaria y los niveles nutricionales en épocas de crisis.

## **Movilidad social**

47. La movilidad social, medida como la relación entre las características de los padres y los hijos y representada por la educación y la movilidad ocupacional, es baja y persistente en el Perú. Los recientes aumentos en la movilidad han sido el resultado de avances generales en los logros educativos y de cambios en la estructura productiva de la economía, en lugar de ser el resultado de una mayor igualdad en las oportunidades educativas y económicas, y han estado concentrados en la mitad de la distribución (del ingreso).

48. Esto tiene implicaciones importantes para la adopción de políticas en un país en el que los niveles de desigualdad todavía son elevados. El hecho de que la mayoría de los avances hayan sido impulsados por aumentos generales en el acceso muestra que las medidas que eleven la oferta, como la construcción de escuelas y el aumento del número de maestros, han sido eficaces para atraer a más niños hacia la escuela y mantenerlos en ella. Por otro lado, las evidencias de un escaso avance en relación con la “democratización de la educación” indican que hay espacio para tipos alternativos de intervenciones que intenten transformar directamente la relación entre antecedentes socioeconómicos y culturales por una parte y logros educativos por la otra; es decir, intervenciones que estimulen la demanda, como las becas basadas en el ingreso, las transferencias condicionadas de dinero y las intervenciones que enfrenten diferencias culturales, como la educación bilingüe (que ya se comentó). Dado que la exclusión social sigue siendo un problema para ciertos grupos, enfrentar el problema de la movilidad social, por medio de la promoción de la movilidad educativa, se convierte en una prioridad.



## **OPPORTUNITIES FOR ALL: MAIN MESSAGES AND POLICY RECOMMENDATIONS**

1. Peru faces high levels of poverty and inequality. In 2004, just over half of Peru's population was poor and about 20 percent were extremely poor. Although regional comparisons are difficult due to the use of different poverty lines across countries, Peru's poverty levels are below those of Ecuador and Colombia, but above those of Argentina and Brazil based on a US\$2/day poverty line. Poverty levels are significantly higher in rural areas, while urban areas—most notably metropolitan Lima—are the most unequal. Inequality, measured by the Gini coefficient, stood at 0.43—below the Latin American average of 0.52, but still high by international standards.

2. Poverty has been slow to respond to the country's impressive economic growth in recent years. After improvements during the 1990s, poverty increased in the wake of the 1998 economic crisis, while extreme poverty remained stable. The economic recovery since 2001 has had a strong positive impact in reducing extreme poverty, but progress on poverty rates has been limited to rural areas.

3. A main focus of this report is to explain why growth has not translated into more rapid poverty reduction. The first reason is simply that poverty reduction takes time, particularly considering the pattern of economic volatility in Peru over the past several decades, which makes businesspeople reluctant to invest in job-creating endeavors. As well, in the wake of the high investment years in the 1990s followed by the 1998 crisis, many businesses have excess production capacity that is only now, after five years of growth, being worked out. Thus, the good macroeconomic management of recent years is beginning to show fruit in terms of poverty reduction and job creation, and this will likely accelerate if the government keeps in place sound macroeconomic policies.

4. This report also points to a number of obstacles that inhibit economic growth from leading to greater poverty reduction in Peru, and which should be addressed by government policy reforms. Growth has been focused on natural resource extraction industries, which are highly capital-intensive and generate few jobs, and in the rural agricultural and urban informal employment sectors, which are characterized by low productivity and, therefore, low wage growth. Strengthening the linkage between growth and more, better-paid jobs requires micro-level policy interventions to increase incentives to formal-sector employment and diversify economic activity into more labor-intensive areas, such as non-traditional exports. While this diversification has begun—as evidenced by the rapid growth of non-traditional exports in recent years—further policy reforms can help this process along. These reforms should be accompanied by measures to boost human capital and access to public services by the poor, thereby increasing equity in economic opportunity.

### **THE NATURE, DISTRIBUTION AND EVOLUTION OF POVERTY**

5. In 2004, just over half the Peruvian population was in poverty,<sup>4</sup> while about one-fifth was in extreme poverty (see Table 1). Poverty is significantly higher and deeper in rural compared to urban areas. Rural poverty stands at 72 percent and extreme rural poverty is 40 percent, while in urban areas the rates are 40 percent and 8 percent, respectively. Poverty is also higher and deeper in the Sierra and the Selva compared to the Costa.<sup>5</sup> Most of the regional variation in poverty rates can be attributed to

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4. This report bases poverty rates on consumption as opposed to income, because consumption tends to stay more stable over the course of a year, and also because consumption tends to be reported more accurately than income on household surveys.

5. Peru is commonly divided into three geographic regions: "Sierra" (mountains), "Selva" (jungle), and "Costa" (coast).

variation in household characteristics and in access to basic services and road infrastructure, rather than to geographical differences, such as altitude and temperature. In other words, observationally equivalent households have similar probabilities of being poor irrespective of the geographic characteristics of their region of residence. Inequality as measured by the Gini coefficient is .43 nationally, but is lower in rural areas, especially the rural Costa, and highest in Lima.

**Table 1: Poverty indicators in 2004**

	Poverty			Extreme poverty			Gini
	Headcount	Gap	Severity	Headcount	Gap	Severity	
<b>National</b>	51.6	18.0	8.4	19.2	5.3	2.1	0.43
<b>Area of residence</b>							
Urban	40.3	12.4	5.3	7.9	1.8	0.7	0.39
Rural	72.5	28.3	14.1	40.3	11.7	4.8	0.32
<b>Geographic region</b>							
Urban Costa	37.1	10.6	4.5	6.2	1.4	0.5	0.34
Metropolitan Lima	36.6	10.4	4.1	3.4	0.6	0.2	0.40
Rural Costa	53.5	16.4	7.0	14.6	3.1	0.5	0.32
Sierra	67.7	27.2	13.9	36.5	10.9	4.5	0.39
Selva	59.5	19.7	8.8	26.4	6.3	2.2	0.36

*Source:* Authors' calculations using data from ENAHO 2004 (INEI)—Annual sample covering the period January to December 2004.

6. Poverty increased significantly as a consequence of the 1998 economic crisis and has remained stable around its new post-crisis level afterwards, while extreme poverty was unaffected by the crisis and has improved since 2001. These findings suggest that while poverty has been slow to react to economic growth, this reaction has begun and it has had the greatest impact on the poorest of the poor.

7. The evolution of the national poverty rate, however, hides important differences across urban and rural areas and across regions. While poverty rose between 1997 and 2000 in both urban and rural areas, it remained stable in the former but declined in the latter between 2001 and 2003 (see Table 2). Similarly, after generalized increases across regions due to the crisis, poverty continued to increase slightly in Lima, while it improved in the Selva and remained stable in the rest of the country.

**Table 2. Percent of Population Below Poverty Line, 2001–04**

Geographic Zone	2001	2002	2003	2004
Urban	42.0	41.0	39.5	40.3
Rural	77.1	77.7	75.7	72.5
National Total	54.3	53.8	52.2	51.6

*Source:* Author's calculation using data from ENAHO 2001-2004 (INEI).

Data for 2001 and 2002 correspond to the last quarter.

Data for 2003 correspond to May-December.

Data for 2004 correspond to January-December.

**Table 3. Percent of Population Below Extreme Poverty Line, 2001–04**

Geographic Zone	2001	2002	2003	2004
Urban	10.2	9.4	8.9	7.9
Rural	49.8	51.7	45.9	40.3
National Total	24.1	24.2	21.9	19.2

*Source:* Author's calculation using data from ENAHO 2001-2004 (INEI).

Data for 2001 and 2002 correspond to the last quarter.  
Data for 2003 correspond to May-December.  
Data for 2004 correspond to January-December.

8. By contrast, the evolution of extreme poverty was similar across urban and rural areas and across regions during this period. Extreme poverty remained stable in 1997–2000, and improved steadily in 2001–2004 (see Table 3). Improvements in extreme poverty were concentrated in rural areas and among the poorest departments, including Ayacucho, Apurímac, Cuzco y Cajamarca. Significant improvements can also be seen in the poverty gap and severity during this period, which declined from 20.9 to 18.5 and from 10.7 to 8.9, respectively, during 2001–2004.

9. Poverty as measured by the Unsatisfied Basic Needs index (UBN) has declined steadily during the last 10 years as access to basic services and infrastructure expanded. The fraction of the population with at least one UBN has fallen from 57 in 1993 to 40 percent in 2003. Progress has been significant in both urban and rural areas, as the UBN has declined from 42 to 25 and from 90 to 71 percent in urban and rural areas respectively during this period. Most of this decline, however, took place during the 1990s, before public investment levels were cut significantly, leading to a slow-down in progress on access to basic services.

10. The divergence between the evolution of monetary and more structural, non-monetary measures of poverty during a period of significant economic turmoil is not exclusive to Peru. Ecuador had a similar experience during the 1998/9 crisis and immediately after the 2000 dollarization, when monetary poverty increased significantly as a consequence of the economic downturn but the UBN index continued to decline along its long-term trend.

## **GROWTH AND POVERTY: AN OVERVIEW**

11. The relationship between economic growth and poverty is weaker in Peru than in other countries in the world. That is, Peru needs to grow faster than other countries to lower poverty or even to prevent it from increasing. In recent years this weak relationship between growth and poverty has been a direct consequence of the nature of economic growth in Peru, which has not been sufficiently broad-based, due to four factors. First, growth in per capita terms was relatively slow during 1997–2004. That is, although the economy grew, it could not keep up with population growth. Income and consumption per capita declined by -1.6 and -14 percent respectively during this period according to data from the *Encuesta Nacional de Hogares* (ENAHOG).<sup>6</sup>

12. Second, growth was biased towards sectors with high capital intensity and low demand for labor, such as mining, or towards sectors with low labor productivity and wage levels, such as agriculture, although more recently employment levels are now growing in other sectors as well, such as textiles and non-traditional exports. The mining and agricultural sectors grew at annual rates of 7.6 and 3.5 percent during 1997–2004. During this period employment in the mining sector grew by 3.6 percent, while employment in the agricultural sector increased by 4.6 percent. Similarly wages grew at an annual rate of 12.4 percent in the mining sector, compared to a decline of 1.8 in the agricultural sector. Wage growth in the mining sector, however, is unlikely to have benefited the poor, given the composition of the labor pool employed in the sector, which tends to be relatively skilled.

13. Third, growth has historically been highly volatile. Until the 2001–2005 period, since 1965 Peru had never enjoyed more than four consecutive years with growth rates above 3.5 percent, while it has had

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6. This contrast with data from national accounts that shows that GDP per capita grew by 2.5 percent during the same period. However, poverty is measured using the ENAHOG.

13 years of growth rates below 2 percent and seven years with negative growth rates. Volatility in turn has translated into high levels of uncertainty among employers and other economic agents, undermining incentives to invest and hire new workers. This legacy of volatile growth is gradually being overcome through the government's prudent macroeconomic management and disciplined fiscal policies.

14. Fourth, investment and employment creation in Peru have been low because there is a significant amount of excess capacity in the productive system resulting from the 1998-99 economic downturn. The use of installed capacity has increased since 2000, but there is still a significant share that is currently underutilized. Approximately 30 percent of employers declared to be using 60 percent or less of their business' installed capacity in 2003, down from 37 percent in 2000, while 38 percent declared to be using more than 80 percent, up from 19 in 2000. The latest available data indicates that average usage of installed capacity stood at 74 percent in October 2005. Similarly employers appeared wary about hiring new workers. In 2003, 15 percent of employers declared to be willing to hire new workers and over 20 percent declared to be willing to fire existing ones, compared to 10 and 30 percent respectively in 2000.

15. As a result of the last three factors listed above—economic volatility, growth in capital-intensive sectors, and excess capacity—employment generation although positive has been insufficient and investment rates have remained low, and as a consequence growth has failed to benefit the poor in urban areas. Although employment in firms with more than 10 employees has recovered since 2000, it still remains below pre-crisis levels. Moreover the overall employment rate has remained constant, or even declined slightly since 2000, at the same time that the composition of employment has shifted towards higher informality. The number of hours worked has also increased slightly, suggesting that labor needs may have been covered through more intensive use of already employed workers rather than through new hires. Similarly, although investment levels have increased in real terms since 2003, investment rates have been declining steadily as a percentage of GDP since 1998.

16. The analysis above indicates that macro-level policies to maintain and strengthen economic growth, and to reduce uncertainty can ensure that economic growth is not only sustainable but contributes to poverty reduction. These macro policies are largely in place and should be continued. However, to further strengthen the link between growth and poverty reduction, they must also be complemented by micro-level reforms that will offer greater incentives to invest and hire new workers in both urban and rural areas, and also to raise the level of human capital in the workforce and equalize economic opportunities. These issues are discussed below.

## **ECONOMIC OPPORTUNITIES FOR THE URBAN POOR**

17. Recent improvements in average urban employment and wage levels have failed to translate into lower urban poverty rates because they have been concentrated among formal, more educated workers, employed in larger firms, and have not extended to the informal sector where most of the poor are employed. Overall employment (total number of workers) increased by an annual average of 4 percent between 2000 and 2004. However, because the labor force participation rate also increased, the overall employment rate remained constant or even declined slightly during this period. Wages of managers and white collar workers in the formal sector increased (on a wage index with 100 as the base) from 117 to 158 and from 94 to 104, respectively, between 1997 and 2004, compared with a change from 86 to 89 among blue collar workers.

18. The lack of employment and wage gains for the poor has been aggravated by weak linkages between large and small firms which have prevented growth among the former from trickling down to the latter. In 2004, 62 percent of all large firms sold at most 20 percent of their production to micro and small firms and 46 percent bought at most 20 percent of their inputs from these same firms, compared to 1.2



and 4.1 percent that sold or bought more than 80 percent of their production and inputs, respectively, to and from micro and small firms.

19. Future declines in urban poverty will depend on the capacity of the urban economy to generate more productive, well-paid jobs, particularly in those sectors that employ the poor. The rest of this section analyzes and offers policy recommendations to tackle existing constraints to urban employment creation by large, medium and small firms, paying special attention to labor market rigidities and the role of labor legislation. Moreover, because most of the urban poor are employed in small, informal businesses, it also examines and makes recommendations on incentives for informal firms to formalize themselves and the determinants of productivity of informal activities.

### **Removing Constraints to Urban Employment Creation**

20. Twenty-five percent of all manufacturing firms interviewed in the Peru Investment Climate Survey (World Bank, 2003) declared that, if faced with no constraints, they would like to increase the number of permanent workers they employed, compared with less than 5 percent that would decrease it, and 70 percent that would maintain it at its current level. The reasons given for the difference between actual and desired hiring and firing vary somewhat by firm size. It is clear, however, that legislated non-wage labor costs, firing costs and, to a lesser extent, uncertainty about future demand for the firm's products constitute the key reasons for this difference.

21. On paper, permanent employment conditions in Peru are good and protection is high, compared to other countries in the region and the world. For instance, average firing costs in 1999 were estimated to be equal to 13.8 average monthly wages, down from 15.0 in 1987, but still significantly higher than the regional average of 5.5 or the English-speaking industrialized countries average of 1.5. Similarly the legislation protects labor relationships and, to a lesser extent, access to social security. These regulations, however, are relatively easy to avoid by using temporary rather than permanent contracts to hire new workers, or by operating in the informal sector. For instance temporary and hourly employment represents 20 percent of all private sector salaried employment and 50 percent of all contract-based employment in Metropolitan Lima.

22. As a result, labor markets in Peru are *de facto* flexible, although this flexibility comes at the cost of low and unevenly distributed employment protection and access to social security. Only 18 percent of all urban employment and 52 percent of all salaried employment is hired in full compliance with Peruvian labor regulation, compared to 40 and 60 percent respectively in LAC. Similarly non-compliance with minimum wage equals just under one quarter of the relevant population in Peru, while it is 10 percent in Latin America and the Caribbean (LAC). This dichotomy between high levels of protection *de jure* and low levels of protection *de facto* is common to other countries in the region where enforcement is weak and the incidence of informality is high.

23. The impact of labor legislation extends beyond formal permanent employment to affect overall employment levels and composition, as has been extensively documented in the literature on Peruvian and other labor markets. To a large extent these patterns result from differences in wage and non-wage costs between permanent employment and temporary (and informal) employment. Two measures that would reduce these differences without increasing the relative cost of formal employment are:

- **Reduce firing costs to increase incentives to hire.** Firing costs could be reduced in a number of ways. The most drastic approach would call for a reduction in severance payments. This measure could be applied only to new contracts or, alternatively, compensation for workers hired under the previous regime could be considered. Softer approaches could include an increase in trial periods for new workers and a more flexible use of "economic reasons" as a cause for firing.

- **Reduce non-wage costs.** Peru is among the countries in the region with the most generous legislation in terms of paid vacations, together with Brazil and Panama. This is not only very costly to employers (especially considering low labor productivity), but only a small percentage of workers actually enjoys the vacation period, suggesting that at current income levels workers are willing to sell leisure time for additional income. A more flexible approach could be to make vacation a function of the worker's experience or tenure and, hence, of labor productivity.

### **Providing Incentives for Formalization**

24. Peru's high level of informal employment is costly for households, firms and the government. Low productivity among informal businesses translates into lower earnings for those employed in the sector—average hourly labor income in the informal sector is 50 percent below that of the formal sector, even when similar workers in similar jobs are compared. Informal workers also lack access to employment-linked social protection, such as health and pension benefits or severance payments in the event of job loss. Although some of these workers may have voluntarily foregone such benefits in exchange for higher wages or more flexibility, more than 50 percent of the poor working in the informal sector do so involuntarily, according to surveys. Informal firms also face a number of costly obstacles, including limited access to credit, business associations, and government programs promoting economic activities and exports. From the government's perspective, non-compliance with labor and sales taxes among informal firms has a negative impact on fiscal revenues.

25. High levels of informality and low levels of formal permanent employment creation can be attributed to slow and costly business registration procedures, complex tax filing procedures for businesses, and inflexible labor regulation (particularly onerous on small firms). Policies directed at lowering (permanent) employment costs were discussed above. Other interventions aimed at providing incentives for formalization of small business and increasing their access to credit could include streamlining of:

- **Registration procedures for small firms.** A reduction of red tape to bring the cost of registration procedures in line with those of close competitors in and outside the region will make it easier for firms to comply with these requirements. Recently approved legislation to implement a special, simplified registration regime for micro and small firms and to allow these firms to pay lower contributions to the pension and health systems constitutes a step in this direction. Unfortunately the actual implementation of this and other changes contemplated in the new law has so far not yield the desired effect, with only 3,500 existing informal firms having formally registered. It would be important to understand the reasons for the limited impact of these measures.
- **Tax filing mechanisms.** A special, simplified filing regime for micro and small firms already exists, but these and other firms could benefit from further simplification. For instance, filing on the basis of readily observable business characteristics and according to pre-determined tax tables could be considered. These systems make it easier to file taxes for firms that do not rely on fully formal, and often costly, accounting and even firms that interact with a large number of informal partners.

### **Increasing Productivity of Small Informal Businesses**

26. While promoting formality in the private sector should be a priority, it is also a reality that the informal sector is very large in Peru. Approximately half of the working urban poor are self-employed, all of them informally, and an additional 30 percent work for micro or small firms, many of which are also informal. Similarly 40 percent of all informal entrepreneurs (self-employed or otherwise) are poor, compared to 15 percent of formal entrepreneurs. Thus, identifying the determinants of the productivity of

informal activities and implementing policies aimed at increasing this productivity are key in order to help the urban poor step out of poverty.

27. There is significant variation in the productivity of small, informal businesses, where productivity is measured as value added per worker. This variation can be attributed to differences in entrepreneur, worker and firm characteristics. As a result, lower levels of productivity among poor entrepreneurs and, consequently, lower wages among their employees can be explained by lower levels of education of both employers and workers, lower levels of market integration and lower access to basic infrastructure.

28. Differences between poor and non-poor entrepreneurs in terms of business practices and characteristics are not the product of independent factors but rather are inter-related. For instance the use of market-oriented practices, and access to capital and infrastructure are correlated with business location. Businesses that operate out of a commercial locale are more likely to use some form of accounting and to employ a larger share of paid workers than businesses that operate in the street or out of the entrepreneur's home. In addition access to machinery and other tools is higher among businesses in commercial or non-commercial locals than among those run in the street, while the use of a vehicle is much higher among the latter—partly due to its use as a substitute for a proper local. Finally, running a business from a commercial local is correlated with higher access to phone and water services.

29. Higher levels of productivity of informal self-employment and small businesses could then be achieved by:

- **Increase the level of skills of both entrepreneurs and salaried workers.** General increases in the skill level of the labor force can be achieved by investing in formal education (discussed in paragraph 40 below) and/or by improving the relevance and coverage of the training system. Training does not need to be provided by the public sector, but rather incentives can be put in place by the government for firms to contract the desired training with private, and properly accredited, providers. The existing ProJoven program, which provides training for young workers, could be extended to cover other demographic groups.
- **Increase access to commercial locales and the use of market-oriented practices.** Commercial spaces for small businesses in markets or other locations could be offered to those operating in the street in exchange for a rental (leasing) fee. This fee can be made to increase over time to both facilitate early investment and reflect potential future gains in productivity. Increased access to such spaces would serve as a platform for the economical provision of basic infrastructure and business services such as management and accounting practices, simplified access to credit, and legal services, which in turn translate into higher productivity. It would also contribute to the decongestion of those streets and areas where these businesses would otherwise operate, easing traffic and decreasing hazards.

## **ECONOMIC OPPORTUNITIES FOR THE RURAL POOR**

30. Rural households obtain most of their income from agricultural activities, but important differences exist between poor and non-poor households in terms of their income-generating strategies. Poor households tend to rely on agriculture exclusively, while non-poor households tend to also engage in non-agricultural activities. Moreover, poor households are more likely to rely on a single source of income, while non-poor households are better able to diversify income risk by not relying exclusively on one particular source. Roughly half of all rural households obtain all income from self-employment in the agricultural sector, while the rest combine agriculture with other types of work. Poverty rates are significantly higher among those employed in the agricultural sector (80 percent) than among those employed in the non-agricultural sector (60 percent).

31. Most of the variation in rural household income is explained by variation in non-agricultural income from salaried employment. Furthermore, the share of agricultural income declines as total income increases. Although these stylized facts seem to suggest that non-agricultural employment provides an exit out of poverty, in reality most rural households tend to obtain income from both the agricultural and non-agricultural sectors—i.e. they rely on income-generating strategies rather than on particular sectors or activities. A household's ability to implement a profitable income-generating strategy determines its poverty status.

32. Participation in these income-generating strategies is a function of household characteristics and endowments. Better household endowments (such as higher education) and access to infrastructure and public services allow households to use strategies that include non-agricultural activities, while ownership of agricultural assets and lack of liquidity make it more costly for households to abandon strategies that include agricultural activities.

33. At the household level, both agricultural productivity and labor income are positively correlated with human capital (such as higher education), access to credit and to basic services, telecommunications and road infrastructure. At the regional level the returns to agricultural and salaried activities depend on the deepness and dynamism of regional markets and on overall levels of productivity. Population density and access to infrastructure are higher in the Costa than in other areas, despite important improvements during the 1990s in the Sierra and the Selva. Both factors could potentially contribute to create more integrated and dynamic markets in rural areas, as well as to better connect rural and urban areas. Therefore, investments aimed at improving access to assets, services and markets in those areas that are lagging behind must be undertaken in order to overcome regional differences.

34. Three important issues must be kept in mind when assessing policy options for the rural sector. First, the nature of rural poverty is heterogeneous and varies significantly across regions, so that interventions and projects need to take into account local specificities to ensure maximum effectiveness. Second, because land is scarce relative to the population it has to support and agricultural productivity is low, many of those currently employed in agricultural activities will have to dramatically improve their productivity or abandon agriculture in order to escape from poverty. This implies that a rural development strategy for Peru must be multi-sectoral and consider the interaction between agricultural and non-agricultural activities. Third, it is important to note that there already exist several programs in rural areas that support interventions in the areas identified above and that provide a structure through which the government can work towards the goal of rural inclusive growth. These programs, however, suffer from several problems that need to be addressed if further interventions are to be effective.

35. With the above considerations in mind, three key areas require government action if the rural poor are to benefit from the economic opportunities generated by overall economic growth:

- **Integrate rural areas into national markets to increase economic opportunities.** The most obvious actions to facilitate contacts between agents and the transport of merchandise between rural and urban areas are simply to improve the road network, particularly secondary and tertiary road systems, to allow producers to get their products to market quickly and inexpensively, and to invest in telecommunications in rural areas, to allow rural dwellers to have timely access to relevant market information. The public sector can also take actions to facilitate knowledge and technology transmission from urban to rural areas, and to develop stable economic relationships that ensure a constant demand of agricultural and non-agricultural products for industrial processing and/or exports, and create incentives for producing in bulk.
- **Improve access to credit among rural producers.** Rural credit is restricted by the difficulties of many producers, particularly those in small farms, to comply with the administrative and guarantee requirements of financial institutions. As a result most existing credit is informal, or provided by

small loans and savings cooperatives. These cooperatives need to be strengthened and so do other institutions with similar goals, such as women's credit groups. Credit regulations need to be modified to allow for the use of family assets, such as machinery and livestock, as collateral, while taking care of not increasing credit risk and defaults by complementing increased access with better monitoring. At the same time efforts to increase land titling should continue. Provisions should also be made to account for the high prevalence of communal property of land among the indigenous population, and the negative impact that this may have on the capacity of the individuals in these communities to access credit.

- **Increase human capital levels in rural areas.** Improving educational levels and standards in rural areas can be achieved through a series of interventions including: (i) expanding bilingual education through the provision of adequate teaching and learning materials and the recruitment and training of Quechua-speaking teachers; (ii) expanding secondary education, either through formal schooling or through distance learning; and (iii) creating incentives for school attendance through conditional cash-transfer programs or improvements in the feeding and nutrition programs offered in schools (a more detailed discussion on the issue of education is provided in paragraph 40 below). Technical assistance can also be improved. Some public extension services are provided by INCAGRO, PRA and FONCODES, but a large number of small farmers and the rural poor are still excluded due to their high cost. Further efforts to support the provision of demand-driven technical assistance, accompanied by marketing and managerial assistance are then necessary.

#### ACCESS TO PUBLIC SERVICES AND INSTITUTIONS

36. Access to public services is a cross-cutting issue, essential to help the poor build human capital and also to protect the vulnerable, both in rural and urban areas. It is also an area directly susceptible to policy choices, and is hence a likely target for improvements to help improve links between economic growth and poverty reduction. Access to public services such as health care, education, and social protection is low among the poor, among indigenous groups, and in rural areas. The poor are also less likely than the non-poor to come in contact with various public institutions, ranging from central and local government offices to public banks to the judiciary system.

37. This report does not offer an in-depth analysis of the education, health and social protection sectors (such discussion can be found in Peru: Accountability in the Social Sectors, 2005), but instead notes some of the main issues in these areas, specifically as they relate to the problem of improving the human capital of workers seeking to pull themselves out of poverty.

38. The **education sector** exhibits a number of critical weaknesses that reduce its impact on the poor, in both urban and rural areas. On a broad level, many poor people find the opportunity cost represented by education to be not worth it, reducing the demand for education. Because education quality is low, and opportunities available after finishing school to be limited, many families prefer to have their children work and earn extra income, even if only a small amount, rather than attend school. This is particularly true in rural areas, which are underserved by good teachers who prefer to work in urban areas. As well, teacher absenteeism is very high in rural areas. Indigenous school attendance is especially low, in good part because adequate bilingual/bicultural curricula for the indigenous population are not sufficiently available. Another problem, also more pronounced in rural areas, is the limited supply of pre-school and secondary school, which have low enrolment rates.

39. Increasing the quality and coverage of education will require demand- and supply-side policies such as:

- **Promote increased demand for education.** Increases in the demand for education can then be induced by effectively lowering its costs (both direct and opportunity costs) through conditional cash-transfer (CCT) programs or scholarships, and through the implementation of flexible schooling schedules that allow children and youngsters to engage in other activities during the day. Peru has recently launched a CCT, Juntos (see Box 5.3 in the main report for details), and could learn from similar experiences in the region such as *Bolsa Familia* in Brazil, *Oportunidades* in Mexico, and *Bono de Desarrollo Humano* in Ecuador.
- **Improve the allocation and quality of teachers.** Incentives schemes aimed at increasing teacher attendance have been implemented in pilot form in rural areas. These schemes should be expanded to the national level and complemented with the provision of teacher training and materials, particularly in the areas of bilingual and multilevel education. It will also be important to ensure that the decentralization process does not hinder the capacity of the authorities to manage the sector's human resources effectively and efficiently.
- **Improve the supply and quality of bilingual education.** To improve school attendance by indigenous students, especially indigenous girls, increase the number of teachers trained in bilingual and multi-level education, and develop and distribute the relevant school materials to these schools. Looking ahead, efforts towards the elimination of cultural barriers to access should take advantage of the increased accountability of the sector towards local authorities and users brought about by the decentralization process.
- **Increase the supply of pre-school and secondary education.** Improvements in the supply of pre-school education can be achieved through non-formal schooling modalities such as women-operated child education centers, which receive training and financial support from the government in exchange for the provision of basic education services. Improvements in the supply of secondary education can be obtained through alternative, more flexible schooling modalities, such as distance learning.

40. The health sector also faces both demand- and supply-side obstacles to having a greater impact improving the lives of the poor. The *Seguro Integral de Salud* (SIS), which eliminates user fees by reimbursing public providers on a fee-for-service basis for all variable costs incurred during the provision of a basic benefit package (mainly essential drugs and medical supplies), has been an important step in improving access of the poor to basic health care, but cost is still a problem for many poor people. The indigenous population is also underserved by the health care system, in part because not all health clinics are sensitive to cultural issues related to health care for the indigenous. Administrative issues are also a problem: health services are provided by different suppliers in Peru, including the Ministry of Health (MSP) and the ESSALUD. The existence of multiple providers with different mandates can potentially cause inefficiencies in the allocation of resources and in the use of existing capacity.

41. As is the case with education, increasing the quality and coverage of health services requires demand- and supply-side interventions such as:

- **Increase the demand for health services by lowering costs for the poor.** While SIS has been an important innovation, further efforts are needed to reduce direct and opportunity costs for health care for the poor. Making health services more accessible to the poor and particularly to those who are more vulnerable among them, such as mothers, infants and the elderly, should be a priority. SIS should also reduce excessive resource allocations to tertiary care, and focus on the primary and secondary levels. The government should consider expanding subsidized services and/or instituting a conditional cash transfer program related to health care.
- **Reduce cultural barriers in health care.** Better accommodating the cultural expectations and beliefs of indigenous people within the health system can eliminate or at least mitigate the impact of cultural barriers. The adoption of the CLAS model in 1994, based on the participation of local

communities in the planning and management of primary health care centers, has constituted an important move in this direction, and should be expanded.

- **Increase the efficiency of and coordination among public health providers.** In order to increase efficiency in the health system, the MINSA has signed a series of management agreements with regional health authorities. These agreements link resources to performance and outcomes. Looking ahead, the main challenges regarding the management agreements include the monitoring and publication of performance results. In addition, in order to maximize the use of existing capacity the MSP has sought better coordination with ESSALUD. This has proved politically difficult, but efforts should continue. This will be particularly important in an increasingly decentralized environment where the risk of fragmentation in the system may rise significantly.

## **EXPOSURE TO RISK AND SOCIAL MOBILITY**

42. Low productivity, low income levels and limited economic opportunities are not the only barriers the poor must surpass. Restricted capacity to hedge against risk through income diversification and to save makes the poor more vulnerable to shocks. Similarly low levels of social mobility, measured as the correlation between parental background and children's outcomes, tend to perpetuate existing inequalities in terms of income and endowments.

### **Risk and vulnerability**

43. Approximately 20 percent of all households reported that they suffered a shock in 2003. Both poor and non-poor households were subject to shocks and were likely to lose income and assets as a consequence of these shocks. Economic shocks were more prevalent in urban areas, while natural disasters were more frequent in rural areas. In addition, within urban and rural areas, poor households were more likely to experience natural disasters and accidents, while non-poor households were more likely to suffer economic shocks.

44. In coping with shocks, poor households tended to use behavioral strategies, such as increasing labor supply or cutting down consumption, while non-poor households were more likely to rely on assets-based strategies, such as reducing savings, or market-based strategies, such as requesting a loan or cashing an insurance policy.

45. The strategies implemented by the poor were less effective than those of the non-poor in helping households overcome the impact of shocks. There are limits to the effectiveness of the behavioral strategies used by the poor since individuals can only work so many hours and since it is difficult to bring consumption under the subsistence level. Households that are closer to these limits at the time of a shock will find it harder to overcome its effects. Because these households tend to be the neediest, this creates a vicious circle of poverty and vulnerability. Consequently, interventions aimed at increasing poor households' capacity to save and to access financial markets, as well as their access to effective safety nets can go a long way in breaking this vicious circle.

46. Enabling the poor help themselves in the face of shocks will require interventions aimed at broadening their assets base, increasing their access to financial services and instruments, and facilitating the use of income or catastrophe insurance. Further, public-sector safety nets for the poor should improve targeting and their ability to react quickly to crises.

- **Help the poor broaden their asset base.** Apart from interventions directed at increasing the productivity and earnings of the poor (discussed above), the government should take measures to improve access to and security of housing and land, often the most valuable asset held by the poor. Increasing access to adequate housing in urban areas and promoting housing and land titling in both urban and rural areas would allow poor households to use them as collateral for credit if necessary.

Titling would also go a long way in activating what are currently very thin housing and land markets, especially in rural areas, and thus increasing the value of these assets when liquidity is needed. A further option is to improve public transfers to the poor through a conditional-cash transfer program, a step Peru is currently considering (see Box 5.3 in the main report). These programs serve the double objective of providing short-term poverty alleviation and promoting medium-term human capital investments.

- **Increase access to financial services.** Bridging the gap that exists between the poor and the banking system could be done by expanding ATM services to poor areas, and by providing financial literacy programs for poor households. Increased contact between poor households and the banking system could also be achieved by channeling social program payments through banks, as is done for example in Ecuador in the case of the *Bono de Desarrollo Humano*. Special financial instruments catering to the poor could also be created, for example savings accounts that pay lower returns but do not require a minimum balance, or community-based instruments such as rotating saving and credit schemes.
- **Facilitate access to income and catastrophic insurance for the poor.** Income insurance can be provided in the form of temporary workfare programs, of which Peru's *A Trabajar* is an example, or as non-contributory pensions in the case of older or disabled individuals—an option whose fiscal sustainability would have to be carefully examined prior to its implementation. Involving private insurance companies may be possible. Poor households can access catastrophic insurance through the government or through private providers. Although provision of disaster insurance by the private sector is fairly common in developed countries and among well-off households, irregular settlements, lack of housing and land titles and sub-optimal housing makes the poor hard to insure. There exist, however, successful experiences in this regard in urban areas, such as that of Manizales in Colombia, that can offer useful lessons.
- **Increase access to effective safety net programs for the urban and rural poor.** The implementation of a non-contributory minimum pension system for the needy elderly could help prevent the risk of poverty in old age, subject to the fiscal sustainability constraint mentioned above. Similarly programs that understand the determinants of youth risk (individual characteristics, family background, peer and neighborhood effects) and emphasize prevention (e.g., minimizing future income risk by providing incentives for secondary education completion) can help reduce vulnerability and risk among youth. Further, job search and placement programs and day care services for poor mothers can increase labor market participation among poor households, especially in urban areas. In the rural sector, interventions such as introducing new seeds and pasturing varieties and offering basic agricultural training can help improve food security and nutritional levels in times of crisis.

## Social mobility

47. Social mobility, measured as the relationship between parental and children's characteristics and proxied by education and occupational mobility is low and persistent in Peru. Recent increases in mobility have been the result of across-the-board gains in educational attainment and changes in the productive structure of the economy, rather than the result of higher equality of educational and economic opportunities, and have been concentrated in the middle of the (income) distribution.

48. In a country where inequality levels are still high, this has important policy implications. The fact that most progress has been driven by general increases in access shows that supply measures, such as school construction and a higher number of teachers, have been effective in getting and retaining more children in schools. On the other hand, evidence that little progress has been made regarding the "democratization of education" indicates that there is room for alternative types of interventions that directly attempt to transform the relationship between socio-economic and cultural background on the one hand, and education achievement on the other—that is, demand interventions, such as income-based scholarships, conditional cash-transfers, and interventions that address cultural differences, such as



bilingual education (discussed above). Given that social exclusion continues to be a problem for certain groups, tackling the issue of social mobility, through the promotion of education mobility, becomes a priority.



## INTRODUCTION

Peru faces high levels of poverty and inequality, and poverty has been slow to respond to the country's impressive economic growth in recent years. The main focus of this report is to explain why growth has not translated into more rapid poverty reduction. This report also points to a number of obstacles that inhibit economic growth from leading to greater poverty reduction in Peru, and which should be addressed by government policy reforms. The report is structured as follows. Chapter 1 presents a poverty and inequality update and discusses poverty and inequality trends for 1997-2004. Chapter 2 analyzes the nature of economic growth and its impact on poverty and inequality. Chapter 3 discusses the nature, distribution and evolution of poverty in Peru during 1997-2003. Chapters 4 and 5 focus on the productive sectors in urban and rural areas respectively, and discuss policies aimed at increasing economic opportunities for the poor. Lastly, Chapter 6 examines the issues of vulnerability, measured as exposure to shocks, and exclusion, measured as (the lack of) social mobility and access to basic services, infrastructure and public institutions.



## **1. POVERTY AND INEQUALITY IN PERU, 1997-2004**

1.1 The first step towards a comprehensive analysis of poverty and inequality and their determinants, both in a static and a dynamic context, is to get the poverty and inequality facts straight. How many people are poor or extremely poor in Peru? Are inequality levels high compared to other countries in the region and the world? How have poverty and inequality changed over time?

1.2 In this chapter we present poverty and inequality figures to answer these questions. The first section examines the latest available poverty and inequality numbers for Peru using data from the Encuesta Nacional de Hogares 2004/5 (ENAH0), while the second section discusses poverty and inequality trends for 1997-2004. Because the ENAH0 has undergone significant methodological improvements over the years covered by this report, the second section also presents a brief discussion on methodological issues regarding the construction of time-consistent poverty and inequality figures using these data.

1.3 The main finding of the chapter can be summarized as follows:

- Poverty and inequality are high in Peru. In 2004 51.6 percent of the population was poor and 19.2 percent was extremely poor. Although international comparisons are difficult due to the use of different poverty lines across countries, Peru's poverty levels are below those of Ecuador and Colombia, but above those of Argentina and Brazil based on a US\$2/day poverty line. Poverty and extreme poverty are higher in rural than in urban areas. They are also higher in the Sierra and the Selva than in the Costa. Inequality, measured by the Gini coefficient, stood at 0.43. This is lower than the regional average but high for international standards.
- Poverty increased significantly as a consequence of the 1998/9 economic crisis, and has been slow to respond to the country's impressive economic growth in recent years. Between 2001 and 2004 the national poverty rate declined from 54 to 51.6. In contrast extreme poverty and inequality remained constant during 1997-2000 and have improved significantly since. This improvement, however, results from declines in rural poverty only.

### **POVERTY AND INEQUALITY UPDATE**

1.4 For the purpose of this report we measure poverty and inequality on the basis of consumption, rather than income. This responds to a number of reasons, the most important of which being that consumption fluctuates less than income during the year and that people tend to report consumption more accurately than income.

1.5 We construct poverty measures using data from the Encuesta Nacional de Hogares (ENAH0), administered by the Instituto Nacional de Estadísticas e Información (INEI). Although the ENAH0 is not the only nationally representative household survey that contains information on income and consumption, it is the survey that provides the most up-to-date information—2003, compared to 2000, the last year for which the Encuesta de Nacional Niveles de Vida (ENNIV), administered by Cuánto, is available.

### **Poverty and Inequality in Peru in 2004**

1.6 Over half the population of Peru is poor and about a fifth is extremely poor, according to data from the ENAH0 2004/5<sup>7</sup>. These figures, however, hide important differences across urban and rural areas, regions and departments. Poverty and extreme poverty are significantly lower in urban than in

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7. These figures measure poverty and extreme poverty during January-December 2004, using data collected during ENAH0 2003/4 (May 2003-April 2004) and ENAH0 2004/5 (May 2004-April 2005).

rural areas, and so are their depth, measured by the poverty gap, and severity. Across regions poverty is lowest in Metropolitan Lima and highest in the Sierra, and the same can be said about extreme poverty, and the depth and severity of poverty (Table 1.1). Similarly, poverty and extreme poverty rates vary significantly across departments. Poverty and extreme poverty are highest in Huancavelica, at 88 and 74 percent respectively, and they are lowest in Madre de Dios, at 20 and 5 percent respectively (Figure 1.1).

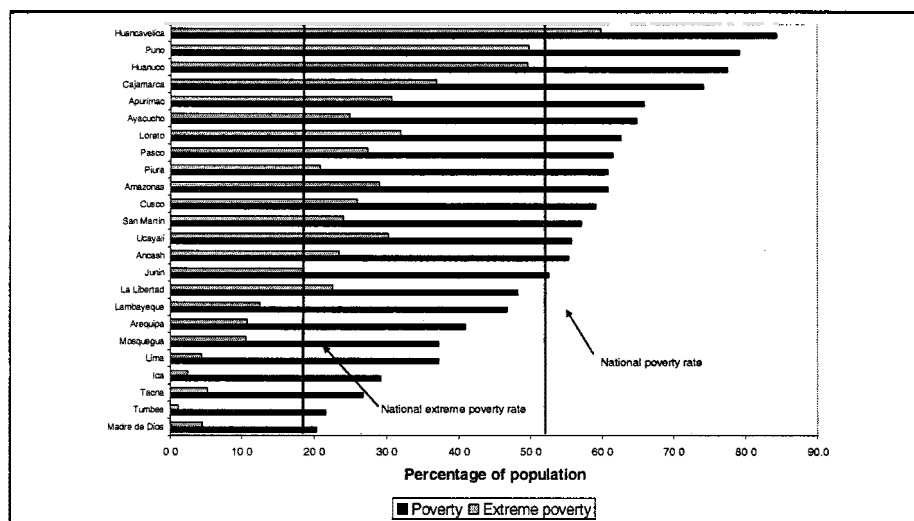
**Table 1.1: Poverty indicators in 2004**

	Poverty			Extreme poverty			Gini
	Headcount	Gap	Severity	Headcount	Gap	Severity	
<b>National</b>	51.6	18.0	8.4	19.2	5.3	2.1	0.43
<b>Area of residence</b>							
Urban	40.3	12.4	5.3	7.9	1.8	0.7	0.39
Rural	72.5	28.3	14.1	40.3	11.7	4.8	0.32
<b>Natural region</b>							
Urban Costa	37.1	10.6	4.5	6.2	1.4	0.5	0.34
Metropolitan Lima	36.6	10.4	4.1	3.4	0.6	0.2	0.40
Rural Costa	53.5	16.4	7.0	14.6	3.1	0.5	0.32
Sierra	67.7	27.2	13.9	36.5	10.9	4.5	0.39
Selva	59.5	19.7	8.8	26.4	6.3	2.2	0.36

*Source:* Authors' calculations using data from ENAHO 2004 (INEI)—Annual sample covering the period January to December 2004.

1.7 The level of inequality in Peru is lower than the regional average, but it is high by international standards (De Ferranti et alia, 2004). Moreover inequality, as poverty, varies significantly across urban and rural areas and across regions. Urban areas appear to be slightly more unequal than rural ones, mostly due to high inequality levels in Metropolitan Lima. Across regions, the Sierra and Metropolitan Lima exhibit the highest inequality levels (Table 1.1).

**Figure 1.1: Poverty and extreme poverty rates vary across departments**



*Source:* Authors' calculations using data from ENAHO 2004 (INEI)—Annual sample covering the period January 2004-December 2004.

## **POVERTY AND INEQUALITY TRENDS IN PERU, 1997–2004**

1.8 In this section we examine changes in poverty and inequality over the 1997–2004 period. In constructing poverty and inequality trends we must account for the fact that the ENAHO has undergone a series of methodological improvements during the last few years that make it impossible to consistently compare raw average poverty figures over time. We briefly describe below the most significant methodological changes introduced in the survey since 1997 and discuss a series of empirical strategies that can be implemented in order to ensure comparability of information across time and space. We then present and compare poverty and inequality trends constructed using these different strategies.

### **Methodological changes in the ENAHO and implications for poverty and inequality comparisons**

1.9 The ENAHO has undergone a series of methodological improvements during the last few years. These changes include (i) the adoption of a new sampling framework to account for newly-developed areas, (ii) a revision of the way the poverty line is calculated and updated over time, and (iii) a modification in the periodicity of the survey. As a result of these changes it is impossible to compare *raw* poverty and inequality figures between 1997–2000 and 2001–04.

1.10 Although these changes have undoubtedly improve the quality and relevance of the survey they pose important empirical challenges for those interested in analyzing time trends before and after the changes were implemented. We pay attention here to two of these changes (points (i) and, particularly, (iii)), while more a detailed discussion on the motivation for and the specifics of these and other changes is presented in Annex 1.

#### ***Change in the sampling framework***

1.11 In 2001 the INEI replaced the existing sampling framework of the ENAHO based on the 1993 Population Census with a new one based on the 1999 Pre-Census. Under the new framework a series of newly developed areas, mostly urban, were included in the ENAHO sample. Although the inclusion of these new areas contributed to improve the representativeness of the ENAHO, it meant that the raw poverty figures obtained from the survey were not comparable over time. The INEI then developed mechanism to re-weight the 2001–2003 samples in order to make them comparable to the 1997–2000 (i.e. the corrected sample weights eliminated the new areas and increased the relative weights of the old areas). These comparable figures, however, are somewhat sub-optimal because they do not take into account the standards of living of households in the newly developed areas—i.e. they are not nationally representative.

#### ***Changes in the survey periodicity***

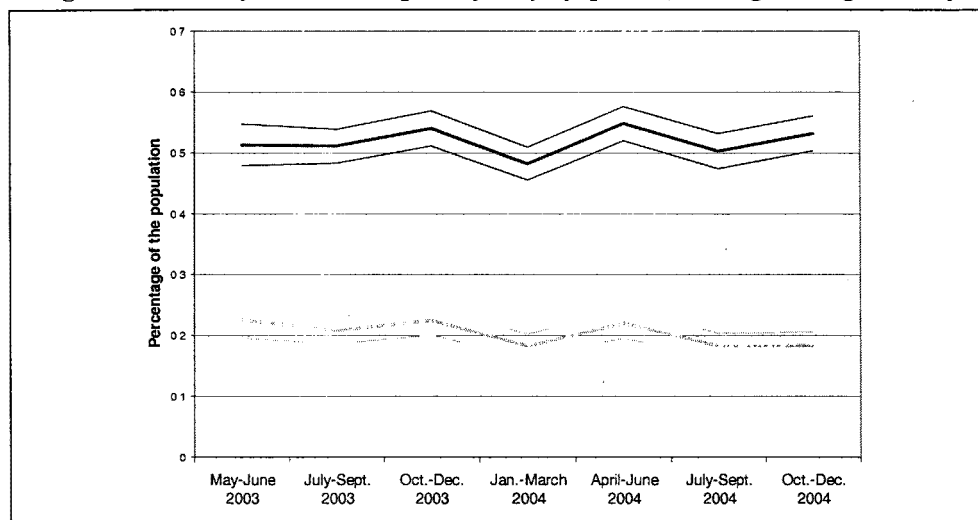
1.12 In 2003 the INEI transformed the ENAHO into a continuous household survey. This change implied that during the collection of ENAHO 2003/4 and ENAHO 2004/5 a small number of households were interviewed each month during May 2003 (2004)–April 2004 (2005) up to a total of 20,000 interviews in the year. In previous years a similar number of households were interviewed but only during the fourth quarter. As a result information on household income and consumption, on which poverty calculations are based, is available on a monthly basis for May 2003 (2004)–April 2004 (2005) in the ENAHO 2003/4 (2004/5) but only for October–December in the ENAHO 1997–2002. The question then arises as to what information to use in order to compare poverty and inequality between 2002 and 2003.

1.13 Several authors have documented that income and consumption levels vary significantly across quarters within the same years using household survey data for China and selected Eastern European

countries (World Bank, 2003c; Gibson *et alia*, 2001). If this is the case poverty and inequality comparisons across time must take seasonality into account. This can be done in different ways. We can compare poverty figures for a specific season or period of time *only*. In the case of the ENAHO this implies constructing poverty and inequality trends based on data for the fourth quarter only (i.e. 1997.IV–2004.IV) since data is only available for this quarter in 1997–2002. This is the approach followed by Casas and Yamada (2005) and others.

1.14 Alternatively we can try to control for seasonality by adjusting income and consumption levels across seasons before comparing them over time. A simple visual examination of the ENAHO 2003/4 and ENAHO 2004/5 data suggests that average income and consumption levels vary across quarters (Figure 1.2), and a statistical test rejects the null hypothesis of no seasonality for at least the national and urban extreme quarterly poverty rates (Casas and Yamada, 2005). This lack of conclusiveness has to be interpreted with caution, however, because the quarterly sample size is small, and thus standard errors associated with quarterly estimates are large, and because the test is performed using only eight data points. As a result a more formal and conclusive examination of the existence of a seasonal pattern for Peru requires a longer time series.

**Figure 1.2: Poverty and extreme poverty vary by quarter, although not significantly**



Source: Authors' calculations using data from ENAHO 2003 and 2004 (INEI). From May 2003 to December 2004.

### ***Proposed strategies***

1.15 Given the changes discussed above and the comparability problems they pose we propose a series of alternative empirical strategies for the construction and comparison of poverty and inequality data for 1997–2004. A brief description of these strategies follows and the results that each one generates are presented in the next section.

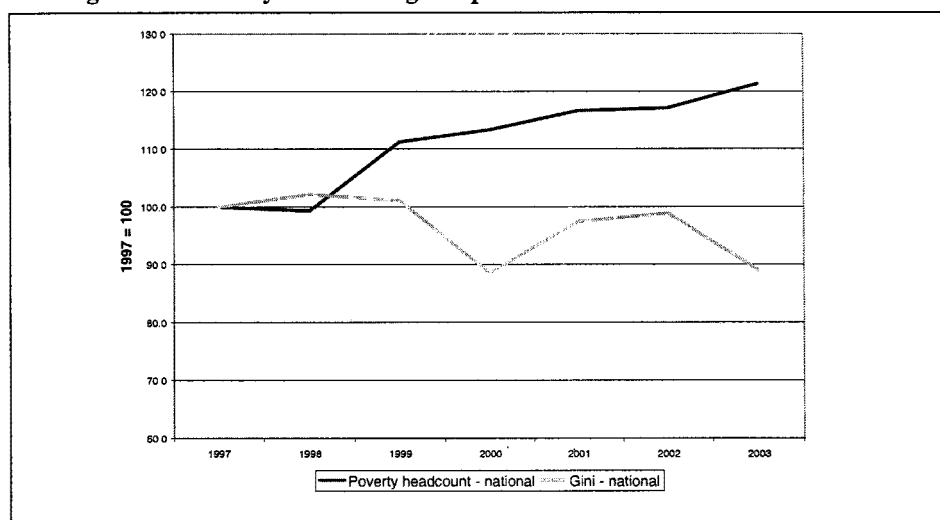
1.16 We start by using the corrected sample weights constructed by the INEI to compare information between 1997–2000 and 2001–03. Poverty and inequality trends constructed in this way are consistent over time but, because they exclude those living in newly developed areas, have the serious disadvantage of not being nationally representative. For this reason we present these figures in order to give a first approximation to the evolution of poverty and inequality during this period, but rely on the “uncorrected” 2001–2004 numbers for the rest of the analysis.



1.17 Using the “uncorrected” numbers we then present two sets of comparisons. We first examine figures based on data from the fourth quarter only. Because information is collected during the same time period each year these figures are not affected by potential seasonal variation in income and consumption. The scope of this comparison, however, is limited because the small sample size of the ENAHO 2003.IV and the ENAHO 2004.IV only allows us to construct poverty and inequality figures at the national level and for urban and rural areas separately. In order to be able to examine trends at a more disaggregated level we need to use all data from the ENAHO 2003/4 and the ENAHO 2004/5. We do this in our second set of comparisons.

1.18 Finally we calculate 12-month moving averages for various poverty measures for the period May 2003–December 2004. The exercise then generates 9 data points that closely trace the evolution of poverty and inequality over a period of 20 months while correcting for potential seasonality since they all contain observations for all 12 months.

**Figure 1.3: Poverty trends using comparable data from ENAHO 1997–2003**



*Note:* Extreme poverty figures for 2000 are not entirely comparable to those of 1997–1999 due to the impact of no-responses in the lower part of the income distribution.

*Source:* Authors' calculations using data from ENAHO 1997–2003 (INEI).

### Evolution of Poverty and Inequality Trends, 1997–2004

1.19 In this section we examine the evolution of poverty and inequality in Peru during 1997–2004<sup>8</sup>. We pay attention to national trends, trends in urban and rural areas and trends in different regions. We also examine changes in poverty and extreme poverty at the departmental level. In doing so we use the four different empirical strategies discussed above:

- (i) Trends based on “corrected” sampling weights for ENAHO 2001–03 (Figure 1.3),
- (ii) Trends based on data from the fourth quarter only (Columns 1 to 7 in Tables 1.2a and 1.2b). This is the methodology applied by Casa and Yamada (2005) and others.
- (iii) Trends based on data from the fourth quarter for 1997–2002 and on annual data for 2003 and 2004 (Columns 1 to 6 and column 8 in Tables 1.2a and 1.2b). This is the methodology applied by INEI.

8. A detailed poverty profile is presented and discussed in Chapter 3.

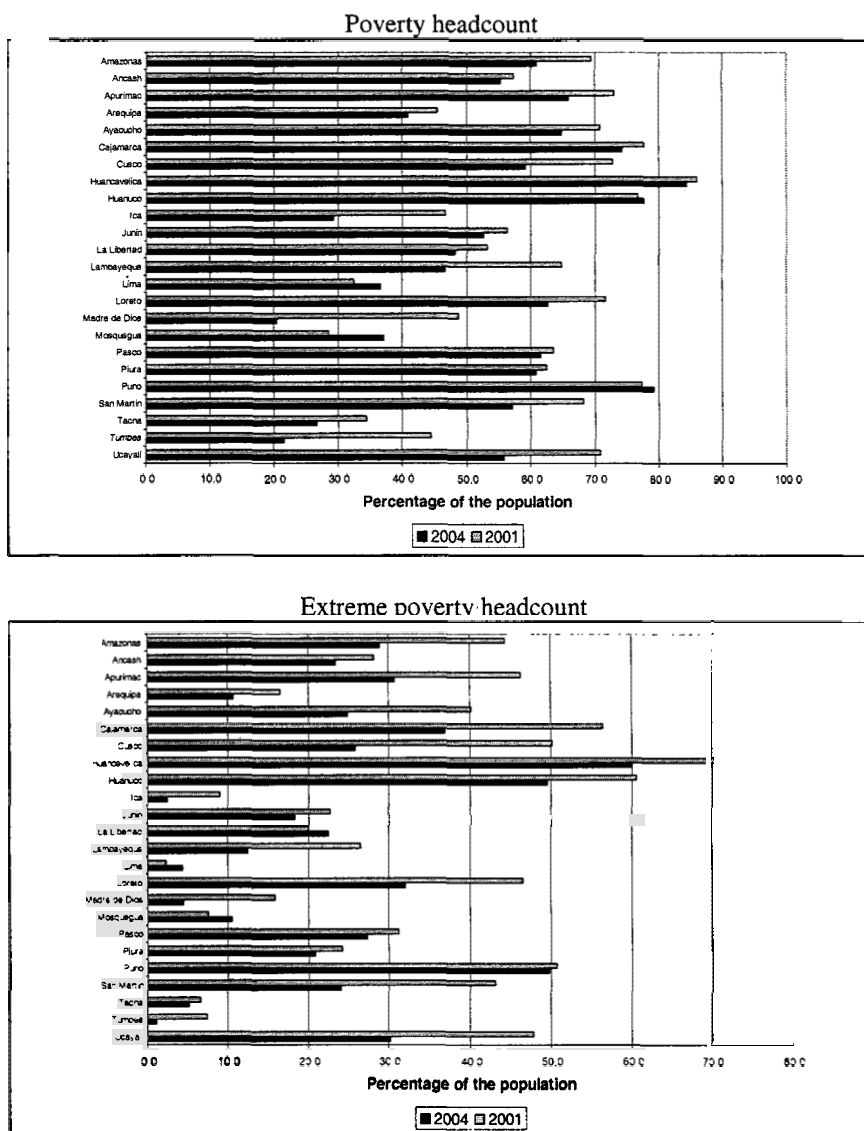
- (iv) Trends based on 12-month moving averages using data from May 2003 to December 2004 (Figure 1.4).

1.20 Our main results regarding strategies (i) to (iii) are summarized below and in Table 1.3:

- **National trends.** Results on national poverty and extreme poverty trends are fairly robust to the choice of an empirical strategy for the purpose of the comparison. All three data series suggest that poverty increased significantly between 1997 and 2000 as a consequence of the economic crisis, and remained stable afterwards. In contrast extreme poverty was unaffected by the crisis, and has declined significantly since 2001. When the full annual 2003 and 2004 samples are used for the comparisons a more positive picture appears regarding poverty changes between 2002 and 2004 with both poverty and extreme poverty coming down slightly.  
It is important to notice that 2001-2003 poverty and extreme poverty levels differ significant under strategy (i), on the one hand, and strategies (ii) and (iii) on the other. This is due to the introduction in the 2001-2003 samples of new developed areas. As we mentioned above these are mainly marginal urban areas so that households residing here are poorer than the average urban household and, as a result, their inclusion resulted in an overall increase in the poverty rate between 2000 and 2001. This increase, however, cannot be interpreted as a “real” increase in poverty since the pool of households being compared in 2000 and 2001 is different.
- **Urban and rural trends.** During 1997-2000 poverty increased and extreme poverty remained stable in both urban and rural areas. During 2001-2004 poverty rates stabilized and extreme poverty rates declined but only in rural areas. As was the case with national trends poverty and extreme poverty seem to decline the most when the full annual samples for 2003 and 2004 are used for the comparison, although these changes are small.
- **Regional trends.** Again increases in poverty took place across the board during 1997-2000 while extreme poverty rates remained constant. Changes in poverty and extreme poverty during 2001-2004 can only be calculated under strategy (iii) above. Using these data all regions except Metropolitan Lima saw some improvement in poverty rates. These changes were most significant in the Sierra. During this same period extreme poverty increased in Metropolitan Lima and declined in the Sierra and the Selva.
- **Departmental trends.** Changes in poverty and extreme poverty at the department level can only be calculated for 2001-2004 since the ENAHO is only representative at the regional level before then. During this period poverty and extreme poverty declined in most departments. Particularly significant were the declines in Ayacucho, Apurimac, Cuzco y Cajamarca, which are among the poorest departments in the country (Figure 1.4). Although these changes are not statistically significant due to the small size of departmental samples, they suggest that recent economic growth has benefited the poorest among the population—something that we confirm in the next chapter.

1.21 The main conclusions presented in Tables 1.2a, 1.2b and 1.3 do not vary when 12-month moving averages are considered in an attempt to control for potential seasonality in consumption and poverty figures, as explained above (Figure 1.5).

**Figure 1.4: Poverty and extreme poverty declined in most departments between 2001 and 2003**



Source: Authors' calculations using data from ENAHO 2001.IV and 2003/4 — Annual sample covering the period May 2003-April 2004 (INEI).

1.22 In addition recent improvements in extreme poverty and inequality have been accompanied by a reduction in the depth of poverty. The poverty gap, which measures the fraction of average per capita income that would have to be transferred to all poor individuals in order to bring them to the poverty line, declined from 20.9 to 18.3 percent between 2001 and 2004 (not shown). This improvement, however, was entirely driven by a decline in rural poverty depth from 35.6 to 27.2 percent, while urban poverty depth remained increased slightly from 13.0 to 13.6 percent.

**Table 1.2a: Poverty increased as a consequence of the 1998 crisis and remained stable afterwards...**

	(1) 1997	(2) 1998	(3) 1999	(4) 2000	(5) 2001 <sup>A</sup>	(6) 2002 <sup>A</sup>	(7) 2003 <sup>A</sup>	(8) 2004 <sup>A</sup>	(9) 2003 <sup>A</sup>	(10) 2004 <sup>A</sup>
	Fourth quarter									
	Poverty headcount									
<b>National</b>	42.7 (40.6-44.8)	42.4 (40.2-44.6)	47.5 (44.4-50.6)	48.4 (45.2-51.5)	54.3 (52.9-55.7)	53.8 (52.5-55.1)	54.0 (51.8-57.6)	53.1 (50.3-56.6)	52.2 (50.5-54.0)	51.6 (50.2-53.0)
<b>Population (1,000)</b>	10,535	10,651	12,126	12,552	14,477	14,683			14,755	15,015
<b>Area of residence</b>										
Urban	29.7 (27.2-32.1)	29.7 (27.2-32.2)	34.7 (31.2-38.2)	36.9 (32.9-41.0)	42.0 (40.3-43.6)	41.0 (39.3-42.8)	41.8 (37.2-45.1)	42.9 (38.7-46.1)	39.5 (37.2-41.9)	40.3 (38.5-42.2)
Rural	66.3 (62.8-69.9)	65.9 (62.4-69.5)	71.8 (66.6-77.0)	70.0 (65.5-74.4)	77.1 (74.7-79.5)	77.7 (75.9-79.4)	77.3 (73.0-81.0)	72.1 (68.5-76.6)	75.7 (73.7-77.7)	72.5 (70.6-74.4)
<b>Natural region</b>										
Urban Costa	28.9 (23.3-32.0)	28.8 (27.3-35.9)	35.2 (29.9-43.1)	39.1 (28.7-43.5)	44.2 (41.1-47.2)	42.3 (39.5-45.0)			37.4 (33.8-40.9)	37.1 (34.0-40.2)
Metropolitan Lima	25.4 (21.1-29.8)	24.1 (19.5-28.6)	31.4 (25.8-36.9)	38.9 (31.7-46.1)	31.8 (29.0-34.6)	34.2 (31.0-37.3)			33.7 (29.6-37.9)	36.6 (33.4-39.7)
Rural Costa	33.1 (43.4-60.2)	34.7 (35.9-54.6)	39.9 (42.3-61.7)	39.4 (40.9-60.5)	61.4 (50.5-72.3)	63.3 (57.9-68.8)			62.4 (56.2-68.7)	53.5 (47.5-59.6)
Sierra	60.5 (57.0-64.0)	59.7 (56.3-63.2)	64.0 (58.2-69.8)	59.0 (54.0-63.9)	70.6 (68.5-72.7)	70.0 (68.2-71.9)			68.6 (66.4-70.8)	67.7 (65.8-69.7)
Selva	47.1 (42.4-51.9)	48.6 (43.7-53.4)	52.2 (46.4-58.0)	56.9 (49.6-64.2)	69.8 (66.6-73.1)	64.9 (62.1-67.7)			64.1 (60.8-67.4)	59.5 (56.6-62.4)

*Note:* <sup>A</sup> Figures for 2001-2004 are not comparable to figures for 1997-2000.

*Source:* Authors' calculation using data from ENAHO 1997-2004 (INED). Columns 1 through 8 use data from the fourth quarter (1997.IV through 2004.IV). Columns 9 and 10 use the complete annual samples for 2003 (May 2003-December 2003) and 2004 (January 2004-December 2004) respectively.

**Table 1.2b: ... while extreme poverty was unaffected by the crisis and has improved since.**

	(1) 1997	(2) 1998	(3) 1999	(4) 2000	(5) 2001 <sup>A</sup>	(6) 2002 <sup>A</sup>	(7) 2003 <sup>A</sup>	(8) 2004 <sup>A</sup>	(9) 2003 <sup>A</sup>	(10) 2004 <sup>A</sup>
	Fourth quarter									
	Extreme poverty headcount									
<b>National</b>	18.2 (16.4-19.9)	17.4 (15.7-19.2)	18.4 (15.7-21.1)	15.0 (12.5-17.6)	24.1 (22.8-25.4)	24.2 (23.0-25.3)	22.5 (20.3-25.0)	18.3 (16.5-21.6)	21.9 (20.4-23.3)	19.2 (18.1-20.3)
<b>Population (1,000)</b>	4,482	4,357	4,702	3,901	6,425	6,517			6,549	6,664
<b>Area of residence</b>										
Urban	5.3 (4.2-6.3)	5.2 (4.1-6.4)	4.7 (3.2-6.3)	4.1 (2.5-5.6)	10.2 (9.2-11.3)	9.4 (8.4-10.3)	8.6 (6.5-10.8)	7.8 (5.2-9.4)	8.9 (7.5-10.3)	7.9 (6.9-8.9)
Rural	41.5 (37.4-45.7)	40.0 (36.0-43.9)	44.4 (38.6-50.2)	35.6 (29.9-41.4)	49.8 (46.6-53.1)	51.7 (49.4-54.0)	49.0 (44.6-54.8)	37.7 (32.1-42.2)	45.9 (43.0-48.7)	40.3 (38.0-42.6)
<b>Natural region</b>										
Urban Costa	4.8 (2.2-6.0)	4.9 (2.3-7.2)	4.9 (1.3-8.0)	4.5 (2.5-11.5)	8.5 (6.5-10.4)	8.9 (7.1-10.7)			7.3 (4.5-10.0)	6.2 (4.9-7.5)
Metropolitan Lima	2.3 (0.9-3.8)	2.4 (1.0-3.7)	2.7 (0.6-4.8)	1.6 (0.0-3.1)	2.0 (1.0-3.1)	2.8 (1.8-3.8)			2.6 (1.4-3.8)	3.4 (2.3-4.5)
Rural Costa	7.9 (13.8-27.9)	8.1 (12.0-26.4)	7.8 (11.0-26.0)	8.3 (4.8-20.3)	20.1 (13.0-27.1)	27.1 (21.4-32.8)			21.4 (15.9-26.8)	14.6 (10.6-18.6)
Sierra	35.5 (31.5-39.4)	34.9 (31.2-38.6)	37.6 (31.6-43.6)	27.5 (22.0-33.0)	43.2 (40.6-45.9)	43.9 (41.7-46.1)			40.8 (38.0-43.5)	36.5 (34.2-38.7)
Selva	22.2 (18.0-26.4)	18.9 (14.7-23.1)	20.5 (15.3-25.7)	23.4 (16.1-30.7)	42.7 (38.8-46.6)	37.0 (33.9-40.1)			32.3 (28.4-36.2)	26.4 (23.6-29.3)

*Note:* <sup>A</sup> Figures for 2001-2004 are not comparable to figures for 1997-2000.

*Source:* Authors' calculation using data from ENAHO 1997-2004 (INEI). Columns 1 through 8 use data from the fourth quarter (1997.IV through 2004.IV). Columns 9 and 10 use the complete annual samples for 2003 (May 2003-December 2003) and 2004 (January 2004—December 2004) respectively.

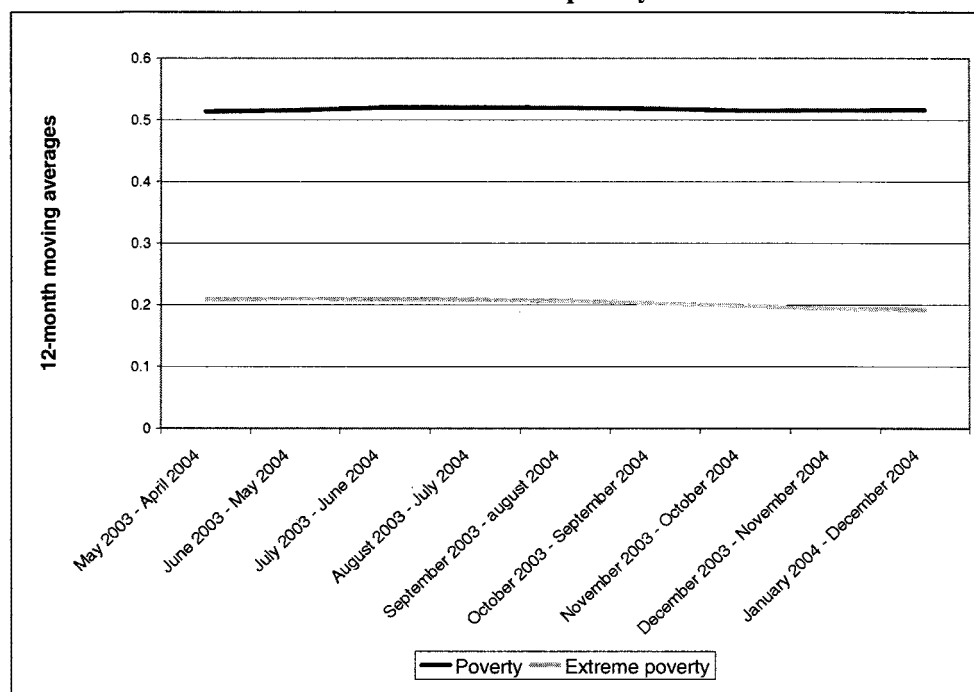
1.23 Finally consumption inequality increased during 1997-2000 and has declined since. This decline, however, has taken place only after 2002 as the improvements in extreme poverty in both urban and rural areas have consolidated (Table 1.4).

**Table 1.3: Summary of changes in poverty and extreme poverty under different strategies**

	1997-2000	2001-2004 (QIV)	2001-2004 (QIV+annual)	1997-2000	2001-2004 (QIV)	2001-2004 (QIV+annual)
	Poverty headcount			Extreme poverty headcount		
<b>National</b>	+	=	-	=	=	-
<b>Area of residence</b>						
Urban	+	=	=	=	-	=
Rural	+	=	-	-	-	-
<b>Natural region</b>						
Urban Costa	+		-	=		-
Metropolitan Lima	+		+	=		-
Rural Costa	+		=	=		=
Sierra	+/=		-	-		-
Selva	+		-	=		-

Source: Authors' calculation using data from ENAHO 1997-2004 (INEI).

**Figure 1.5: When controlling for seasonality using 12-month moving averages, poverty remains stable and extreme poverty declines**



Source: Authors' calculation using data from ENAHO 1997-2004 (INEI).

**Table 1.4: Inequality increased in 1997-2000 and has declined since**

	National	Metropolitan Lima	Other urban areas	Rural areas
1997	0.46	0.42	0.38	0.36
1998	0.47	0.44	0.37	0.36
1999	0.47	0.44	0.37	0.34
2000 <sup>A</sup>	0.41	0.37	0.35	0.31
2001 <sup>B</sup>	0.45	0.39	0.35	0.35
2002 <sup>B</sup>	0.47	0.42	0.37	0.34
2003 <sup>B</sup> (may-dic)	0.44	0.41	0.36	0.31
2004 <sup>B</sup> (jan-dic)	0.43	0.40	0.35	0.32

*Source:* Authors' calculation using data from ENAHO 1997-2004 (INEI). Rows 1 through 6 use data from the fourth quarter (1997.IV through 2002.IV) and rows 7 and 8 use data from the full annual sample for 2003 and 2004.

<sup>A</sup> Inequality figures for 2000 are not entirely comparable to those of 1997-1999 due to the impact of no-responses in the lower part of the income distribution.

<sup>B</sup> Figures for 2001-2004 are not comparable to figures for 1997-2000.

## CONCLUSIONS

1.24 In this chapter we have argued that poverty in Peru increased significantly during 1997–2000. Economic growth during 2001–04 halted this negative trend but did not generate significant improvements in the overall poverty rate. It did however contribute to a significant reduction in extreme poverty, particularly in rural areas. The rest of this report is devoted to understanding the relationship between economic development and poverty, both from a macro and a microeconomic perspective.





## **2. ECONOMIC GROWTH AND ITS IMPACT ON POVERTY AND INEQUALITY<sup>9</sup>**

2.1 Economic growth is a necessary condition for sustainable poverty reduction, but not a sufficient one. Poverty reduction is hard to attain in the absence of economic growth, since it would have to be achieved through substantial redistribution of income from the rich to the poor. However, economic growth does not automatically translate into poverty reduction unless it is accompanied by employment creation and better economic opportunities for the poor.

2.2 In this chapter we examine the relationship between economic growth and poverty reduction in Peru during 1997–2004, and analyze the factors that make this relationship weak or strong. The chapter is structured as follows. The first section briefly describes the basic growth trends. The second section investigates the relationship between aggregate economic growth and poverty, as well as the distribution of economic growth across income levels. The third section takes a closer look at the nature of economic growth, paying attention to its sectoral composition. The fourth section analyzes the relationship between growth, employment creation and investment. And, finally, the fifth section discusses the potential for poverty reduction in the future under various growth scenarios.

2.3 The main findings of the chapter can be summarized as follows:

- ❑ Economic growth in 2001-2004 in Peru has benefited those at the bottom of the income distribution more, especially in rural areas where it has translated into a decline in extreme poverty and in inequality. Growth, however, has not been sufficiently broad-based and has failed to bring the overall poverty headcount down, particularly in urban areas.
- ❑ Economic growth is positively correlated with poverty reduction, but the relationship between growth and poverty is weaker in Peru than in the average country. When compared to the rest of the world Peru needs to grow faster than the average country to lower poverty or even to prevent it from increasing.
- ❑ The weak relationship between (recent) growth and poverty is due to two factors. First growth in per capita terms was slow and investment rates declined during 1997-2004 as a percentage of GDP. Second growth and investment were biased towards sectors with low capacity to generate employment, such as mining, or to generate income, such as agriculture. In addition to these trends, historically volatile growth rates have resulted into high levels of uncertainty and low levels of entrepreneurial confidence on the sustainability of economic growth.
- ❑ As a result recent economic growth has been slow to translate into higher employment and wage levels, particularly in those sectors that employ the poor and in urban areas. Investment and employment creation in urban areas have been low because there is a significant amount of excess capacity in the productive system and, especially, because employers' expectations about future growth are uncertain.
- ❑ Consequently interventions aimed at preserving macroeconomic stability, strengthening growth and improving entrepreneurial expectations can go a long way in ensuring sustainable, poverty-reducing growth.
- ❑ Economic growth alone, however, can have only a limited impact on poverty and needs to be combined with economic and social interventions that specifically target the poor and help them take advantage of the economic opportunities generated by growth.

### **ECONOMIC GROWTH TRENDS AND PATTERNS**

2.4 The last 15 years have been witness to significant variation in the growth performance of Peru. The economic progress of the early 1990s, when GDP and GDP per capita increased at an annual rate of

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9. This chapter is based on background work prepared by the report team and on existing work presented in World Bank 2003 (PER), 2004 (Mining) and 2004 (ICA).

5.8 and 3.9 percent respectively, was washed away by the 1998 economic crisis and by the economic stagnation that followed—GDP grew at 1.0 percent and GDP per capita actually declined by 0.9 percent between 1998 and 2000. Since 2001, however, the country's macroeconomic performance has been robust and vulnerabilities have been reduced. The aftermath of the economic crisis came to an end in 2001, and economic growth resumed at a strong 4.9 percent in 2002, followed by 4.0 and 4.8 percent in 2003 and 2004 (Table 2.1). The most recent estimates place economic growth in 2005 at around 5.8 percent.

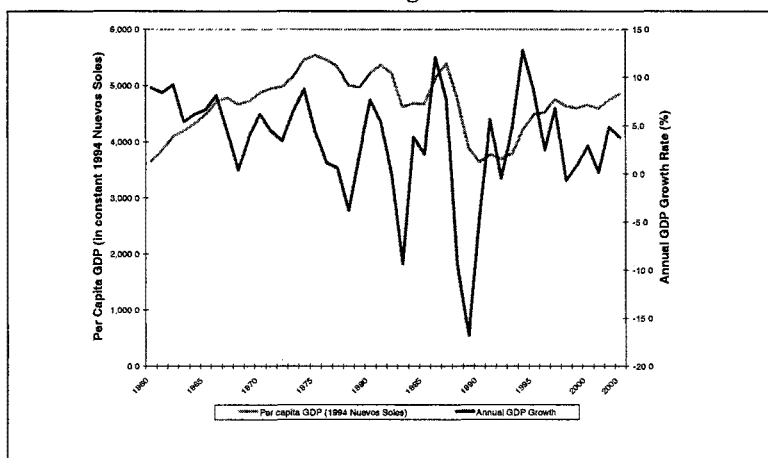
**Table 2.1: Economic growth has been volatile during 1991–2004**

	1991-1997	1998-2000	2001	2002	2003	2004
	Annual growth rates (%)					
GDP	5.8	1.0	0.2	4.9	4.0	4.8
GDP per capita	3.9	-0.9	-1.4	3.3	2.2	

*Source:* Authors' calculations using data from the Ministerio de Economía y Finanzas.

2.5 Growth since 2001 has been accompanied by fiscal responsibility and declining fiscal deficits, indicating that this may be the beginning of a positive and sustainable trend. The issue of the sustainability of economic growth is an important one, given Peru's past of volatile growth and successive economic ups and downs. Since 1965 Peru has never had more than 4 consecutive years with growth rates above 3.5 percent, while it has had 13 years of growth rates below 2.0 percent and 7 years with negative rates (Figure 2.1).

**Figure 2.1: Economic growth during the last three decades has been insufficient to raise living standards over time**



*Source:* Authors' calculations using data from the Banco Central de Reserva

2.6 We will argue in this chapter that Peru's traditional pattern of growth is not conducive to long-term per capita income gains (real income per capita today is equivalent to that of the early 1980s and early 1970s) and, as a result, poverty reduction. We will also discuss policy measures aimed at ensuring strong, sustainable and inclusive growth in the future. But first we briefly review recent poverty and inequality trends.

## ECONOMIC GROWTH AND POVERTY

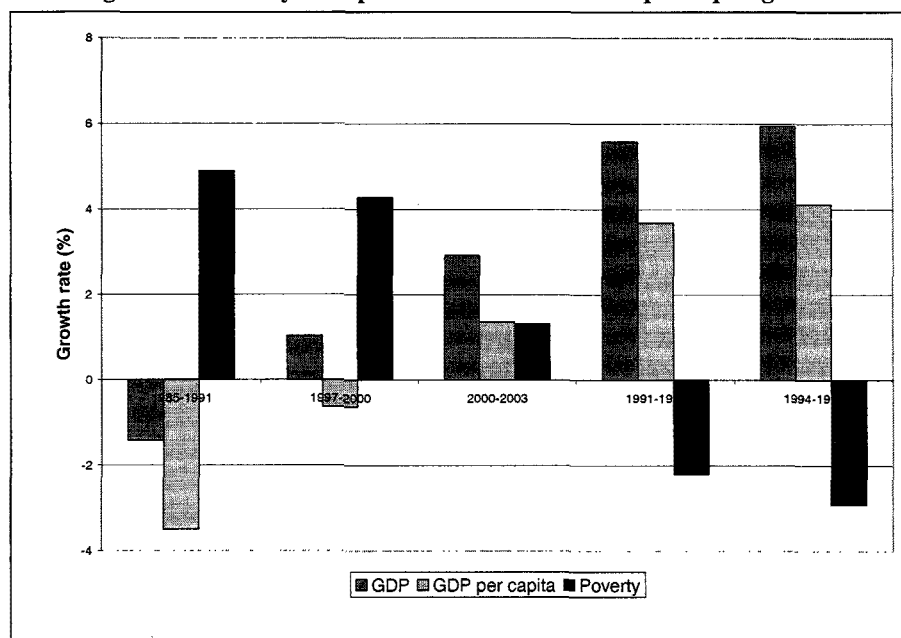
2.7 The evidence discussed so far suggests that recent years have been witness to significant declines in extreme poverty and inequality—a development that should not be underestimated since it implies that living standards for those at the bottom of the distribution have improved. However the fact that these changes reflect mainly the experience of rural areas, together with the lack of improvement in terms of the overall incidence of poverty, also indicates that there are still important challenges ahead.

2.8 The rest of this chapter is devoted to better understanding the relationship between economic growth and poverty in Peru in order to draw useful lessons for the future. We start by analyzing the basic facts regarding this relationship and by examining the distribution of economic growth across different income groups during 1997–2003. We then take a closer look at the nature and composition of growth, and to the impact that growth has had on employment creation and investment.

### The Basic Facts

2.9 Poverty appears to be responsive to GDP and GDP per capita growth over the medium-term in Peru. Using data from the Banco Central de Reserva (BCR), ENNIV and ENAHO, we analyze the relationship between economic growth, measured as changes in GDP and GDP per capita, and poverty reduction during 1985–2003. Periods of negative or weak economic growth (1985–91 and 1997–2000) are associated with significant increases in poverty, while periods of strong economic growth (1991–94 and 1994–97) are associated with important decreases in poverty (Figure 2.2).

Figure 2.2: Poverty is responsive to GDP and GDP per capita growth

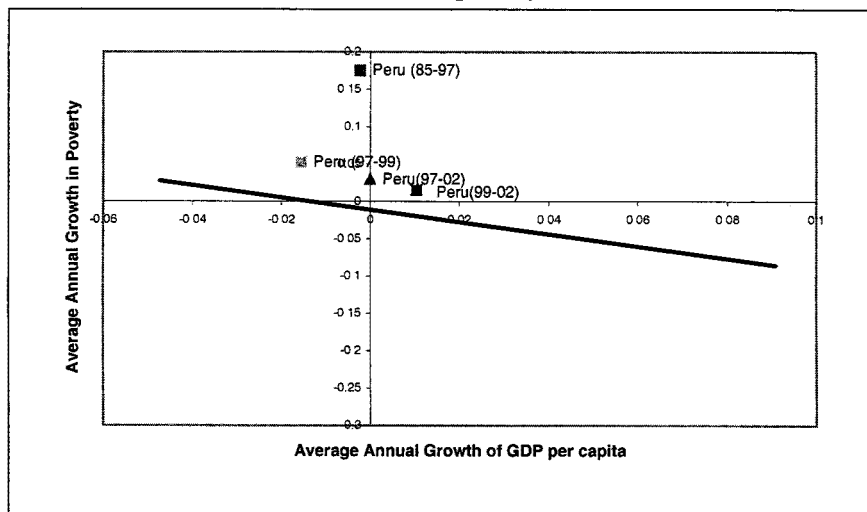


Source: Authors' calculations using data from BCR, INEI and Cuánto (2004).

2.10 However, when compared to other countries in the world, Peru needs to grow faster than the average country to achieve a given reduction in poverty. Following Kraay (2003), Loayza and Polastri (2004) compare the experience of Peru in 1985–97, 1997–99, 1999–2002 and 1997–2002 in terms of changes in growth and poverty to that of other countries. Economic growth and poverty reduction appear to be correlated for the average country in the world, represented by the solid line in Figure 2.3.

Moreover in this country poverty rates are stable in the absence of economic growth. In contrast Peru appears to need positive growth in order to prevent poverty from increasing, as illustrated by the fact that all data points corresponding to Peru are located above and to the right of the solid (regression) line—i.e. for any given change in poverty, Peru needs to grow faster than the average country.

**Figure 2.3: Peru needs to grow faster than the average country in the world to reduce poverty**



*Note:* For the sake of clarity all data points have been excluded from the graph with the exception of those corresponding to Peru. The solid line represents the predicted relationship between (logarithmic) changes in GDP per capita and changes in poverty ( $\Delta \text{GDP per capita} = -0.0113 - 0.8209 * \Delta \text{poverty}$ ).

*Source:* Kraay (2003) and authors' calculations using data from INEI and National Account Statistics (BCR).

2.11 This difference between Peru and the international norm can be given two alternative explanations. On the one hand it is possible for poverty to be more responsive to economic growth in the long-term in Peru than in the average country, at the same time that the relationship between growth and poverty is very unstable in the short-term in Peru (i.e. the regression line that fits the relationship between growth and poverty in Peru is steeper than that of the average country). On the other hand, it is possible that poverty is as responsive to growth in Peru as in other countries, at the same time that there are country-specific factors that make it necessary for Peru to grow faster than the average country to maintain a stable poverty rate (i.e. the regression line that fits the relationship between growth and poverty in Peru has the same slope as that of the average country, but it has a positive intercept).

2.12 In order to discriminate between these two alternative explanations, Loayza and Polastri (2004) examine the relationship between growth and poverty across different regions and departments in Peru. They find that neither is poverty very sensitive to growth, nor has the relationship between both changed over time. Given this, they conclude that the second explanation provided above appears to be the most sensible to describe the case of Peru.

2.13 What are then the country-specific factors that caused these differences between Peru and the average country? Although a full examination of this question is beyond the scope of this chapter, we volunteer the idea that high levels of income inequality may be such a factor based on recent research on the issue of pro-poor growth that has shown that high initial levels of inequality can potentially hamper the impact of growth on poverty (Ravallion, 2004; Ravallion and Chen, 2003; Easterly, 2002).

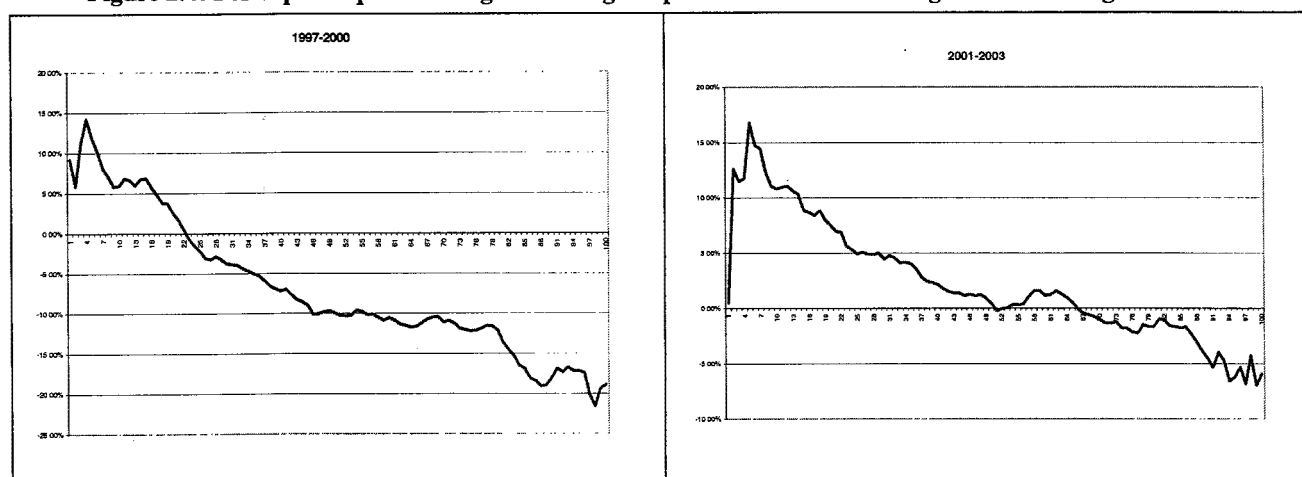
2.14 Given that inequality is high in Peru and that the country needs to grow faster than the average country to bring poverty down, the question then arises as to whether recent economic growth has failed to translate into lower poverty rates because it has been insufficient or because it has benefited the non-poor relatively more than the poor. To turn to the issue of the distribution of growth next.

### Distribution of economic growth

2.15 We analyze how economic growth has been distributed across income (or expenditure) groups during 1997–2000 using information on per capita expenditures. We consider two different periods, 1997–2000 and 2001–03, and compute changes in average per capita expenditure for each percentile of the per capita expenditure distribution and for each period. This calculation allows us to identify those groups (or percentiles) whose per capita expenditure grew more or less than the national average. We then plot these changes for all percentiles in the form of an expenditure growth incidence curve<sup>10</sup>.

2.16 Changes in per capita expenditures varied across percentiles and across periods of time<sup>11</sup>. Economic growth was not distributed uniformly across individuals and households during 1997–2000 and 2000–03. In both periods, per capita expenditure growth was negative among the top percentiles and positive among the bottom percentiles. Moreover, because economic growth was negative during 1997–2000 and positive during 2001–03, a larger share of the distribution experienced positive increases in per capita expenditure in 2001–03 than in 1997–2000 (Figure 2.4)<sup>12</sup>.

**Figure 2.4: Per capita expenditures grew among the poor and declined among the rich during 1997–2003**



Source: Authors' calculations using data from ENAHO 1997–2003 (INEI).

2.17 These patterns are consistent with the changes in extreme poverty and poverty described above. Positive per capita expenditure growth among the bottom percentiles has contributed to the observed improvements in extreme poverty. However, because per capita expenditure has been relatively weaker in the middle of the distribution, it has failed to translate into lower poverty rates. In particular the share

10. For a detailed methodological description on the construction of growth incidence curves, see Ravallion and Chen (2003).

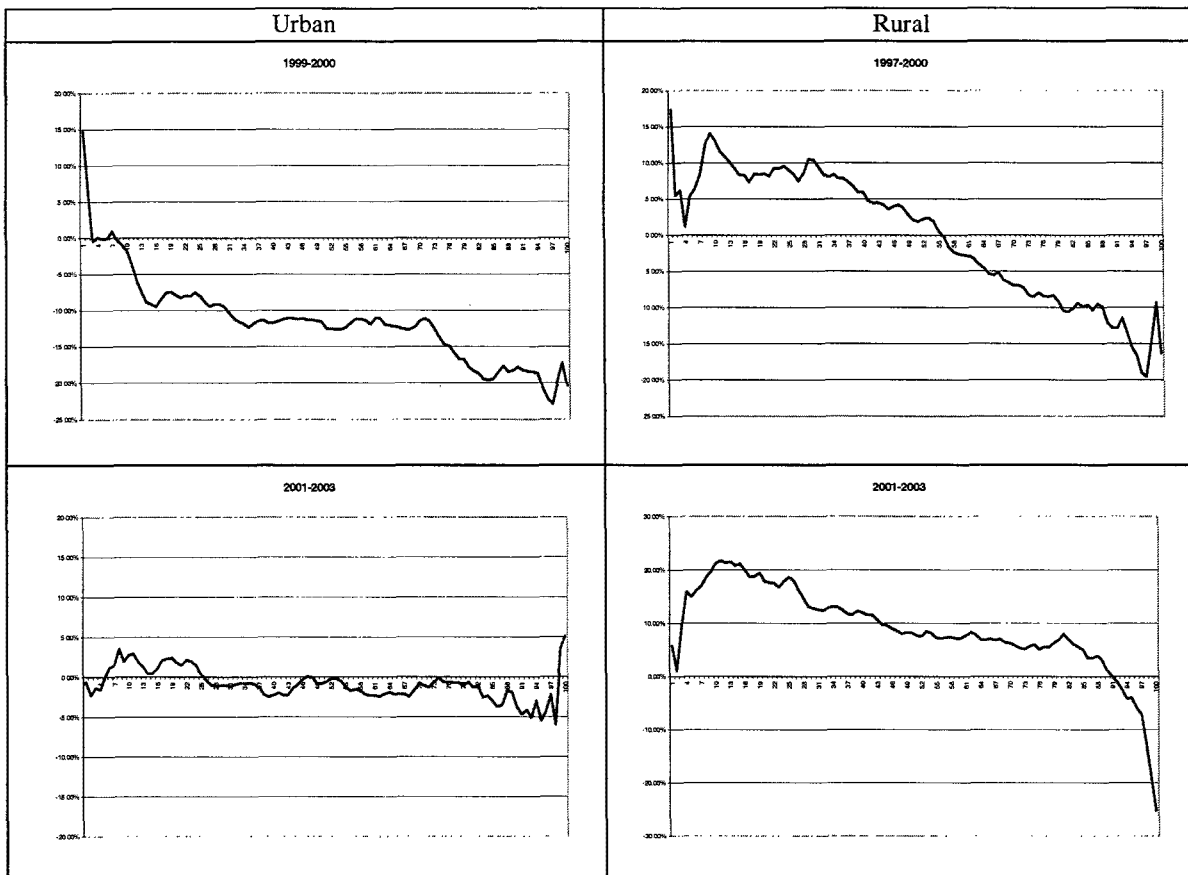
11. Methodological changes in the ENAHO make it impossible to calculate growth incidence curves for 1997–2003 without correcting the data (see Chapter 1 and Annex 1 for a description of such changes). Some of the results discussed here are not robust to such corrections. We have decided to present the uncorrected 1997–2000 and 2001–03 calculations here since they are the most representative of changes at the national level, together with a detailed discussion on the effect of corrections on these results in Annex 2.

12. Casas and Yamada (2005) obtain very similar patterns for 2001–04.

of total consumption attributed to the poorest 20 and 50 percent of the population grew from 3.8 to 4.7 and from 18.6 to 20.2 during 2001–04, respectively (Casas and Yamada, 2005).

2.18 Changes in per capita expenditures also vary across urban and rural areas. During 1997–2000 all groups in urban areas experienced negative expenditure growth, compared to only those in the top half of the distribution in rural areas. Similarly, expenditure growth in urban areas was almost zero in 2001–03, while most groups experienced positive growth in rural areas (Figure 2.5).

**Figure 2.5: The impact of the economic crisis was stronger and the recovery weaker in urban than in rural areas.**



Source: Authors' calculations using data from ENAHO 1997-2003 (INEI).

2.19 Again these patterns are consistent with observed changes in rural and urban extreme poverty and poverty rates. In rural areas positive per capita growth among the bottom percentiles in 1997–2000 and generalized growth across the whole distribution in 2001–03, have translated into declines in extreme and non-extreme poverty rates. In urban areas the situation is somewhat more sober since decreases in per capita expenditure during 1997–2000 have not been compensated by increases in 2001–03, causing poverty rates to stall or even increase, as has been the case in Lima.<sup>13</sup>

2.20 In sum recent economic growth in Peru has benefited those at the bottom of the income distribution. As a result it has translated into a decline in extreme poverty and in inequality, but only in

13. Ibid.

rural areas. Growth, however, has not been sufficiently broad-based and as a result has failed to bring the overall poverty headcount down, particularly in urban areas.

2.21 In the next section we take a closer look at the nature of economic growth in Peru during this period in an attempt to understand why recent growth has not been more effective in terms of overall poverty reduction and, especially, in terms of urban poverty reduction.

#### **A CLOSER LOOK AT THE NATURE OF GROWTH**

2.22 In this section we examine the nature of economic growth in Peru in 1997–2004 from two different perspectives: its speed and its sectoral composition, while in the next we analyze the relationship between economic growth, investment and employment levels.

##### **The speed of growth**

2.23 Economic growth was slow during 1997–2004. Gross Domestic Product (GDP) and GDP per capita growth were positive and significant between 2001 and 2004. However, due to the severe economic downturn of 1998–99, the balance for the 1997–2004 period is 2.5 percent increase in GDP per capita.

2.24 Moreover, measures of income and consumption obtained from household surveys suggest that the recovery may have been weaker than implied by National Account data. Consumption per capita declined by 11.4 percent between 1997 and 2001, and by an additional 2.5 percent between 2001 and 2004, while income per capita fell by 1.7 percent in the first period and grew by 0.1 in the second one (Table 2.5). Given that it is measured using household-level data, it is then no surprise that poverty did not decline in 2001–03.

**Table 2.5: Income growth measured using household data has been slower than GDP growth measured using the National Accounts**

	<b>GDP per capita</b> (base 1994)	<b>Consumption per capita</b> (ENAHO)	<b>Income per capita</b> (ENAHO)
1997-IV/ 2001-IV	-3.2%	-11.4%	-1.7%
2001-IV/ 2004-IV	5.7%	-2.5%	0.1%

*Source:* Herrera (2004) and Francke (2005).

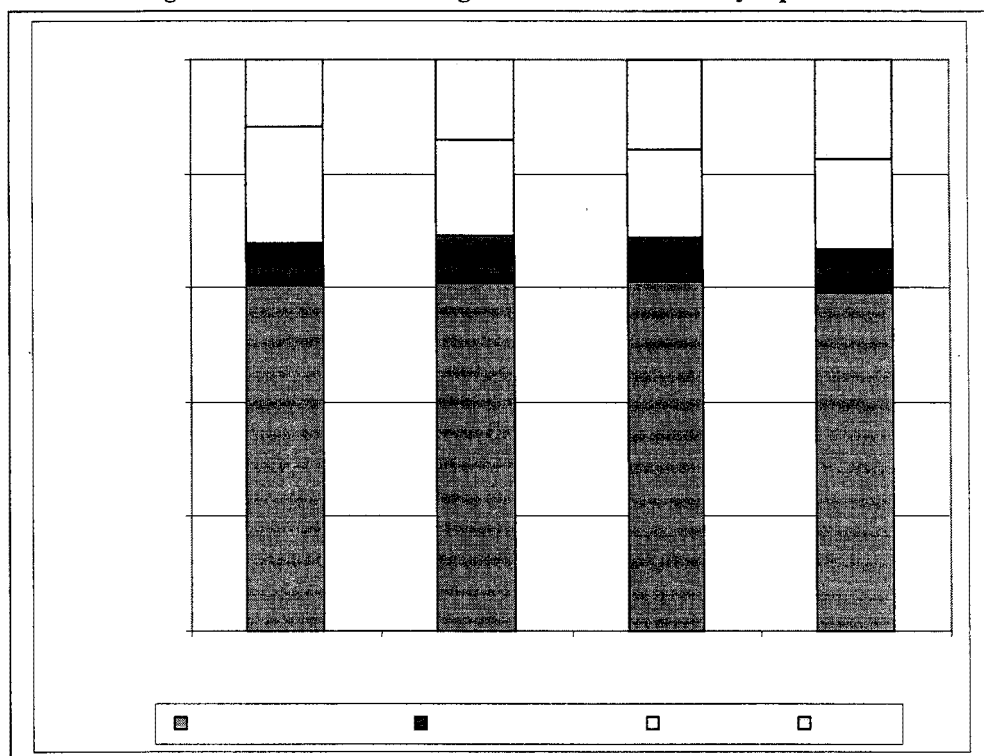
2.25 Although a full exploration of the causes of these discrepancies is beyond the scope of this report, several explanations could be considered, including (i) underreporting among the richest 1 percent of the population in the ENAHO sample, which would bias consumption and income figures downwards; and (ii) inadequate imputation of consumption of durable goods and housing in the ENAHO, although this would only explain differences in consumption levels (Francke, 2005)

##### **The composition of growth**

2.26 For economic growth to have a positive impact on poverty, it needs to generate employment and income for those who need it the most. Identifying what sectors or activities have acted as growth engines during the recent economic recovery, and examining to what extent growth in these sectors has the potential to generate a demand for the kind of labor the poor can provide is then a first step towards understanding why the link between economic growth and poverty reduction has been weak in Peru in 2001–03.

2.27 Recent economic growth has been driven by external demand and by growth in the mining and agricultural sectors, and to a lesser extent by domestic demand in recent years. Exports are the fastest growing component of aggregate demand, having increased from 11.7 percent of GDP in 1997 to 17.3 percent in 2004 (Figure 2.6). At the same time, mining and agriculture have been the engines of growth from a sectoral point of view, with annual growth rates close to 7.9 and 3.8 percent respectively in 1997-2004, and consequently have increased their share of GDP from 4.7 to 6.7 percent in the case of mining and from 8.3 to 8.9 percent in the case of agriculture (Figure 2.7). Growth in exports and growth in the mining and agricultural sectors are intimately connected since mineral and traditional and non-traditional agricultural products represent more than 60 percent of all exports (Table 2.6).

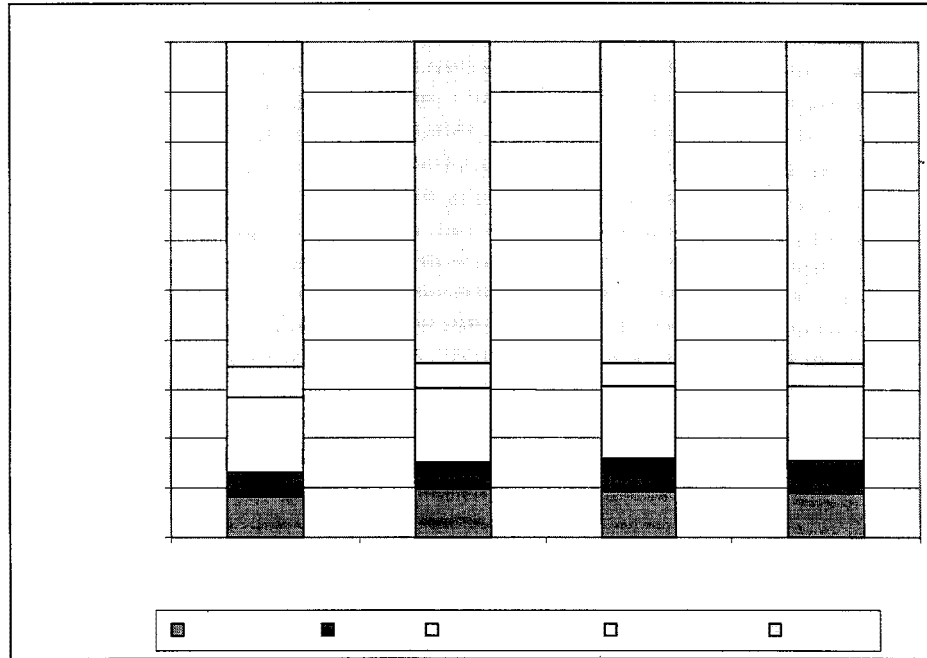
**Figure 2.6: Recent economic growth has been driven by exports...**



Source: Authors' calculations using data from Cuánto (2004) and BCR.



**Figure 2.7: ... and by growth in the mining and the agricultural sectors**



Source: Authors' calculations using data from Cuánto (2004).

**Table 2.6: Mining and agricultural exports account for more than 60 percent of all exports**

	1970	1980	1990	1999	2003	2004
	Percentage of total exports					
Traditional exports	97	78	70	68	71	71
Mining	45	46	45	49	52	55
Petroleum and derivatives	1	20	8	4	7	5
Agriculture (traditional only)	15	6	5	5	2	3
Fishing	29	5	10	10	9	9
Non-traditional exports	3	22	30	32	29	28
Manufacturing	2	16	18	21	20	19
Other	1	6	12	11	9	9

Source: Sheahan (2003) and authors' calculations using data from Cuánto (2004).

2.28 The mining sector has a lower potential for employment creation than the agricultural sector for any given growth rate because it employs a small share of the labor force and has a low output-elasticity of employment. The mining sector employs 0.7 of the overall labor force, compared to 33.6 in the agricultural sector, and has an output-elasticity of employment of 0.4, compared to 0.8 in the agricultural sector. This implies that a 1 percent increased in output will generate a 0.4 percent increase in employment in the mining sector and a 0.8 percent increase in the agricultural sector. Given the growth rates experienced in each sector since 1997, this means that employment in the mining sector has grown by 3.6 percent, or 0.02 percent of the labor force, while employment in the agricultural sector has grown by 4.6 percent, or 1.5 percent of the labor force (Table 2.7).

**Table 2.7: In recent years growth has concentrated in sectors with different potential for employment generation**

	Annual output growth (%) 1997-2004	Labor share (%)	Output elasticity of labor	Annual labor growth (%) 1997-2004	Mean wage	Output elasticity of wage	Annual wage growth (%) 1997-2004
Mining/Oil	7.62	0.66	0.43	3.58	10.61	0.65	12.4
Agriculture	3.47	33.63	0.84	4.60	1.28	0.46	-1.79
Electricity and Water	4.13	0.27	0.37	-3.79	8.23	0.74	7.11
Fishing	4.05	0.64	0.59	5.33	4.44	0.81	11.61
Services	2.31	31.39	0.72	1.31	4.17	0.50	0.17
Manufacturing	2.15	9.25	0.66	1.35	4.44	0.53	7.43
Commerce	1.77	20.15	0.74	-0.05	2.66	0.51	-2.07
Construction	-1.09	4.00	0.64	-2.36	3.62	0.61	-0.48

Source: Authors' calculations using data from the INEI and the Banco Central de Reserva for 1997–2003.

2.29 In contrast wages are much more responsive to output growth in the mining than in the agricultural sector, although this is not likely to benefit the poor. Wages have growth at an annual rate of 12.4 percent in the mining sector, compared to -1.79 in the agricultural sector (Table 2.7). Rapid wage growth in the mining sector, however, is unlikely to have benefited the poor given the composition of the labor pool employed in the sector, which tends to be relatively skilled.

2.30 Given that mining and agriculture tend to be concentrated in rural areas, rapid growth in these two sectors, combined with sluggish growth in other sectors with higher concentration in urban areas, such as services or commerce, can help explain why rural areas appear to have done relatively better than urban ones in terms of poverty reduction.

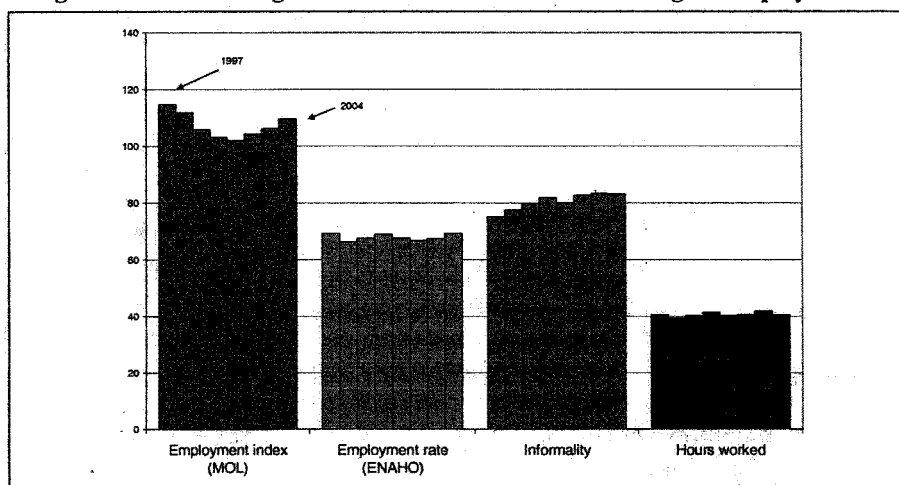
2.31 The potential for further improvements in rural poverty based on growth in the mining and agricultural sectors alone is limited, however, in the absence of other policy interventions. We discuss this issue for the case of the mining sector in more detail in Annex 4 and for the case of the agricultural sector in Chapter 5.

#### **THE (WEAK) LINKS BETWEEN GROWTH, EMPLOYMENT AND INVESTMENT**

2.32 Employment and (labor) income generation provide the main links between economic growth and poverty reduction. We therefore turn our attention next to the relationship between growth, employment creation and investment, and the reasons why the connection between them has been weak.

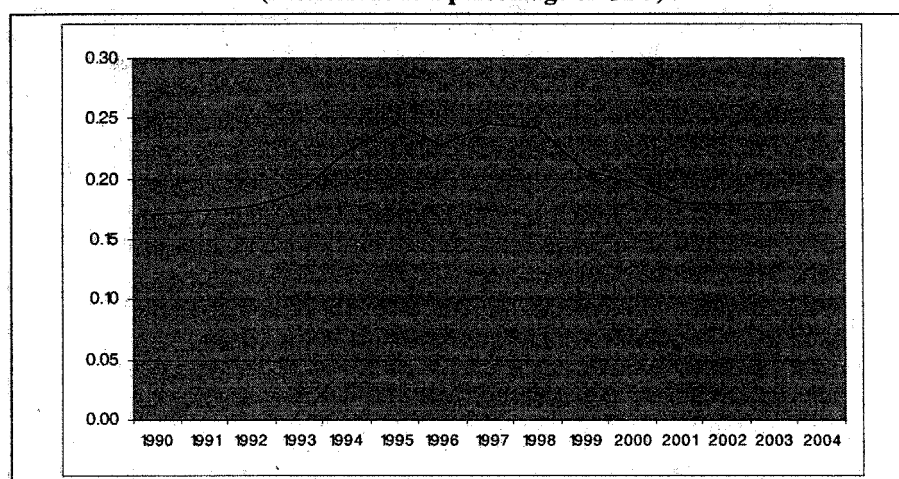
2.33 Even as economic growth has spread from mining and agricultural into other sectors, employment generation and investment rates have remained low. According to data collected by the Ministry of Labor, employment in firms with more than 10 employees has recovered since 2000, although still remains below pre-crisis levels. This optimistic picture, however, blurs if we instead use employment information from the ENAHO. The overall employment rate has remained constant, or even declined slightly since 2000, at the same time that the composition of employment has shifted towards higher informality (Figure 2.8). The number of hours worked also increased slightly between 1997 and 2003, suggesting that labor needs may have been covered through more intensive use of already employed workers rather than through new hires—a point we return to in the next section. Similarly, although investment levels have increased in real terms since 2003, investment rates have been declining steadily as a percentage of GDP since 1998 (Figure 2.9).

**Figure 2.8: Economic growth has failed to translate into higher employment...**



Source: Authors' calculations using data from the Ministry of Labor and the ENAH0 1997-2003 (INEI).

**Figure 2.9: ... or higher domestic investment  
(Investment as a percentage of GDP)**



Source: Authors' calculations using data from Cuánto (2004).

2.34 In sum the evidence discussed above suggests that recent economic growth was low over 1997-2003, and that, once growth started to accelerate in 2000-2001, it was biased and non-inclusive in that it concentrated in sectors with low capacity to generate employment and labor income and failed overall to stimulate new (formal) hiring and investment.

2.35 These conclusions can then be connected with our earlier discussion on the distribution of growth and its impact on poverty. On the one hand, faster growth in the agricultural sector and, to a lesser extent, in the mining sector may explain why rural areas seem to have done better than the rest of the country in terms of poverty and extreme poverty reduction since, as we will discuss in Chapter 5, the rural poor rely heavily on agricultural activities. On the other hand, low growth and employment creation in other sectors, such as services and commerce, may explain why urban poverty rates have failed to decline since,

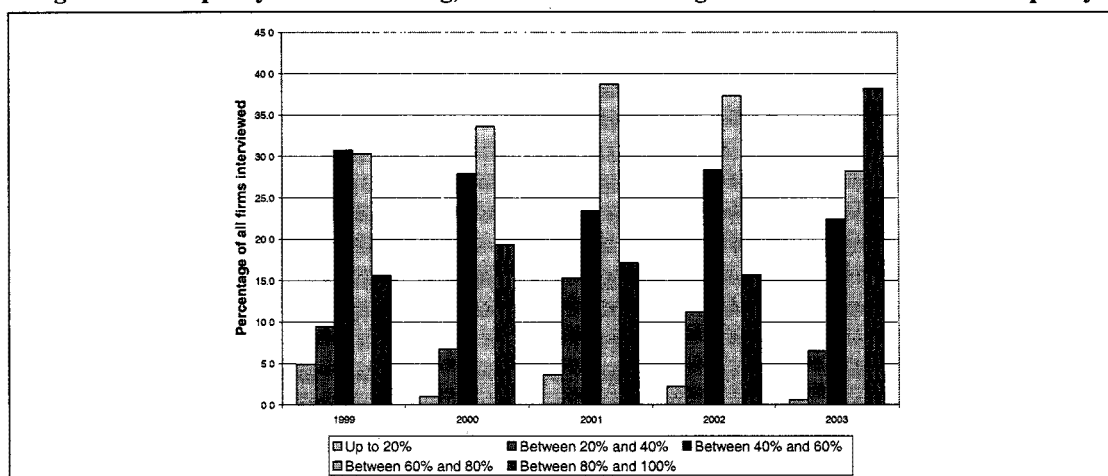
as we will discuss in Chapter 4, the urban poor, who rely extensively on their labor to make a living, tend to concentrate on these sectors. Finally the acceleration in employment creation that has taken place in recent months, particularly outside Lima, has not yet been enough to generate significant declines in poverty.

2.36 Employers make decisions about hiring and firing workers and about investment on the basis of their existing resources and their expectations about the future. We examine both factors here.

### Making do with existing resources

2.37 Although the use of installed capacity has increased since 2000, there is still a significant share that is currently underutilized. Approximately 30 percent of employers declared to be using 60 percent or less of their business' installed capacity in 2003, down from 37 percent in 2000,<sup>14</sup> while 38 percent declared to be using more than 80 percent, up from 19 in 2000 (Figure 2.10). The latest available data from the BCR indicates that average usage of installed capacity stood at 74 percent in October 2005, leaving still ample margin for production increases using existing capacity.

**Figure 2.10: Capacity use is increasing, but there is still a large share of unused installed capacity**



*Note:* Data obtained from a survey to the managers of the 120 largest firms in Peru as of 2002. The survey was administered in 2003, between July 15 and August 15.

*Source:* Authors' calculations using data from Cuánto (2004).

2.38 As long as there is enough idle capacity in the system, employers do not have strong incentives to invest, unless this capacity has become obsolete or their expectations about the future suggest that more capacity will be needed. Hence the existing slack in terms of unused capacity may partly explain why investment rates have not been very responsive to economic growth up to now.

2.39 In fact the evidence suggests that there exists a positive relationship between economic growth and increasing capacity use on the one hand, and employers' willingness to invest on the other. Sixty percent of employers said they would be willing to invest in Peru in 2003, compared to 50 percent in 2000, while a still large 40 percent said they would be unwilling, compared to 50 percent in 2000<sup>15</sup> (Table 2.8).

14. Data obtained from a survey conducted by Cuánto, a think-tank, among the managers of the largest 120 firms in Peru as of 2002.

15.. Ibid.

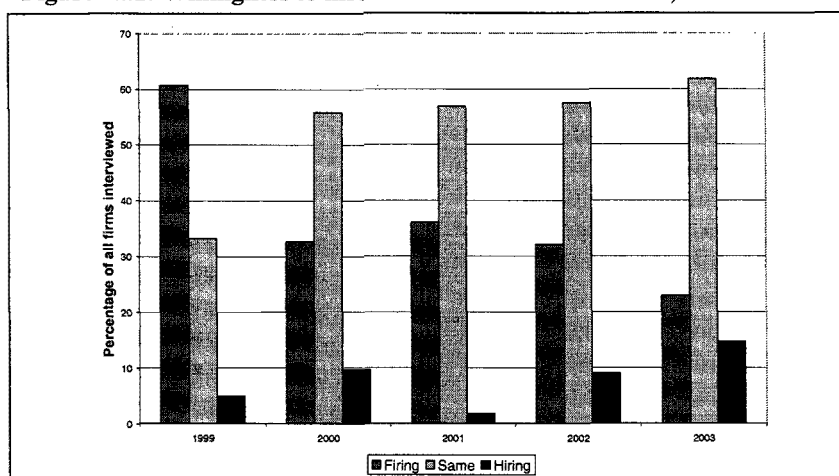
**Table 2.8: Willingness to invest has improved, but a large fraction of employers is still unwilling to invest**

	1999	2000	2001	2002	2003 a/
Willing to invest	63.9	48.1	55.0	42.5	58.2
Not willing to invest	29.5	47.1	38.7	56.0	38.2
No answer	6.6	4.8	6.3	1.5	3.6

Source: Authors' calculations using data from Cuánto (2004).

2.40 Employers also appear reluctant to hire new workers. In 2003 only 15 percent of employers declared to be willing to hire new workers, compared to over 20 percent who declared to be willing to fire existing ones (Figure 2.11). Although these figures represent an improvement over those of 2000, when 10 and 30 percent of employers said they would like to hire and fire workers respectively, they make it clear that economic growth has not been sufficient to stimulate employment creation in the absence of positive expectations about future economic opportunities. We then turn to the issue of expectations.<sup>16</sup>

**Figure 2.11: Willingness to hire new workers has increased, but is still low**



Source: Authors' calculations using data from Cuánto (2004).

## Animal Spirits After All

2.41 Business decisions such as hiring new workers, installing new machinery or re-organizing production, to name a few, are not easily reversible since in the future it will be costly to fire these workers, dispose of the new capital or revert to the old methods if they new ones do not yield the desired results. For this reason employers will undertake such changes only if they believe that they will be profitable not only today but tomorrow.

2.42 Employers' perception about the constraints faced by their own business has improved since 2000 as economic growth has become more robust. At that point, 40 percent of all employers identified lack of demand as their main problem, compared to 27 percent in 2003.<sup>17</sup> This change is likely to be the result of improved economic prospects associated with positive economic growth, and is in line with the improvements in employers' willing to invest and hire described above.

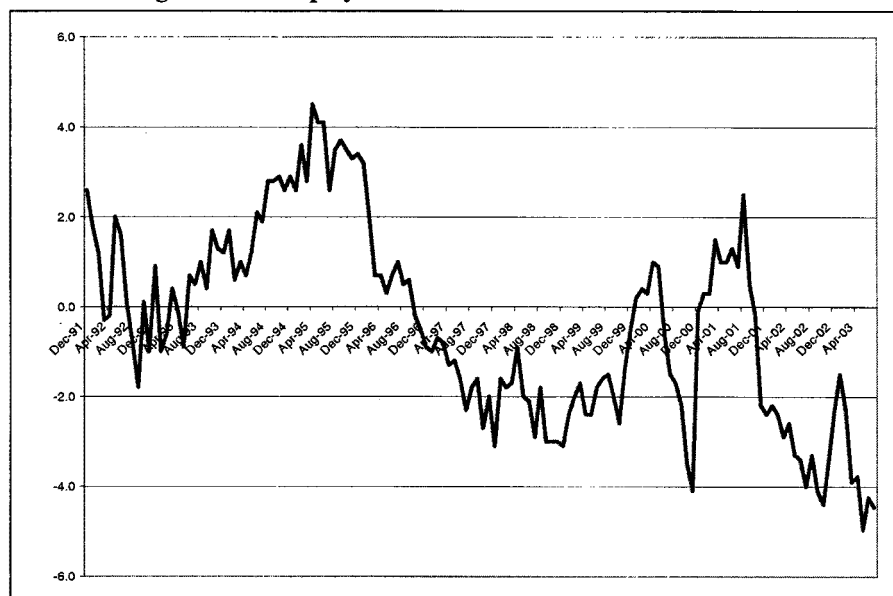
16. Ibid

17. Ibid.

2.43 However, employers not only take into account recent growth, but also worry about its sustainability. Historically volatile growth rates, uncertainty in economic policy, lack of predictability of the legal and regulatory framework and the non-enforcement of laws and contracts were among the highest rated problems by Peruvian firms in 2002 (World Bank, 2003). Close to 79 percent of firms said that laws were fairly, highly or completely unpredictable, which is very high even by international standards. This unpredictability, combined with implementation issues, such as corruption in public procurement contracts and the difficulty of resolving a dispute through the court system, generate a level of uncertainty that highly disrupts the environment for doing businesses in Peru. Over 70 percent of the firms in the sample identified uncertainty of economic policy as a “major” or “very severe” obstacle to operations and growth.

2.44 Uncertainty concerning the business environment in the country has translated into a deterioration of employers’ confidence in the sustainability of growth. Entrepreneurial confidence has declined steadily since 2001, after a short recovery following the 1998 economic crisis<sup>18</sup> (Figure 2.12). The early termination of the Fujimori administration in 2000, amidst mounting evidence of flagrant public corruption and mismanagement, left the country in political turmoil and economic pessimism. The sober administration of Paniagua’s transitional government brought some relief, and for a few months there was optimism with the advent of the Toledo administration. Despite solid macroeconomic fundamentals, disappointment, however, soon ensued as the new government failed to provide the political stability the country needed as well as to eliminate uncertainty regarding existing legislation. In particular, the possibility of a reversal in the labor-market reforms of the 1990s looms large in investors’ predictions about the future of the Peruvian economy.

**Figure 2.12: Employers’ confidence has declined since 2001**



Source: Apoyo, Opinión y Mercado, Survey of Entrepreneurs.

2.45 High uncertainty and low confidence can then affect growth by reducing incentives to invest in new machinery and external training, which in turn affect the adoption of technology and the improvement of productivity and hinder long-term growth and profitability. Regression analysis indicates that if uncertainty was lowered to “moderate” for all firms, 36 percent of firms could be expected to make

18. Data obtained from a survey conducted by Apoyo, a think-tank, among employers in Peru.

investments which would help them to increase profits by at least 1.5 percent and another 35 percent of firms could increase profits by over 3 percent (World Bank, 2003b).

2.46 In sum investment and employment creation have been low because there is a significant amount of excess capacity in the productive system and, especially, because employers expectations about future growth are uncertain. Consequently policy interventions that result in higher expectations, such as those aimed at maintaining macroeconomic stability and improving the investment climate, can go a long way in ensuring that economic growth is not only sustainable but contributes to poverty reduction. We outline some potential interventions aimed at these objectives below.

### Policy implications

2.47 As we pointed out at the beginning of this chapter, recent economic growth has been accompanied by fiscal discipline and stability. The Government of Peru should continue to work in this direction in order to ensure the sustainability of growth.

2.48 Maintaining fiscal discipline, at the same time that fiscal space is created for poverty reduction will require, among others, fiscal reforms that create space for pro-poor spending and infrastructure investment and that improve the quality of spending, as well as interventions to improve Peru's investment climate and entrepreneurial expectations. The former could include, among other measures (i) the reform of the civil service, (ii) the harmonization and simplification of the tax system, (iii) a reduction in public debt, (iv) an increase in fiscal transparency and accountability, especially in the context on ongoing decentralization, and (v) better targeting of social expenditure and reduced overlap among social programs. These interventions could be combined with others specifically designed to identify and implement effective investment projects, such as (i) the selection of projects on the basis of impact and sustainability, and (ii) the implementation of mechanisms that allow for the use of public resources to leverage private moneys (e.g. public-private partnerships and minimum-subsidy schemes).

2.49 Reducing uncertainty associated with economic policy, the legal and regulatory system and the judiciary system will require, among others<sup>19</sup>:

- **A clear articulation of and a more open consultation about the GOP's medium-term agenda.** The GOP can reduce uncertainty about economic policy by more clearly articulating in medium-term agenda and by instituting stronger modes of consultations with the private sector, particularly with micro, small and medium enterprises (SMEs), which are not well represented under current arrangements. Such a process would allow for the identification of winners and losers from potential reforms prior to their implementation, as well as for the consideration of compensation mechanisms, hence facilitating consensus building. The Macroeconomic Framework prepared and updated annually by the MEF and recent efforts to introduce multi-annual budgeting constitute steps in the right direction.
- **The implementation of simpler and more transparent administrative procedures.** Peru should continue simplifying administrative procedures at the central government level and extend this effort to municipalities. Also, the process of public procurement should be revised at the central, regional and municipal levels to address the high degree of corruption in the award of public goods and service contracts.
- **The implementation of a clear and coherent legal framework in accordance with the medium-term agenda economic agenda.** The GOP should ensure that existing legislation is correctly aligned

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19. The recent Investment Climate Assessment prepared recent by the World Bank (World Bank, 2004—ICA) analyzes Peru's investment climate and identifies priority areas for government action. We discuss the report's key policy recommendations regarding uncertainty.

with its medium-term agenda. This required that previous legislation is modified and/or repealed when necessary to reduce confusion over which section of the legislation has precedence and to facilitate implementation. It also requires that the ambiguity regarding the status of certain pieces of regulation (i.e. possible reversal in the labor-market reforms of the 1990s) be resolved.

- **An improvement in the functioning and image of the judiciary.** Efforts should be intensified to improve court processes by reducing time, ensuring transparency in proceedings and, most of all, improving enforcement. Alternative dispute resolution mechanisms for the private sector should be revamped, so that arbitration results are truly binding and enforceable. Communications between the judiciary and the private sector should be improved, allowing for feedback on what is needed and how it can be provided.

2.50 Preserving fiscal stability and reducing uncertainty will become even more important as the upcoming general elections approach, the pressure to trump fiscal discipline for populist spending mounts, and speculation about the next government and its policy agenda increases.

## LOOKING AHEAD

2.51 The discussion in this chapter has been centered around the relationship between economic growth and poverty reduction, as well as around the factors that make this relationship weaker or stronger. We want to conclude this discussion by presenting the results from a very simple simulation exercise that evaluates the potential impact that future growth, alone or accompanied by redistributive taxation, can have on poverty under different scenarios.

2.52 In a companion study to this report, Sosa-Escudero and Lucchetti (2004) model the micro-determinants of (labor) income using household data from ENAHO 1997-2003 and use the results to simulate the potential impact of various policy interventions on income, poverty and inequality. We focus here on the results from the simulation pertaining to different growth and taxation scenarios, while we postpone a detailed discussion of both the methodology they use and the results they obtained from their estimations to Chapters 3 and 6.

2.53 All simulations are performed under a long-term horizon. In particular, the authors calculate changes in poverty and inequality rates between the present and the year 2015<sup>20</sup>. Because results are projected more than ten years into the future, it is important to remember that they should be interpreted as statistical explorations in a strong *ceteris paribus* context, and not as accurate depictions of the actual impact that different intervention may have on poverty and inequality.

2.54 Finally, because the authors use labor earnings rather than total income in their calculations, the poverty and inequality figures presented in the paper do not coincide with those already discussed in this chapter. To avoid confusion we have then standardized current levels of poverty and inequality to equal 100.

## How Much Poverty Reduction Can Economic Growth Alone Buy?

2.55 We start by examining the impact of uniform growth in per-capita income at different rates, ranging from 1 to 10 percent. The exercise then assumes that everybody's income grows at the same annual rate and evaluates changes in poverty and inequality between the present and 2015.

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20. The choice of 2015 as a reference responds to the fact that it is also the year when the Millennium Development Goals are expected to be achieved



2.56 Income per capita growth has a moderate impact on poverty and a somewhat larger impact on extreme poverty under realistic assumptions about the speed of growth.<sup>21</sup> Poverty would decline by 10 points if everybody's income grew at a constant rate of 1 percent per year. This figure would increase to 30 and 45 points under the 3 and 5 percent per capita income growth scenarios respectively. Similarly extreme poverty would decline by 13 points with annual per capita income growth of 1 percent, and by 35 and 50 points with annual per capita income growth of 3 and 5 percent respectively (Table 2.9).

**Table 2.9: (Uniform) Growth has a moderate impact on poverty**

	Present	g=1%	g=3%	g=5%	g=8%	g=10%
	Level in 2015					
<b>National</b>						
Poverty headcount	100.0	90.8	72.7	55.8	36.3	27.2
Extreme poverty headcount	100.0	87.2	66.7	50.9	33.9	24.2
Gap	100.0	87.8	66.6	49.6	31.2	22.9
Severity	100.0	86.5	64.0	46.8	28.9	20.9
<b>Urban</b>						
Poverty headcount	100.0	86.7	62.2	42.1	20.9	13.5
Extreme poverty headcount	100.0	79.9	49.5	32.3	18.8	13.5
Gap	100.0	83.2	55.9	36.6	19.7	14.2
Severity	100.0	81.8	54.2	36.2	21.8	16.9
<b>Rural</b>						
Poverty headcount	100.0	95.6	85.0	71.9	54.4	43.1
Extreme poverty headcount	100.0	91.4	76.7	61.6	42.7	30.5
Gap	100.0	91.7	75.3	60.1	40.5	29.9
Severity	100.0	89.6	70.3	53.6	33.5	23.5
<b>Inequality - Gini</b>	100.0	100.0	100.0	100.0	100.0	100.0

Source: Sosa-Escudero and Lucchetti (2004).

2.57 Urban areas would benefit relatively more from growth in the long-term than rural areas. Poverty would fall by 15 points in urban areas, compared to 5 points in rural areas under the assumption of 1-percent annual per capita income growth; the differences between both grow larger as the growth rate increases (Table 2.9).

2.58 Finally inequality is not affected since standard inequality measures, such as the Gini coefficient, are invariant to scale shifts that move the distribution to the right by a constant multiplicative factor (Table 2.9).

2.59 We consider next the impact that growth in particular sectors can have on poverty and inequality. For this purpose, we evaluate changes in poverty and inequality under the assumption that wages in each sector grow at 5 percent per year, allowing wages to increase in one sector at a time.<sup>22</sup> Because the

21. The Ministry of Finance in Peru predicts annual GDP growth rates between 4 and 5 percent for 2004–07 (Marco Macroeconomico, MEF 2003). Assuming that the population grows at 1-1.5 percent a year (following official estimations), the MEF predictions would yield a GDP growth rate of 3.5-4 percent.

22. The Ministry of Finance in Peru provides predictions for output growth in different sectors during 2004–07 (Marco Macroeconomico, MEF, 2003): Agriculture: 2004—1.8, 2005—4.6, 2006—4.8, 2007—5.0; Manufacturing: 2004—4.7, 2005—4.8, 2006—4.8, 2007—5.1; Construction: 2004—6.1, 2005—5.7, 2006—

impact of each sector's growth is evaluated independently, the changes in poverty generated by this exercise cannot be directly compared with those presented above and are meant exclusively as a tool to help our understanding of the role of the composition of growth.

2.60 The largest changes in poverty are associated with growth in the commerce and the agricultural sectors. Five percent annual growth in the income of those employed in the commerce sector leads to an 11 point decline in poverty, while 5 percent growth in agricultural income leads to a 10 point decline. The impact of the commerce sector is larger in urban areas, and that of the agricultural sector is more noticeable in rural areas due to differential patterns of employment across the urban and rural poor (Table 2.10).

2.61 In addition the largest changes in extreme poverty and inequality are associated with income growth in the agricultural sector. Extreme poverty and inequality would fall by 22 and 35 points respectively if income in the agricultural sector grew at 5 percent per year. This is explained by the fact that most of the extreme poor live in rural areas and depend on agricultural activities for survival (Table 2.10).

**Table 2.10: The largest changes in poverty are associated with income growth in the commerce and agricultural sectors**

	Present	Agric. <sup>A</sup>	Ind.	Manuf.	Constr.	Comm.	Utilities	Finances	Gov.
	Level in 2015 under 5% growth								
<b>Nacional</b>									
Poverty headcount	100.0	89.7	97.6	97.8	97.2	88.9	96.0	98.5	91.7
Extreme poverty headcount	100.0	78.0	98.1	97.8	96.8	89.9	97.0	99.3	93.2
Gap	100.0	80.1	97.6	97.5	97.0	89.6	96.6	98.7	93.1
Severity	100.0	73.8	97.7	97.7	97.3	90.8	97.3	99.1	94.2
<b>Urban</b>									
Poverty headcount	100.0	95.5	96.0	96.2	95.6	81.9	93.3	97.3	86.9
Extreme poverty headcount	100.0	86.9	96.2	95.5	94.1	78.6	92.9	98.3	86.4
Gap	100.0	91.1	95.9	95.2	94.7	80.6	93.3	97.4	87.6
Severity	100.0	88.7	96.0	95.2	94.7	80.9	93.9	98.0	88.4
<b>Rural</b>									
Poverty headcount	100.0	83.0	99.5	99.7	99.1	97.1	99.2	99.8	97.2
Extreme poverty headcount	100.0	72.9	99.2	99.1	98.4	96.5	99.4	99.9	97.2
Gap	100.0	71.2	99.0	99.3	98.8	97.0	99.4	99.9	97.6
Severity	100.0	64.2	98.8	99.3	99.0	97.1	99.5	99.9	97.9
<b>Inequality - Gini</b>	100.0	94.1	100.3	102.0	100.3	102.8	102.2	103.4	102.8

Note: <sup>A</sup> Includes mining.

Source: Sosa-Escudero and Lucchetti (2004).

2.62 In sum the largest improvements in poverty and income distributions are associated with growth in labor-intensive sectors, and in sectors that employed a large fraction of the poor population, in either urban or rural areas. However, the overall impact on poverty and inequality of growth alone is limited. We explore then the impact of redistributive taxation, first on its own and then combined with economic growth.

5.9, 2007—6.0; Commerce: 2004—3.2, 2005—4.3, 2006—4.0, 2007—4.5; Services: 2004—3.5, 2005—4.0, 2006—4.0, 2007—4.5. Assuming that wages growth at the speed of output, a 5-percent growth rate falls on the upper-bound of the MEF predictions.

## The role for redistribution

2.63 To simulate the effect of redistributive taxation we combine a proportional tax with and egalitarian distribution of tax revenue. That is, we assume that everybody pays a fixed fraction (10, 20 or 30 percent) of their income as taxes and receives a transfer from the government equal to  $R/N$ , where  $R$  is the total amount of money collected through the tax and  $N$  is the size of the population.

2.64 Redistributive taxation has a very small impact on poverty, even when high rates are considered, and a somewhat more important impact on extreme poverty and inequality. A 30 percent tax rate is associated with a 1 point decline in poverty and 40 and 25 point decline in extreme poverty and inequality—equivalent to the changes associated with per capita income growth of 3 percent (Table 2.11).

2.65 These changes are the result of significant redistribution between urban areas, where poverty increases slightly as a result of taxation, and rural areas, where poverty and particularly extreme poverty decline as a result of taxation (Table 2.11).

2.66 The relative ineffectiveness of this pure and naive redistributive policy is due to the fact that poverty rates are high and mean income low in Peru, hence any given tax extracts little in absolute terms from the rich to be given to the poor.

**Table 2.11: Redistributive policies alone have little impact on poverty but a large impact on extreme poverty**

	Present	t=10%	t=20%	t=30%
			Level in 2015	
<b>Nacional</b>				
Poverty headcount	100.0	99.9	99.6	99.0
Extreme poverty headcount	100.0	89.3	76.2	57.6
Gap	100.0	88.1	76.2	64.4
Severity	100.0	77.4	58.0	41.8
<b>Urban</b>				
Poverty headcount	100.0	100.5	101.6	102.6
Extreme poverty headcount	100.0	85.3	67.9	47.3
Gap	100.0	91.9	83.9	75.9
Severity	100.0	83.5	68.6	55.5
<b>Rural</b>				
Poverty headcount	100.0	99.1	97.2	94.9
Extreme poverty headcount	100.0	91.6	81.1	63.6
Gap	100.0	85.0	70.0	55.2
Severity	100.0	73.5	51.2	33.0
<b>Inequality - Gini</b>	100.0	92.2	83.5	74.6

Source: Sosa-Escudero and Lucchetti (2004).

2.67 Not surprisingly then combining redistributive taxation and growth produces larger changes in poverty and extreme poverty than taxation alone, since as time passes taxes are applied on a relatively richer population on average (Table 2.12). The same 30 percent tax considered above yields a 45 point decline in poverty and a 90 point decline in extreme poverty when paired with 5 percent per capita income growth.

**Table 2.12: Redistributive taxation, combined with growth, can have an impact on poverty and extreme poverty**

	Present	t=10 %	t=20 % Level in 2015	t=30 %
<b>Nacional</b>				
Poverty headcount	100.0	68.3	62.4	54.5
Extreme poverty headcount	100.0	52.1	34.0	9.3
Gap	100.0	51.2	36.6	23.3
Severity	100.0	40.4	22.8	11.0
<b>Urban</b>				
Poverty headcount	100.0	58.9	54.8	49.4
Extreme poverty headcount	100.0	35.3	23.5	11.0
Gap	100.0	45.6	35.6	26.2
Severity	100.0	38.4	25.5	15.6
<b>Rural</b>				
Poverty headcount	100.0	79.3	71.3	60.5
Extreme poverty headcount	100.0	61.9	40.2	8.3
Gap	100.0	55.8	37.5	20.9
Severity	100.0	41.7	21.1	8.0
<b>Inequality—Gini</b>	100.0	92.3	83.8	74.9

Source: Sosa-Escudero and Lucchetti (2004)

2.68 This combination also yields better results than growth alone, particularly in terms of extreme poverty reduction since a 5 percent per capita income growth rate was associated with a 45 point decline in poverty and a 50 point decline in extreme poverty.

2.69 The same cannot be said, however, about the combination of 5 percent growth with low taxation (10 percent). This can be explained by the existence of a large mass of individuals around the poverty line. When this is the case redistributive policies move part of this mass to the left, or below the poverty line, hence increasing the headcount rate. This implies then that for redistributive taxation to have a higher impact without resorting to high average taxation rates, it would have to become more progressive—i.e. to apply higher rates to higher income levels and/or to exempt low income levels from paying taxes.

## CONCLUSIONS

2.70 We have analyzed in this chapter the relationship between economic growth and poverty reduction in Peru during 1997-2003. We have shown that, although growth was been pro-poor, especially in rural areas, it was been insufficient to bring poverty down because it failed to generate employment and investment.

2.71 We have also explored the potential impact that economic growth can have on poverty in the future under several scenarios, to conclude that under realistic assumptions growth alone or combined with (too simple) redistributive taxation can only have a limited impact.

2.72 What can be done then to enhance the effect of economic growth? The case of Chile is illustrative in this regard (Box 2.1). Chile, like Peru, experienced several years of strong growth with no poverty reduction, until President Aylwin introduced a package of more progressive interventions, economic and social, to accompany existing growth policies. These interventions had the objective of helping the poor benefit from the opportunities generated by growth. Peru is already experimenting with

redistributive mechanisms based on contributions through the Mining Canon and others that channel resources from the mining industry to the poorest regions and local governments and which are expected to have a positive impact on poverty. These are welcome steps, but more needs to be done.

### **Box 2.1: Economic growth and poverty reduction: The case of Chile**

The deep financial crisis that hit Chile in 1982-83 led the economy to a recession that resulted in a 16 percent decline of GDP and 30 percent unemployment. Many banks and businesses failed. Almost half of the country's population fell below the poverty line, and as of 1983, 30 percent qualified as extreme poor. After the implementation of considerable changes to Pinochet's orthodox neoliberal model in 1985, including measures to encourage exports and make available debt relief to businesses that had been hardly hit by the recession, the economy recuperated and began a path of strong, steady economic growth, with GDP growth averaging 7 percent per year between 1985 and 1990. The immediate improvements in macroeconomic indicators, including a surge in employment generation and real wages, did not translate into a reduction of the country's high poverty levels right away, and as of 1987, 5 million people (over 45 percent of the population) were still poor. It took a number of years of substantial growth and macroeconomic stability for poverty to start to recede, and finally, towards the late 1980s, poverty levels dropped 6 percent, to 39 percent.

Aware of the very high level of poverty that still affected the country, the government of Patricio Aylwin, first elected president after the return to democracy in 1990, left the central economic policies of the military regime unchanged while introducing a progressive twist. An active pro-growth agenda was combined with aggressive social policies focused on equity, poverty reduction, and human capital development. Substantial increases in social investments, ranging from targeted employment programs to reforms in education and health, were financed by a tax reform program approved in 1990 that increased tax collection by 3 percent of GDP in subsequent years. The combination of a sound and stable macro framework with the government's active role on the social front was continued by the democratic governments that followed Aylwin's presidency. The results were outstanding: poverty reduction accelerated, and by 1998, the level of population living in poverty had declined to 20 percent, less than half of that in 1987. The "growth with equity" approach proved extremely effective, benefiting vulnerable groups across the board, including the elderly, poorly educated, and male and female household heads in both rural and urban areas. Poverty continued to fall after 1998. Despite being hit by a recession triggered by the international financial turmoil in the late 1990s, Chile was able to sustain countercyclical social policies thanks to public savings accumulated in the good years, which made it possible to expand expenditures in social programs without endangering economic stability, budget balance, or increasing country risk.

The crucial role that Chile's sound macroeconomic framework and strong growth since the mid-1980s played in poverty reduction is widely accepted. However, the extent to which the country's social agenda was effective in complementing growth to achieve poverty alleviation deserves further attention. A study conducted by Meller (1999) analyzed the factors driving Chile's outstanding poverty reduction. Using Cowan and De Gregorio (1996)'s "growth efficiency for poverty reduction" concept, Meller compares the poverty-to-GDP elasticity for four time periods between 1987 and 1996. He found that this elasticity is 50 percent lower during the 87-90 period of military rule than in the three periods with democratic governments (90-92, 92-94, and 94-96). In other words, whereas a 1% GDP increase between 1987 and 1990 reduced the percentage level of poor by 0.75%, the same increase in GDP caused a 1.15% poverty reduction during the 1990s. Meller concludes that high growth rates are necessary but not sufficient for poverty reduction, and that the social policies implemented by democratic governments constituted an important element for poverty reduction. Meller estimates that, due to social programs implemented during the 1990s, the total number of poor dropped by an additional 675,000 (of a total of 1,677,000 poor), which suggests that while 60 percent of Chile's poverty reduction between 1990 and 1996 can be attributed to economic growth, social policies explain the remaining 40 percent.

2.73 Chapters 4, 5 and 6 in this report will identify barriers that prevent the poor from benefiting from growth and propose policies to help them overcome these barriers. Chapters 4 and 5 will identify economic opportunities for the urban and rural poor respectively and discuss policies that contribute to create these opportunities. Chapter 6 will pay attention to the challenges the poor faced, particularly in terms of risk and vulnerability and terms of exclusion for public services and institutions, and provide policy recommendations to help the poor surpass some of these challenges.



### 3. NATURE, DISTRIBUTION AND EVOLUTION OF POVERTY<sup>23</sup>

3.1 The first step in the analysis of the relationship between poverty and public policy is understanding how poverty is distributed, both geographically and across households of different characteristics, and how (if at all) this has changed over time. In the chapter we examine the determinants of poverty in both a static and a dynamic framework, as well as the correlation between monetary poverty and alternative welfare measures. We also explore the implications that our discussion on the nature of poverty have when thinking about targeting social programs.

3.2 The chapter is structured as follows. The first section presents an updated poverty profile for 2003 and discusses the determinants and correlates of poverty, as well as the role of geographic as a determinant of persistent differences in poverty across regions. The second section presents a more detailed discussion on the micro-determinants of poverty dynamics. It identifies the factors behind changes in the distribution of income and, hence, in poverty and inequality, and examines some of the forces driving exit from and entry into poverty among rural and urban households. The third section examines the relationship between monetary poverty and other measures of welfare, such as the Unsatisfied Basic Needs index and the caloric deficit. Finally the fourth section discusses the appropriateness of various targeting tools for social programs given these results.

3.3 The main findings of the chapter can be summarized as follows:

- ❑ There are significant and persistent differences between poor and non-poor households. The poor tend to live in larger households, be less educated, and have lower access to basic services than their non-poor counterparts. They are also more likely to be unemployed or informally employed in urban areas, and more likely to work in the agricultural sector in rural areas. Finally households headed by an individual who speaks an indigenous language are more likely to be poor than other households, even after controlling for other observable differences.
- ❑ In addition there are significant differences in poverty across areas and regions. Poverty is higher deeper in rural than in urban areas and in the Sierra and the Selva than in the Costa. These differences can be explained almost entirely by household characteristics, access to basic services and road infrastructure rather than by geography.
- ❑ Poverty is a dynamic and multidimensional phenomenon and, as a consequence, traditional static poverty profiles based on single poverty measures only present a limited picture of the actual reality of poor households.
- ❑ Flows in and out of poverty are large. In any given year approximately 25 percent of all households make a transition between poverty and non-poverty. These transitions are not random but rather depend on both household characteristics and endowments and on the occurrence of shocks.
- ❑ In addition changes in household characteristics and endowments, and in their returns, drive most of the observed variation in the distribution of income over time and across space and, consequently, most of the variation in poverty trends and poverty differences across geographic regions. Recent increases in poverty have been the result of changes in the returns to education and changes in the composition of employment.
- ❑ Monetary poverty, on which the above results are based, is only one of the possible ways in which we can measure welfare. The Unsatisfied Basic Needs index and the caloric deficit are two other measures currently used in Peru. Although all three measures of poverty are positively correlated and expected to evolve in similar ways over the long-term, they do not produce the same poverty profiles in the short-term.

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23. This chapter is based on background work prepared by the report team, as well as on existing work by Escobal and Torero (2003) and Herrera and Roubaud (2002).

- The fact that who is poor and who is not changes over time, together with the notion that poverty can be defined in various different ways has important implications for the design and selection of targeting tools for social programs, an issue currently under discussion in Peru.

## POVERTY PROFILE

### Living conditions and characteristics of the poor

3.4 Although the poor everywhere live in marginal circumstances with respect to housing conditions and access to employment and basic services, living conditions vary widely across the country. We briefly discuss some of the differences and commonalities that exist between the poor and the non-poor, and across regions below. Our focus is on demographic characteristics, access to services and employment, since these fit best with the scope of the report.

3.5 **Income and expenditure levels:** Poor households have significantly lower levels of income and expenditure than non-poor ones, and these differences are larger in urban areas, particularly in Metropolitan Lima, than in rural ones (Table 3.1).

**Table 3.1: The demographic characteristics of the poor vary across urban and rural areas**

	Urban (excluding Lima)			Metropolitan Lima				Rural			
	Total	Non Poor	Poor	Total	Non Poor	Poor		Total	Non Poor	Poor	
<b>Per capita Total Income</b>	396	530	166 ***	818	1037	237 ***		172	304	100 ***	
<b>Per capita Expenditures</b>	340	450	149 ***	577	719	199 ***		168	285	104 ***	
<b>Size of Household</b>	4.4	3.8	5.4 ***	4.4	4.0	5.6 ***		4.4	3.3	5.0 ***	
<b>Dependency rate <sup>A</sup></b>	29.0	27.7	31.2 ***	28.2	27.9	29.1		39.0	37.6	39.7 ***	
<b>Age of head</b>											
Less than 25 years old	3.5	3.7	3.0	2.2	2.3	1.8		4.0	4.6	3.7	
25 to 55 years old	65.3	62.1	70.9 ***	64.7	60.3	76.3 ***		61.7	54.5	65.6 ***	
More than 55 years old	31.2	34.1	26.1 ***	33.1	37.3	21.9 ***		34.3	40.9	30.7 ***	
<b>Gender (% Female Head)</b>	23.4	24.6	21.5	24.4	26.4	19.2 ***		16.0	19.2	14.2 ***	
<b>Marital status of head</b>											
Cohabiting	23.3	17.7	33.0 ***	20.2	14.5	35.4 ***		28.8	23.6	31.6 ***	
Married	47.6	49.9	43.7 ***	49.5	52.1	42.6 ***		47.3	43.1	49.6 ***	
Widow/Divorced	22.5	24.3	19.4 ***	23.8	25.0	20.7 **		19.4	25.1	16.4 ***	
Single	6.6	8.1	4.0 ***	6.5	8.4	1.3 ***		4.5	8.2	2.5 ***	
<b>Education of head</b>											
No Education	6.2	4.6	9.0 ***	2.3	2.0	3.2 *		16.5	12.8	18.5 ***	
Primary	32.9	26.7	44.0 ***	22.3	18.3	33.4 ***		57.4	50.5	61.1 ***	
High School	37.6	37.3	38.2 *	45.1	42.6	52.2 ***		22.0	28.0	18.8 ***	
More than High School	23.3	31.5	8.7 ***	30.3	37.1	11.3 ***		4.1	8.7	1.6 ***	

Note: \*\*\* (\*\*) (\*) Difference between non-poor and poor is significantly different from zero at the 1 (5) (10) percent level.

Source: Authors' calculations using data from ENAHO 2003 (INEI)

3.6 **Household characteristics:** There exists a clear difference between poor and non-poor households in terms of their size and composition. Poor households are significantly larger than non-poor



ones and, as a consequence, tend to have higher dependency ratios (i.e. number of dependents per income earner). Households with certain types of people are also more likely to be poor or non-poor irrespective of household size. For instance, households headed by an elderly person are less likely to be poor. Female-households, however, do not appear to be more likely to be poor than male-headed households (Table 3.1).

**3.7 Ethnicity:** Defining who is and who is not indigenous is a complicated undertaking in Peru, since there does not seem to be a unique criterion that distinguishes the indigenous and non-indigenous populations. For the purpose of this report, we will classify people as indigenous if they speak one of more indigenous languages. However, because this definition may not be entirely satisfactory, we also present a brief discussion on the issue of ethnicity identification in Box 3.1.

**3.8** Households headed by an indigenous person exhibited significantly higher poverty rates than other households, even after controlling for other observable characteristics. Differences between indigenous and non-indigenous households are more marked in urban than in rural areas (Box 3.1).

**3.9 Education:** The education level of the household head is strongly related to the household poverty status. The average poor household head has primary education compared to secondary education among non-poor household heads (Table 3.1).

**3.10 Housing conditions:** The poor are less likely to own a title on their house or to own a house at all, especially in urban areas<sup>24</sup>. They are also more likely to suffer from overcrowding and to reside in inadequate housing (Table 3.2).

**Table 3.2: The poor are more likely to live in inadequate housing and to have less access to services**

	Urban (excluding Lima)				Metropolitan Lima				Rural			
	Total	Non-Poor	Poor		Total	Non-Poor	Poor		Total	Non-Poor	Poor	
<b>Ownership</b>												
Owner	68.3	68.7	67.6 ***		70.1	70.7	68.5		85.9	81.2	88.4 ***	
Owner (no title)	5.8	4.4	8.2 ***		3.6	1.8	8.5 ***		1.1	1.5	0.9 ***	
Rent	8.3	9.5	6.1 ***		10.6	11.5	8.0 **		1.7	3.4	0.9 ***	
Other	17.7	17.4	18.1 ***		15.7	16.0	15.1		11.3	13.9	9.9 ***	
<b>Housing conditions</b>												
Number of persons per room	1.6	1.2	2.2 ***		1.5	1.2	2.3 ***		2.2	1.4	2.6 ***	
Inadequate housing	7.9	4.4	14.0 ***		7.4	3.9	16.7 ***		14.7	14.3	14.9	
Overcrowded housing	7.8	3.1	16.0 ***		6.0	2.2	16.1 ***		18.5	6.1	25.2 ***	
<b>Access to Public Services</b>												
Water	70.6	77.5	58.7 ***		82.9	88.2	68.7 ***		32.8	40.2	28.7 ***	
Electricity	91.2	95.8	83.2 ***		98.0	98.5	96.9 **		31.8	45.9	24.1 ***	
Sanitary services	61.1	72.3	41.6 ***		81.4	87.0	66.3 ***		5.7	10.8	2.8 ***	

Note: <sup>A</sup> Percentage of household members that are 0-9 years old or 60+ years old.

Source: Authors' calculations using data from ENAHO 2003 (INEI).

**3.11 Access to services:** Access to water, electricity and sanitation is lower among poor households than among non-poor ones irrespective of their area of residence, although differences in access tend to be more acute in rural areas (Table 3.2).

24. For a detailed discussion on the impact of land titling on urban poverty, see Cantuarias and Delgado (2004), Cuánto (2001), Field (2002), Field and Torero (2004), and World Bank (1998).

**Box 3.1: Measuring the size and living standards of the indigenous population.**

**Measuring the size of the indigenous population.** Peru has a large and diverse indigenous population. The 2001 Encuesta Nacional de Hogares (ENAH) includes the following questions regarding ethnicity:

- What is your native language?
- What language do you use most frequently?
- What race/ethnic group do you belong to?
- What native language did/do your grandparents/parents use?

Because these questions respond to different concepts of ethnicity, ranging from language-based to culture-based, they produce different estimates of the size of the indigenous population—which vary from 47.7 percent of all households according to the broadest definition to 25.4 percent according to the narrowest, compared to the widely accepted figure of 30.0 percent from the 1994 Population Census. For the purpose of this report, we will use definition (1) below.

**Table B3.1.1. The size of the indigenous population varies with the definition of indigenous**

	All	By area		
		Lima	Other urban	Rural
		% of all households		
Non-Spanish native language (1)	33.7	3.1	11.4	19.2
Self-identification as indigenous (2)	42.6	5.0	16.3	21.3
(1) or (2)	45.2	5.4	17.3	22.5
Most frequently uses non-Spanish language (3)	25.4	2.0	7.1	16.3
Head of household grandparents/parents' native language was non-Spanish (4)	47.7	6.7	17.8	23.2

Source: Trivelli (2004)

Moreover, the term 'indigenous' hides significant heterogeneity—although households headed by Quechua speakers represent a majority (75 percent of all indigenous households), and additional 15 percent of households are headed by Aymara speakers (12 percent) and Amazon indigenous (3 percent) respectively.

**Measuring living standards among the indigenous population.** Indigenous households exhibit higher rates of poverty and extreme poverty than non-indigenous households, although important differences exist between urban and rural areas. In particular, while poverty rates are lower in urban than in rural areas for all households, the relative differences between indigenous and non-indigenous households are more marked in the former, especially in Lima, than in the latter.

**Table B3.1.2: The incidence of poverty is higher among indigenous households**

	All	Indigenous	Non-indigenous
Poverty headcount	46.8	63.8	42.0
Extreme poverty headcount	20.1	35.3	16.6
Poverty gap (FGT1)	17.4	26.2	13.2
Severity (FGT2)	8.7	14.1	6.2

Source: Authors calculations using data from ENAH (2001)

**Table B3.1.3: Poverty rates are lower and differences between indigenous and non-indigenous households higher in urban areas.**

	All	Indigenous	Non-indigenous
National	46.8	63.8	39.6
Lima	25.5	37.2	22.2
Other urban	41.4	52.3	38.0
Rural	72.2	78.6	65.8

Source: Authors calculations using data from ENAH (2001)

Although the differences between indigenous and non-indigenous households result partly from differences in the

endowments of both groups, indigenous households are still 11 percent more likely to be poor than otherwise similar non-indigenous households once these are taken into account. Once we disaggregate by area of residence, only in Lima do endowments seem to fully explain the difference in poverty rates between the two groups, which, given that relative differences were largest here, suggest that differences in endowments between indigenous and non-indigenous households are more marked in the capital than elsewhere.

**Table B3.1.4: Indigenous ethnicity is positively correlated with poverty, even after taking into account differences in endowments.**

	<b>Marginal effect of ethnicity on probability of being poor</b>
National	0.113** (6.66)
Lima	0.037 (1.48)
Other urban	0.066** (2.88)
Rural	0.106** (6.17)

*Source:* Trivelli (2004).

Numbers correspond to the coefficient of an indigenous ethnicity indicator variable in a logit model for the determinants of poverty (poor = 1, non-poor = 0). The model includes information on area of residence, household size and composition, demographic characteristics of the household head and other members, and employment characteristics of the household head.

\*\* Different from 0 at the 1 percent significance level.

Interestingly, despite the differences in monetary poverty, only 22 percent of all indigenous households responded positively to the question “Do you consider your household to be poor?”, compared to 23 percent of all non-indigenous households, thus suggesting that monetary poverty may not capture indigenous households’ welfare appropriately.

*Source:* Trivelli (2004).

**3.12 Employment:** Employment is the main source of income for the large majority of households, and thus one of the main determinants of poverty. Although there are no significant differences in household head employment rates between poor and non-poor households, the percentage of household members that is employed is larger in the latter.

**3.13** The type and sector of employment also have an impact on poverty. The informal sector provides employment to a higher share of the poor than the non-poor, especially in Lima. Self-employment and blue-collar employment are positively correlated with poverty and so is employment in agricultural activities.

### **Correlates of poverty**

**3.14** In this section we use conditional probit models, in which household poverty status is modeled as a function of “exogenous” variables, to examine more formally the relationship between poverty and some of the variables discussed above. This approach helps us identify variables that are directly correlated with poverty, once the effect of other variables is controlled for. We estimate these models separately by area and region to account for variation in the living conditions of poor and non-poor households.

**3.15** We briefly discuss here the results from these estimations, identifying common correlates across urban and rural areas, while the full-model estimates are provided in the Statistical Annex.

3.16 **Common urban factors:** Urban poverty across regions appear to be associated with (i) larger household sizes and a larger number of dependents, (ii) low levels of education of the household head, (iii) low access to services, (iv) unemployment of the household head and/or low labor force participation levels among other household members, and (v) employment in the informal sector of the household head.

3.17 **Common rural factors:** Rural poverty across regions appears to be associated with (i) larger household sizes and a larger number of dependents, (ii) low levels of education of the household head, (iii) low access to services, and (iv) employment in agriculture of the household head, although this is only significant in the Selva and the Sierra.

**Table 3.3: Poverty Profile**

	Urban (excluding Lima)			Metropolitan Lima				Rural			
	Total	Non Poor	Poor	Total	Non Poor	Poor		Total	Non Poor	Poor	
<b>Employment Status of head</b>											
Employed	94.2	94.0	94.4	93.1	93.3	92.7		99.4	99.3	99.5	
Unemployed	5.6	5.9	5.6	6.8	6.6	7.2		0.5	0.6	0.4	
Not in the Labor Force	13.5	15.9	9.2 ***	20.2	23.2	12.0 ***		4.1	6.6	2.8 ***	
<b>Labor Markets</b>											
Income earners/Adults (10+ years old)	67.6	72.4	59.2 ***	64.1	67.9	53.8 ***		61.6	72.0	55.9 ***	
<b>Informal Sector <sup>A</sup></b>											
Informally employed/Adults (10+ years old)	44.0	41.8	47.9 ***	33.7	31.7	39.0 ***		70.0	67.1	71.5 ***	
Informal employment of head	71.5	63.8	84.1 ***	60.7	53.7	77.9 ***		93.3	86.3	96.9 ***	
<b>Employment Category of head</b>											
Employer	10.0	12.2	6.5 ***	9.49	11.0	5.9 ***		11.0	16.3	8.3 ***	
White collar employee	20.0	27.4	7.9 ***	27.8	34.6	11.12 ***		3.7	8.2	1.3 ***	
Blue collar employee	22.0	17.9	28.7 ***	23.3	18.8	34.6 ***		12.4	15.6	10.7 ***	
Self-employed	43.6	37.8	53.2 ***	35.6	31.9	44.7 ***		71.4	57.5	78.6 ***	
Other	4.4	4.7	3.8	3.8	3.8	3.7		1.6	2.4	1.1 ***	
<b>Economic Sector of head</b>											
Primary Activities	26.6	19.5	38.3 ***	2.2	1.9	3.0 **		85.3	75.4	90.5 ***	
Public Sector	5.7	7.0	3.6 ***	4.8	5.5	2.9 **		1.7	2.9	1.0 ***	
Construction	5.9	4.2	8.6 ***	10.8	8.9	15.3 ***		1.8	2.0	1.6	
Manufactures	10.6	10.6	10.6	17.5	17.0	18.7		2.3	2.8	2.0 ***	
Services / Utilities	51.3	58.8	39.0 ***	64.7	66.6	60.1		9.0	17.0	4.9 ***	

Notes: \*\*\* (\*\*) (\*) Difference between non-poor and poor is significantly different from zero at the 1 (5) (10) percent level.

<sup>A</sup> Workers employed in unregistered firms and firms with 10 or fewer employees.

Source: Authors' calculations using data from ENAHO 2003 (INEI)

3.18 The evidence presented in this section then shows that there exist significant and persistent differences between poor and non-poor households across areas and regions. In particular there is a heavy concentration of poor households in the most geographically adverse regions, the rural Sierra and the Selva (see Chapter 1). Interestingly, as we discussed below, these differences across regions can be almost entirely explained by differences across household living in each region.

## The role of household characteristics versus the role of geography

3.19 In explaining regional differences in poverty rates one could consider two different views (Table 3.4). The first view postulates that differences arise from the spatial concentration of individuals with poor characteristics and endowments. Under this view identical individuals should have the same probability of being poor irrespective of where they live. The second view assigns a more causal role to geography, so that poor households living in a well-endowed area are more likely to live poverty than those who live in other areas.

3.20 Whether we believe in the first or the second view has important implications for policy making. In the world described by the first view investments in individual characteristics, such as education, are all that is needed to improve the living conditions of the poor. In contrast under the second view the returns to these characteristics may be a function of the local environment and, consequently, such interventions may fail to produce the desired results.

**Table 3.4: Regional differences in per capita expenditures can be mostly explained by differences in household access to private assets and infrastructure**

	Sierra-Costa	Selva-Sierra
<b>Total (log) difference</b>	-0.217	-0.167
<b>Explained</b>	-0.241	-0.244
<b>Residual</b>	0.024	0.077
	Difference explained by:	
<b>Household characteristics</b>	<b>-0.185**</b>	<b>-0.258**</b>
Household size	0.031**	-0.064**
Years of schooling (household head - HH)	-0.061**	-0.065**
Years of schooling (other members)	-0.069**	-0.102**
Potential labor experience (HH)	-0.013**	-0.024**
Gender (HH)	0.000	-0.001
Number of migrants	-0.009*	-0.005*
Savings	0.002**	0.000
Value of durable goods	-0.003	0.004
<b>Infrastructure</b>	<b>-0.024*</b>	<b>-0.064*</b>
Schools in town (per capita)	0.024	0.023
Medical centers in town (per capita)	0.010	0.009
Unsatisfied Basic Needs Index (UBN)	-0.058**	-0.095**
<b>Geography</b>	<b>-0.163</b>	<b>0.031</b>
Altitude	-0.036	-0.004
Temperature	-0.235**	0.173**
Temperature squared	0.117	-0.121
Igneous rocks	0.015*	-0.004*
Sedimentary rocks	-0.004	-0.009
Soil depth	-0.022	-0.005
<b>Location</b>	<b>0.050</b>	<b>0.039</b>
Urbanization	0.055	0.038
Distance to provincial capital	0.005	0.001
Geography * location	0.081*	0.007*
Urbanization * altitude	0.081*	0.007*

Note: \*\*(\*) Significantly different from zero at the 1 (5) percent level.

Source: Escobal and Torero (2003).

3.21 Escobal and Torero (2003) use Census data and LSMS data to explore whether geography has an effect on living standards once observable household and individual characteristics have been controlled

for. In order to do this they first model consumption as a function of household and individual characteristics, private assets, access to public assets and geographic factors, and then use this model to explain differences in consumption levels across the three regions: Costa, Sierra and Selva.

3.22 They conclude that most of the difference in per capita expenditures across regions can be accounted for by differences in private assets and infrastructure, measured using a “basic needs” index. In other words observationally equivalent households have similar probabilities of being poor irrespective of the geographic characteristics, such as altitude or temperature, of their region of residence (Table 3.4).

3.23 These results, however, do not indicate that geography does not matter, as the authors correctly point out, but rather that its influence on consumption comes through a spatially uneven distribution in the provision of public infrastructure.

3.24 A direct conclusion from this observation is that public investments in infrastructure in areas with adverse geography have significant redistributive and equalizing potential. In this context recent trends in public investment are worrisome. Both in absolute and relative terms the amount of resources devoted to public invest have declined steadily between 1999 and 2002, recovering only slightly afterwards (see Box 3.2). Although part of this decline can be explained by the privatization of large state-owned telecom and electricity enterprises during the 1990s, progress towards higher access to public services and road infrastructure has recently stalled even though important needs persist.

#### **Box 3.2: Public investment in basic services and road infrastructure**

The role of infrastructure as a key determinant of long-term growth and sustainable poverty and inequality reductions has been emphasized by numerous authors, most recently Easterly and Serven (2003) and Calderon and Serven (2004). In this box we briefly review recent trends in public investment expenditures, access to basic service and to road infrastructure in Peru, and propose a few policy options aimed at increasing and sustaining public investment levels.

Public investments levels declined significant, both in absolute and relative terms, between 1999 and 2002, and have only recovered slightly since. The level of public investment fell from 5,657 millions of Nuevos Soles, or 4.9 percent of GDP, in 1999 to 3,575 millions of Nuevos Soles, or 2.8 of GDP, in 2002. Although the level of investment had recovered to 4,083 millions of Nuevos Soles by the end of 2004 and further increases are projected by the Ministry of Finance, the estimated 2007 level is still below the 1999 one (Table B.3.2.1).

As a consequence of this deterioration in public investment levels, progress towards increased access to basic services and road infrastructure stalled after 2000 both in urban and rural areas compared to previous periods. The fraction of households with access to tap water increased from 59.9 to 60.9 percent between 2000 and 2003, compared with an increase from 54.8 to 59.9 during the three years prior. The same can be said about access to electricity and sanitation (Table B3.2.1). Similarly progress in extending road infrastructure was mainly due to local investments on rural roads, rather than to investments funded by the central government (not shown).

**Table B3.2.1: Progress in access to basic services stalled between 2000 and 2003**

	Access to tap water in dwelling			Access to electricity			Toilet in dwelling		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
1997	54.8	73.3	17.7	69.2	91.8	23.8	45.6	66.3	4.1
2000	59.9	73.5	33.2	72.8	95.2	28.9	47.1	69.5	3.3
2003	60.9		32.8	72.4		31.8	47.5		5.7

*Source:* Authors' calculations using data from the ENAHO 1997-2003 (INEI).

3.25 A slow-down in public investment in basic services and road infrastructure can then severely hinder future output and employment growth and, as a result, future poverty reduction. We will discuss in more detail the role of access to basic services and road infrastructure as determinants of economic opportunities for the urban and rural poor in Chapters 4 and 5 respectively.

## MICRO-DETERMINANTS OF POVERTY DYNAMICS

3.26 We have so far discussed poverty and its determinants in a static manner, as if taking a snapshot. However, poverty is a dynamic phenomenon. Household endowments and the returns to these endowments change over time and as a result, so does poverty. Similarly persistent differences in living standards across areas and regions can be mitigated or exacerbated by policy interventions.

3.27 We analyze flows in and out of poverty and study the micro-determinants of poverty dynamics from two different angles: changes in the distribution of income over time, and the role of geography in explaining spatial variation in income.

### Flows In and Out of Poverty

3.28 In thinking about poverty a distinction has often been made between permanent and transitory poverty, where the former is perceived as being the result of structural household and individual characteristics while the second is thought of as being the result of a transitory (or reversible) shock.

3.29 Whether most poverty is permanent or transitorily has important policy implications. For instance, one may want to consider social assistance policies in the first case, while interventions that promote access to credit and insurance may be more effective in the second (for a more detailed discussion on this, see Chapter 5).

3.30 A potential way to assess the prevalence of each “type” of poverty is to analyze flows in and out of poverty. Herrera and Roubaud (2002) do this in the case of Peru during 1997–99 using the panel data component of ENAHO. This panel contains information on 1,720 households for all three years, and for larger numbers when pairs of years are considered (Table 3.5).

**Table 3.5: Size of panel**

	1997	1998	1999
Total number of households	4,022	4,044	2,218
1997-98 panel	2,709	2,709	
1998-99 panel		1,872	1,872
1997-99 panel	1,720	1,720	1,720

*Source:* Herrera and Roubaud (2002).

3.31 Year-to-year flows in and out of poverty are large and stable over time. About 20-25 percent of all households change poverty status in-between years. In addition almost 40 percent of poor households exit poverty in any given year, while about 15 percent of non-poor households fall into poverty. Herrera and Roubaud (2002) check for the robustness of these figures to ensure that they are not driven by false transitions due to measurements error in income, and find that at least 85 percent of all transitions between states are driven by changes in income larger than 30 percent but within the boundaries of what is considered “plausible shocks” in a context of macro instability and absence of social protection networks (Table 3.6).

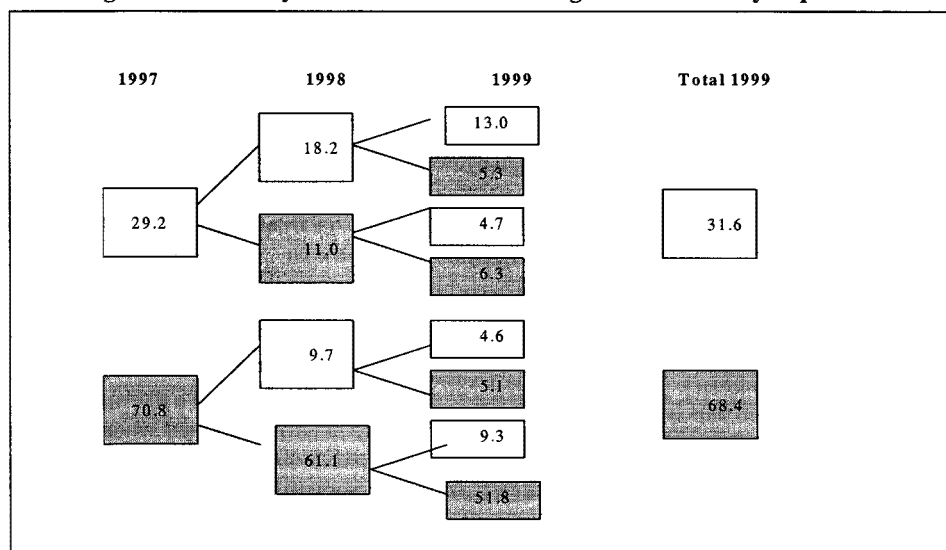
3.32 Transitions over three years also exhibit significant mobility, although certain within-state inertia exists. Approximately 35 percent of all households changes states at least once during those three years, while the rest remain poor (13 percent) or non-poor (52 percent). However households do not make transitions at random. Rather the probability that a particular household changes states seems to be contingent on history—i.e. a household that did not make a transition between 1997 and 1998 was less likely to do so between 1998 and 1999 (Figure 3.1).

**Table 3.6: Year-to-year flows are large and stable over time**

1997	1998		
	Poor	Non-Poor	Total
Poor	62.4	37.6	100.0 (29.2)
Non-Poor	13.6	86.4	100.0 (70.8)
Total	27.9	72.1	100.0
1998	1999		
	Poor	Non-Poor	Total
Poor	63.0	37.0	100.0 (27.9)
Non-Poor	19.4	80.6	100.0 (72.1)
Total	31.6	68.4	100.0

Source: Herrera and Roubaud (2002).

**Figure 3.1: Three-year transitions are still high but are history-dependent**



Source: Herrera and Roubaud (2002).

3.33 These seem to suggest that households with certain characteristics are more likely to remain either poor or non-poor, while others are more likely to change states. In order to investigate this, the authors first classify households in three categories according to nature of transitions during 1997-99: (i) permanently poor, (ii) never poor, and (iii) transitorily poor (poor during 1 or 2 years out of three). They then study the determinants of persistent poverty, when compared to no poverty, and the determinants of exit from and entry into poverty.

3.34 Household and household head characteristics are important determinants of persistent poverty, while shocks, both demographic and economic, and labor market attachment, measured as the fraction of formally employed household members, are important determinants of transitions. In addition neighbor characteristics seems to have some impact on both types of comparisons (Table 3.7)



**Table 3.7: Household characteristics are important determinants of persistent poverty while shocks are important determinants of transitory poverty**

	<i>Persistent Poverty versus Never Poor</i>	<i>Exit from Poverty versus Persistent Poverty</i>	<i>Entry into Poverty versus Never Poor</i>
<b>Head of household</b>			
Age	↓	↑	
Gender (Male)			
Primary or less	↑	↑	
Secondary	↑		
Self-employed	↑		
Unemployed/NLF	↑		
Employment in agriculture	↑		↑
Employment in manufacturing			
<b>Household</b>			
Size	↑	↓	↑
% members 0-9 years old	↑		↑
% members 10-15 years old			
% members 60 and above		↓	
Number of LF participants	↓		
Informality rate	↑		
No land/house title			
Access to tap water		↑	
Access to electricity	↓		
Access to toilet	↓		
Average education level	↓		↓
<b>Neighborhood</b>			
Average income	↓		
Average education level			
Informality rate		↓	
<b>Shocks</b>			
Loss of household head		↓	
Loss of employment of household head			↑
Loss of employment by other members		↓	↑
Increase in formally employed members		↑	

*Note:* ↑ indicates that x significantly increases the probability of the first state relative to the second, while ↓ indicates that x significantly decreases the probability of the first state relative to the second.

*Source:* Herrera and Roubaud (2002).

3.35 In sum flows in and out of poverty appear to be relatively large and stable over time. Moreover whether a particular household changes poverty status or not over a certain period of time is a function of both household characteristics and endowments, and of shocks. We explore the role of household characteristics and endowments are determinants of poverty dynamics, both across time and space, below and postpone the discussion on shocks and their impact to Chapter 6.

### **Determinants of Changes in the Distribution of Income**

3.36 Income levels and, consequently, poverty and inequality levels can change as a result of changes in household characteristics and endowments, of changes in the returns to these characteristics and endowments, or of changes in both. For instance, other things being equal income may rise and poverty

decline as average education levels increase or as the wages of female workers grow closing the gender wage gap.

3.37 In a companion study to this report, Sosa-Escudero and Lucchetti (2004) use household-level data to analyze the micro-determinants of changes in poverty and inequality in Peru during 1997–2002. In particular they explore the role of changes in (i) workers' human capital (measured by education and experienced, proxied by age and age squared), (ii) workers' demographic characteristics, (iii) job characteristics (measured by sector of activity, and type of employment, formal or informal), and (iv) geographic indicators (region and area of residence).

3.38 Their main findings are summarized below (Table 3.8) and a detailed explanation of their methodological approach is provided in Box 3.3:

**Table 3.8: Changes in inequality and poverty (per capita income)**

	Inequality		Poverty		Extreme Poverty		
	Gini	FGT(0)	FGT(1)	FGT(2)	FGT(0)	FGT(1)	FGT(2)
<b>Observed change 1997-2002<sup>A</sup></b>	1.9	6.3	3.9	2.7	3.7	2.0	1.4
<b>Returns</b>	0.0	-9.9	-7.2	-5.3	-8.9	-4.7	-2.9
Education	0.4	0.1	0.2	0.2	0.3	0.2	0.2
Gender	-0.1	-1.2	-1.0	-0.8	-1.5	-0.7	-0.4
Experience	-0.3	-8.8	-6.4	-4.7	-7.7	-4.2	-2.7
<b>Endowments</b>	-0.1	4.1	2.8	2.2	3.5	2.2	1.9
Education	0.1	-0.3	-0.2	-0.1	-0.3	-0.1	0.0
Industry of employment	0.0	0.6	0.6	0.6	0.7	0.7	0.7
Informality	0.1	0.4	0.2	0.2	0.3	0.2	0.2
Hours of work	-1.0	2.0	1.1	0.6	1.2	0.4	0.2
Region/area of residence	0.7	1.4	1.1	0.9	1.6	1.0	0.8
<b>Unobservables</b>	-0.6	0.5	0.2	0.1	0.3	0.1	0.1

*Note:* Observed changes in poverty and inequality are different from those presented in Tables 1.3a, 1.3b and 1.4 because the authors calculate poverty and inequality on the basis on (labor) income rather than consumption.

*Source:* Sosa-Escudero and Lucchetti (2004).

- Changes in the returns to education, particularly increases in the relative returns to higher levels of education, contributed to increase both poverty and inequality. Among household heads (typically, middle-aged male workers) real wages declined significantly for all educational categories except tertiary, while among non-household heads they increased slightly for all levels except incomplete primary. Both effects have contributed to an increase in wage dispersion across education levels. Given the relative importance of household-head earnings as a fraction of total household income, it is plausible for the first effect to be driving the observed changes.
- In contrast, changes in the educational structure of the work force contributed to poverty reduction, while having a mild impact on inequality. As the average level of education increases, so does the average wage paid to workers since wages are positively correlated with education levels.
- An increase in the wage differential between male and female workers, combined with a small increase in the percentage of male workers in the labor force resulted in higher inequality and lower poverty.
- Changes in the returns to experience had a poverty reducing, equalizing effect. This is due to a decrease in wage differences between young (less experienced) and old (more experienced) workers, which could be the result of a more rapid depreciation of older workers' skills (due, for instance, to technological change) or of the observed decline in job tenure (see Chapter 3 for a discussion on the issue of job tenure).

- Regarding job characteristics, changes in the distribution of workers across industries and between the formal and informal sectors increased poverty, but had a negligible effect on inequality. In addition changes in the number of hours worked resulted in higher poverty and inequality.
- Different growth patterns across regions and areas of residence resulted in both higher poverty and inequality.
- Changes in unobserved characteristics, such as school quality, labor market connections and unmeasured skills, have had an equalizing effect, but have also increased poverty

### **Box 3.3: Explaining changes in poverty and inequality using micro-simulations**

Microeconomic simulations of counterfactual distributions are helpful to characterize past distributional changes and to simulate the distributional impact of changes in economic factors and public policies. The characterization of past distributional changes relies on a decomposition exercise that analyzes the driving forces behind observed changes in the distribution of income. For this purpose the distribution of (labor) income at time  $t$  is modeled as a function of observable and unobservable individual characteristics, so that past changes in income can be attributed to (marginal) observed changes in such characteristics. Other sources of income, such as non-labor income or transfers, are not considered in the analysis.

This model can then be used to simulate counterfactual scenarios that evaluate the potential impact that changes in these characteristics could have on the distribution of income. For instance, in order to assess what the impact of an increase in the wages perceived by workers with tertiary education would be, a counterfactual distribution is generated using time- $t$  values for all individual characteristics but the returns to tertiary education, which is set at the desired level. In other words, the counterfactual distribution is the ones that would have been observed had the wages of tertiary workers increased while all other individual characteristics remained constant.

Sosa-Escudero and Lucchetti (2004) apply this methodology to analyze changes in the distribution of income in Peru during 1997-2002, and to simulate the potential impact of changes in various individual characteristics and policy variables on this distribution. For this purpose they estimate earnings equations using information on (i) workers' human capital (education and experience, proxied by age and age squared), (ii) workers' demographic characteristics, (iii) job characteristics (sector of activity and informality indicators), and (iv) geographical location (region and area or residence). These equations are estimated separately for heads and non-heads of households, and for urban and rural areas, using OLS and quantile regression methods.

The results from the decomposition exercise are discussed in Chapter 2 of this report, while the results from the simulation exercise are presented in Chapter 1.

*Source: Sosa-Escudero and Lucchetti (2004).*

3.39 In sum recent changes in poverty and inequality in Peru result from several forces acting in opposite directions. In general changes in the returns to individual characteristics have contributed to poverty reduction, while changes in the individual and job characteristics have pushed in the opposite direction.

### **ALTERNATIVE MEASURES OF POVERTY**

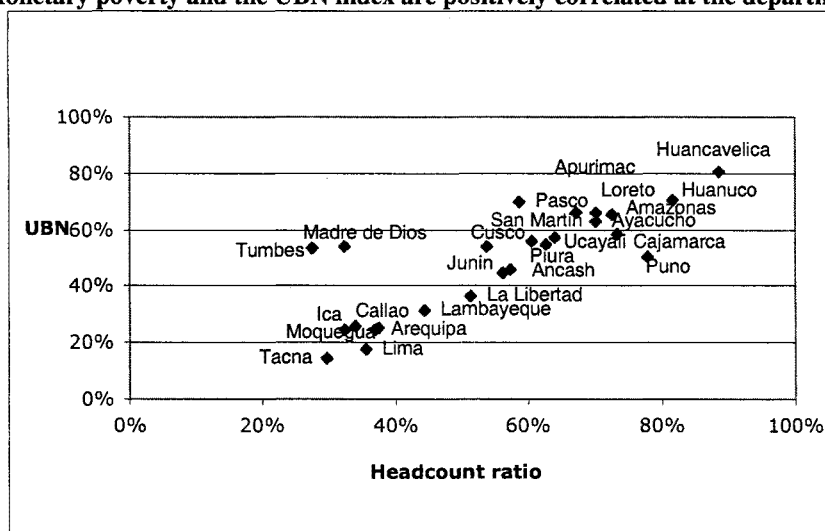
3.40 Poverty is a multidimensional phenomenon and, as a result, monetary measures of poverty, to which we have devoted all of our attention so far, can only provide us with a limited picture of the daily reality of the poor. In this section we explore two alternative definitions of poverty currently used in Peru, the index of Unsatisfied Basic Needs (UBN) and the caloric deficit (CD), and their relationship to monetary poverty.

## Unsatisfied Basic Needs

3.41 The Unsatisfied Basic Needs (UBN) index measures the fraction of the population subject to certain structural deficiencies. The index is a weighted summary of five-types of household-level variables and indicators: (i) characteristics of the dwelling, (ii) overcrowding, (iii) degree of access to basic sanitation services, (iv) the presence of children of schooling age currently not attending school, and (v) the household dependency rate.

3.42 The UBN index is thought of as providing a measure of structural deprivation or poverty and, as such, is not as sensitive to the business cycle as monetary poverty. In fact changes in the UBN index tend to reflect secular trends in economic growth and social investments. Both measures, however, are positively correlated. That is, areas with high levels of monetary poverty also tend to have high values of the UBN index (Figure 3.2).

**Figure 3.2: Monetary poverty and the UBN index are positively correlated at the department level**



Source: Authors' calculations using data from ENAHO 2002 and 2003 (INEI).

3.43 Poverty measured by the UBN index has declined steadily during the last 10 years. The fraction of the population with at least one UBN has fallen from 56.8 in 1993 to 40.3 percent in 2003. Progress has been significant in both urban and rural areas. The UBN declines from 42.4 to 25.3 and from 90.1 to 71.3 percent in urban and rural areas respectively during this period.

3.44 Most of this decline, however, took place during the 1990s, before public investment levels were cut significantly and progress in access to basic services stalled (Box 3.2). Further advancement in the reduction of the population share with UBNs will hence depend, among other factors, on the recovery of public investment levels (Table 3.9).

**Table 3.9: Unsatisfied Basic Needs Index (UBN)**

	At least one UBN	Inadequate dwelling	Overcrowding	Inadequate sanitary services	Presence of school-age children not currently enrolled	High dependency rate
<b>1993 Census</b>						
National	56.8	13.8	25.0	36.5	10.6	13.6
Urban	42.4	10.3	18.4	19.8	7.0	8.7
Rural	90.1	22.0	40.4	75.3	18.8	25.0
<b>ENAH0 2001.IV</b>						
National	41.9	11.6	18.8	23.4	2.8	2.6
Urban	28.9	9.7	13.6	12.3	1.3	1.9
Rural	69.8	15.6	30.1	47.4	5.9	4.1
<b>ENAH0 2002.IV</b>						
National	39.9	12.2	17.5	21.7	3.1	2.3
Urban	26.5	9.4	12.0	9.7	1.5	2.0
Rural	70.0	18.4	30.0	49.0	6.8	3.0
<b>ENAH0 2003.IV</b>						
National	40.3	11.5	16	23.7	3.3	1.5
Urban	25.3	6.5	7.6	10.2	1.5	1.2
Rural	71.3	16.9	28.1	51.2	6.3	1.9

Source: Cuánto (2004) and authors' calculations using data from ENAH0 2003.IV (INEI).

## Caloric Deficit

3.45 The caloric deficit measures the fraction of the population living in households where per capita food intakes are insufficient in terms of their caloric content; where individual minimum caloric levels are established according to demographic characteristics and area of residence.

**Table 3.10: The caloric deficit has increased in urban areas.**

	2001	2002	2003	2004
<b>National</b>	33.3	35.8	34.2	35.0
<b>Urban</b>	26.2	29.4	31.4	31.9
<b>Rural</b>	46.6	47.7	39.2	40.6

Source: ENAH0 2001.IV-2004.IV

3.46 The caloric deficit is therefore thought of as providing an alternative measure for extreme poverty. The extreme poverty line equals the monetary value of a basic food basket that provides the minimum caloric intake. However, because money is fungible, the fact that household income is equal to or above the extreme poverty line does not guarantee that household food consumption is sufficient to satisfy minimum caloric needs, while the caloric deficit provides a direct measure of actual nutritional deficiencies.

3.47 The nutritional status of the population, measured as the caloric deficit, has deteriorated over the past three years, particularly in urban areas. The percentage of the urban population with inadequate food

intakes has increased a whopping 22 percent between 2001 and 2004. This contrasts with the observed decline in extreme poverty, both in urban areas and across the country during this period (Table 3.10).

## **POVERTY MEASURES AND TARGETING INSTRUMENTS FOR SOCIAL PROGRAMS**

3.48 Social programs and transfers can be targeted using several tools and criteria. Targeting tools or mechanisms include poverty maps, which target benefits at a geographic level, proxy-means indicators, which target benefits at the household or individual level, and self-targeting mechanisms, such as the one employed in *A Trabajar* in Peru, which also target benefits at the household or individual level. In addition geographic areas, households or individuals can be selected as potential beneficiaries on the basis of a series of welfare criteria, ranging from income-based criteria, such as monetary poverty, to criteria based on structural deficiencies, such Unsatisfied Basic Needs (UBN) index.

3.49 The choice of a particular tool or criterion should then depend on the nature and main objectives of the program(s) being targeted. Programs directed to individuals or households, such as cash-transfer programs or programs that support the elderly, are better targeted using household-based tools, while programs direct to other units, such as school feeding programs or infrastructure investments, are better targeted using geographic criteria. Similarly programs aimed at alleviating income constraints or at minimizing the impact of cyclical shocks are better targeted using income-based criteria, while those aimed at improving living conditions over the medium-term are better targeted using criteria based on structural needs.

3.50 What does this imply for Peru? We briefly comment here on existing targeting tools, as well as on the ongoing discussion about the possible adoption of a proxy-means index as a new tool, and provide a few recommendations both.

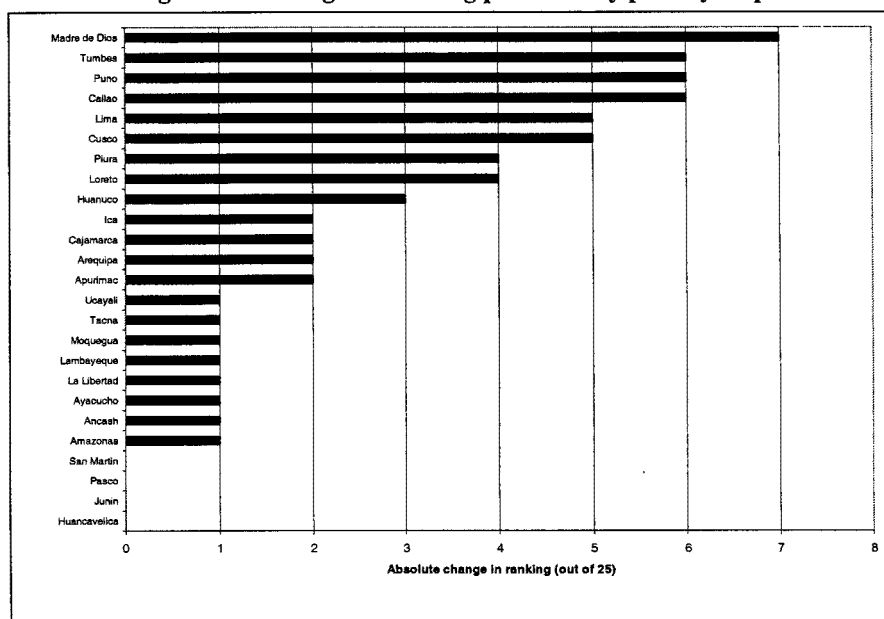
### **Poverty Maps**

3.51 Since the late 1990s Peru has used data from the 1993 Population Census to target certain social programs at the district level. Peru also has a Poverty Map that combines data from the 1993 Population Census and from household surveys to produce district-level poverty estimates.

3.52 Although the map has been updated periodically by using the latest available household survey (i.e. the last update uses the 1999 ENAHO), it suffers from a certain degree of obsolescence due to two factors. First, by relying on the 1993 Population Census sampling framework it fails to account for newly developed settlements, particularly in urban areas. Because most of these settlements are poor, this has caused the distribution of social programs to be slightly biased against urban areas, as we pointed out above. Second, economic circumstances in Peru have changed significantly since the map was first constructed. Although the use of recent household data accounts for some of these changes, the effectiveness of this strategy is limited since the accuracy of the map deteriorates rapidly as the dates on which the Census and the household survey were collected grow apart.

3.53 To illustrate this point we compare the department-level rankings produce by the latest poverty map (1994 Census and 1999 ENAHO) and by the 2003 ENAHO. The correlation between both rankings is high, but there are important disagreements between them, as measured by changes in the relative position a each department. In particular six departments go up or down in the ranking by 5 or more positions—a significant amount given that the total number of departments is 25 (Figure 3.3). Although this is clearly a very rough exercise that ignores that benefits are targeted at the district and not at the department level, and that significant variation in poverty rates exists within departments, it suggests that there is a certain disconnect between the country portrayed by the map and the actual allocation of poor households across areas and regions.

**Figure 3.3: Changes in ranking produced by poverty map**



Source: Authors' calculations using data from 1999 Poverty Map and ENAHO 2003 (INEI).

### Proxy-Means Indicators

3.54 The Government of Peru is currently considering the development of a proxy-means indicator to target certain social programs. Although Peru has used this kind of mechanism to target certain programs, such as ProJoven, in the past, it has not done so at a large scale.

3.55 The main advantage associated with the use of these indices is that they can help reduce leakages in the presence of significant within-district heterogeneity, or when programs target a specific population group rather than a specific income group.

3.56 Their construction, however, requires the collection of a significant amount of information for every household that has the potential of becoming a program beneficiary. This process can be expensive, although various strategies to minimize costs, such as self-reporting through "convocatorias populares" in rural areas, can be considered.

3.57 Moreover, as was the case with poverty maps, they are subject to obsolescence as household characteristics and circumstances change over time (i.e. a recent evaluation of the proxy-means index used in Ecuador indicates that the information used to construct the index should be updated every 4 or 5 years). This is particularly true if the index gives significant weight to household income or expenditure levels, as opposed to, say, the characteristics of the dwelling, since the former are more sensitive to cyclical fluctuations. Also because households are more likely to change economic status than entire geographical areas, the impact of business cycles is more acute for proxy-means indices than for poverty maps.

3.58 In thinking about developing such a tool the GOP should then consider a series of factors including:<sup>25</sup>

25. The Government of Peru is currently implementing a series of surveys representative at the provincial and district levels with the objective of gathering relevant data for targeting purposes.

- Potential savings from better, more effective targeting of certain programs. This could be estimated through simulation exercises using information on existing within-district heterogeneity and current geographical targeting rules.
- The cost of collecting the required information. This process could be made more economical by linking it to the Census, or by using self-reporting (especially in disperse rural areas).
- The tool's sustainability over time. The extent to which the information contained in the index depreciates over time will be a function of both its methodological design and the rate of change of overall economic and social conditions. Responsiveness to the latter can be enhanced by allowing the tool to remain "alive" in-between waves of information collection. This can be done using "ventanillas" where households that do not currently qualify as beneficiaries can request to be administered the index's questionnaire and where irregularities regarding current beneficiaries can also be reported by third parties. In both cases, reclassification of a particular household should be subject to verification of the information.

## CONCLUSIONS

3.59 In this chapter we have shown that there exist significant and persistent differences between poor and non-poor households in terms of their demographic characteristics, access to basic services and infrastructure, and employment status.

3.60 We have also argued, however, that poverty is a dynamic and multidimensional phenomenon and that, as a consequence, traditional static poverty profiles based on single poverty measures only present a limited picture of the actual reality of poor households.

3.61 Finally we have explored the implications of our discussion on the nature of poverty for the design and selection of targeting tools for social programs, an issue currently under discussion in Peru.



#### 4. ECONOMIC OPPORTUNITIES FOR THE URBAN POOR<sup>26</sup>

4.1 Employment constitutes the main and frequently the only source of income for most families living in urban areas, so more often than not the lack of it leads to poverty. Labor income accounts for more than 75 percent of total income among urban households. As a result, the focus of this chapter will be on labor markets and the capacity of the urban economy to generate employment and income and, therefore, reduce poverty.

4.2 The chapter is structured as follows. The first section discusses the relationship between labor markets and poverty in urban areas paying attention to the relative importance and the determinants of participation in formal and informal activities and to recent labor market trends<sup>27</sup>. The second section uses data from the urban manufacturing sector to study existing constraints to employment creation, with a particular focus on the role of labor legislation. The third section examines the nature and productivity of informal economic opportunities available to the poor, and analyzes the cost of informality. Finally the fourth section concludes.

4.3 The main findings of the chapter can be summarized as follows:

- ❑ The average urban household obtains most of its income in the form of labor income, but important differences exist between poor and non-poor households in terms of their income generating strategies. Poor households rely relative more on informal activities and are less able to minimize income risk by diversifying across different economic activities than non-poor ones. Higher participation in the informal sector can be explained by lower education levels among poor household members.
- ❑ Recent improvements in average employment and wage levels have failed to translate into lower urban poverty rates because they have been concentrated among formal, more educated workers, employed in larger firms, and have not extended to the informal sector where most of the poor are employed. Future declines in urban poverty will therefore depend on the capacity of the urban economy to generate more productive, well-paid jobs, particularly in those sectors that employ the poor.
- ❑ Firms identify labor legislation rigidities and uncertainty about future sales as the main constraints to formal employment creation. Peru's labor legislation is very protective *de jure*, but offers low and unequal coverage *de facto* due to the extensive use of temporary contracts and the high incidence of informality. As a result the impact of labor legislation extends beyond formal permanent employment to affect overall employment levels and its composition.
- ❑ Most of the urban poor are employed in small, informal businesses. Low levels of productivity among poor entrepreneurs and, consequently, lower wages among their employees can be explained by lower levels of education of both employers and workers, lower levels of market integration and lower access to basic infrastructure.
- ❑ High levels of informality are associated with inequality in access to social protection and with productivity and fiscal costs. Slow and costly business registration procedures, inflexible labor regulation, high levels of uncertainty among employers, and low and costly access to credit are the main reasons behind high informality rates.

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26. This chapter is based on background work prepared by the report team, as well as on existing work by Saavedra and Torero (2003) and Jaramillo (2004a).

27. For this purpose informality will be defined on the basis on firm size (10 or fewer employees) and/or on the basis of the individual's employment status (self-employed), rather than on legalistic terms (keeping of formal accounting, contributions to Social Security, etc.). This decision responds to data availability restrictions.

- As a result policy interventions aimed at promoting formal employment creation, increasing the productivity of informal activities and creating incentives for the formalization of informal businesses can go a long way in reducing urban poverty.

## LABOR MARKETS AND URBAN POVERTY

4.4 Urban households obtain most of their income through the use of their labor and other productive assets. The productivity of these assets varies across sectors and activities and so do their returns. As a result the sector and type of employment individuals and households have access to bears an impact on income and poverty. In addition changes in economic and labor market conditions over the business cycle can also have an impact on the nature of economic opportunities available to urban households, both poor and non-poor.

4.5 In this section we discuss the relationship between type (e.g. salaried or self-employment) and sector (e.g. formal or informal) of employment and poverty, and examine the determinants of participation in different sectors. We also review recent labor market trends and discuss how they have affected urban poverty, if at all.

### Employment, Labor Income and Poverty in Urban Areas

4.6 There exists significant variation in the incidence of poverty across groups of people with different labor market status. Poverty rates are highest among the informal salaried and self-employed (35 percent) and among the unemployed (33 percent). And they are lowest among the formal self-employed (5 percent), employers (17 percent) and formal salaried workers (18 and 14 percent for private and public workers respectively). Individuals who are out of the labor force exhibit poverty rates that are in between those of the previous groups (28 percent), probably due to the presence of pensioners among them (Table 4.1).

**Table 4.1: Unemployment, self-employment and informal employment are positively correlated with poverty**

	Extreme poor	Poor
	Percentage of individuals in group	
<b>Employer</b>	1.6	17.3
<b>Formal</b>		
Salaried private	1.2	17.8
Salaried public	1.4	13.9
<b>Informal</b>		
Salaried private	4.8	34.8
<b>Self-employed</b>		
Formal	0.9	5.0
Informal	5.1	34.8
<b>Unemployed</b>	3.3	33.3
<b>NLF</b>	4.1	27.9

*Note:* Labor market calculations are based on information for all individuals between 20 and 60 years old. NLF calculations are based on information for all individuals 60 and above.

All workers in firms with 10 or fewer employees and all self-employed individuals (with the exception of professionals) are considered informal.

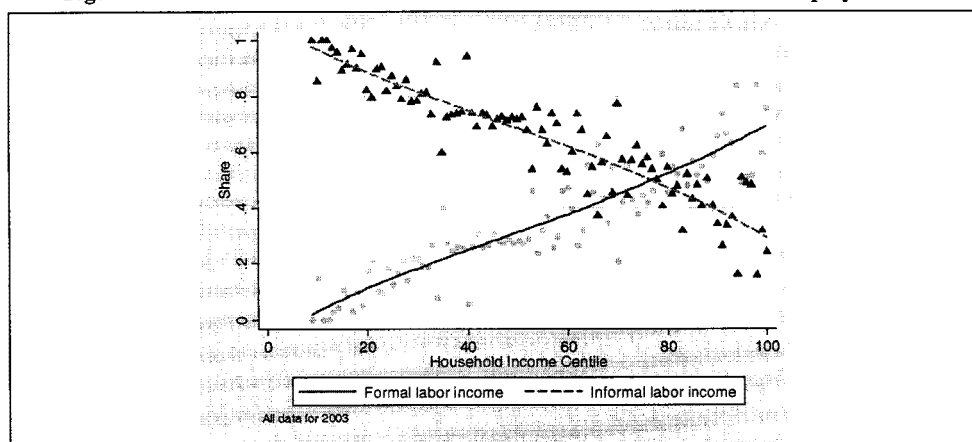
*Source:* Authors' calculations using data from ENAHO 1997–2003 (INEI).

4.7 Moreover most of the variation in poverty rates can be explained by differences between sectors rather than by differences between types of employment. On average poverty rates are higher among workers in the informal sector than among their formal counterparts, irrespective of whether they are self-employed or salaried employees.

4.8 Welfare differences across formally and informally employed individuals translate into welfare differences across households, as the capacity of their members to access formal or informal employment determines the nature of income sources households depend on.

4.9 Poor households rely relatively more on informal activities than non-poor households. Households in the bottom quintile of the income distribution (the poorest households) obtain 95 percent of household labor income from the informal sector, compared to 40 percent for households in the top quintile (the richest households). In addition informal self-employment is particularly important among poor households, while members of non-poor ones are more likely to be formal salaried workers, both in the private and public sectors (Figures 4.1a and 4.1b).

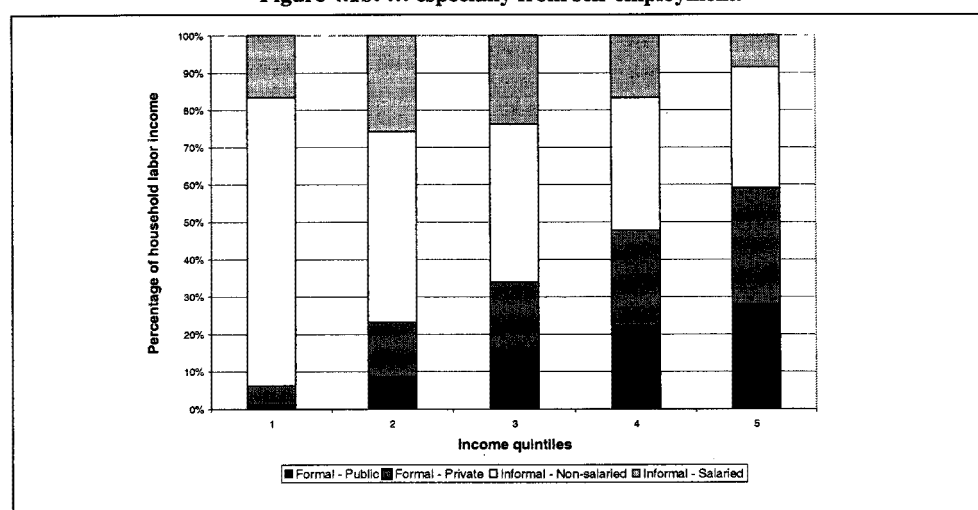
**Figure 4.1a: Poor households obtain most of their income from informal employment...**



*Note:* All workers in firms with 10 or fewer employees and all self-employed individuals (with the exception of professionals) are considered informal.

*Source:* Authors' calculations using data from ENAHO 2003.IV (INEI).

**Figure 4.1b: ... especially from self-employment.**



*Note:* All workers in firms with 10 or fewer employees and all self-employed individuals (with the exception of professionals) are considered informal.

*Source:* Authors' calculations using data from ENAHO 2003.IV (INEI).

4.10 Informal activities are not exclusively limited to poor households, however, nor are formal ones limited to non-poor ones. Twenty-five and 35 percent of household income comes from formal activities for those in the second and third quintiles respectively. Similarly, informal self-employment commands about 35 percent of household income among those in the fourth and fifth quintiles (Figure 3.1a and 4.1b).

4.11 Finally non-poor households seem to be better able than poor ones to minimize income risk by diversifying across different economic activities. Poor households rely on fewer labor income sources and thus are more exposed to sector-specific shocks. For instance informal self-employment represents 80 and 50 percent of total labor income for households in the first and second quintiles. In contrast, richer households have access to a larger number of income sources, each of which account for at most 30 percent of total labor income (Figure 4.1b).

4.12 The capacity of individuals and, as a result, households to access formal and informal employment is a function of both individual characteristics and labor market conditions. In addition the latter can change over the business cycle and have an impact on the employment opportunities available to urban households. We analyze both the micro-determinants of access to employment in different sectors and recent labor markets trends below.

### **Determinants of Participation in Formal and Informal Activities**

4.13 In order to examine the determinants of participation we distinguish between formal and informal activities in urban areas, where the informal sector includes workers in firms with 10 or fewer employees and unregistered, non-professional self-employed individuals. We also concentrate on private salaried and self-employment and exclude from our analysis employers, public sector employees, workers in the domestic service sector and all those employed in family businesses. Finally we differentiate between salaried and self-employed individuals in the informal sector in response to the evidence provided in the literature that the reasons for being informal vary significantly across both groups (Maloney, 2003).

4.14 We use regression analysis to examine the impact of individual and job characteristics on the likelihood of (different types of) employment in the formal and informal sectors. We estimate two different models for this purpose: a probit model that distinguishes between formal and informal workers, and an ordered logit model that distinguishes between formal workers, informal salaried workers and those self-employed in the informal sector. Our results can be summarized as follows (Table 4.2):

- **Demographic characteristics:** Male household heads are more likely to be formally employed than other male members of the household. In contrast, both female heads and other female household members have a higher probability of being informal than their male counterparts. Older workers appear more likely to participate in informal activities according to the probit model, although this result is not significant. The role of age as a determinant of participation in formal and informal activities appears to be more nuanced, however, once we distinguish between informal salaried and self-employment in the ordered logit model. In particular younger workers are more likely to be salaried employees in the informal sector, while older workers are more likely to be self-employed, suggesting that the role of formal and informal employment may vary with age (i.e. informal employment can constitute an entry port into the labor market for young salaried workers, and a profitable employment alternative for older self-employed individuals).
- **Education:** The probability of being informally employed decreases with education, and it does so more rapidly for higher levels of education. In the ordered logit model the negative correlation between education and informality is stronger among salaried workers than among the self-employed, which is again consistent with the idea of informal self-employment representing a viable option for older (and skilled) workers looking for higher flexibility.

**Table 4.2: Participation in formal and informal activities is a function of worker and job characteristics**

	Probit Informal	Informal salaried	Ordered logit Informal non-salaried	Formal
	Marginal effects (dy/dx)			
Household head	-0.041** (0.006)	-0.045** (0.010)	-0.010** (0.003)	0.059** (0.013)
Female	0.085** (0.006)	0.021** (0.010)	0.004** (0.002)	-0.026** (0.012)
Female HH head	0.056** (0.010)	0.042** (0.013)	0.003** (0.001)	-0.049** (0.014)
Age	0.006 (0.001)	-0.014** (0.002)	-0.003** (0.000)	0.018** (0.002)
Age squared	0.000 (0.000)	0.000** (0.000)	0.000** (0.000)	-0.000** (0.000)
<b>Education</b>				
Incomplete primary		Baseline category		
Complete primary	-0.012 (0.010)	-0.001 (0.008)	-0.002 (0.003)	0.001 (0.010)
Incomplete secondary	-0.052** (0.010)	-0.001 (0.008)	-0.002 (0.004)	0.001 (0.010)
Complete secondary	-0.117** (0.009)	-0.032** (0.007)	-0.008** (0.002)	0.040** (0.010)
Tertiary	-0.177** (0.010)	-0.077** (0.010)	-0.025** (0.005)	0.097** (0.017)
<b>Industry of employment</b>				
Agriculture		Baseline category		
Construction	0.182** (0.005)	0.256** (0.038)	-0.071** (0.022)	-0.191** (0.017)
Manufacturing	0.134** (0.006)	-0.035 (0.020)	-0.011 (0.010)	0.040 (0.030)
Services	0.407** (0.010)	0.044** (0.019)	0.019** (0.009)	-0.072** (0.028)
Utilities	-0.170** (0.049)	-0.179** (0.011)	-0.324** (0.060)	0.493** (0.071)
<b>Occupation</b>				
Managers/Professionals		Baseline category		
White collar	0.460** (0.009)	0.861** (0.024)	-0.193** (0.011)	-0.693** (0.034)
Blue collar	0.734** (0.012)	0.702** (0.031)	0.154** (0.008)	-0.888** (0.024)
Other	0.290** (0.003)	0.815** (0.012)	-0.490** (0.005)	-0.343** (0.012)
Region dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes

Note: \*\*(\*) Significantly different from 0 at the 10 (5) percent level.

All workers in firms with 10 or fewer employees and all unregistered self-employed individuals, with the exceptions of professionals, are considered informal.

Source: Author's calculations using data from ENAHO 1998-2003 (INEI).

- **Industry of employment:** Workers in the construction, manufacturing and service sectors have a higher probability of being employed informally than those in primary activities—the baseline category—or in the utilities sector. Higher incidence of informality in the construction and service sectors is partly the result of seasonal cyclicalities, while higher incidence of informality in manufacturing is a reflection of the large number of micro and small firms in the sector. The positive effect of employment in construction and services on the probability of being informal is driven by its impact on the probability of informal salaried employment, rather than informal self-employment.
- **Occupation:** The probability of being informally employed decreases as we move from blue to white-collar activities according to the probit model—a distinction that can serve as a proxy for skill

requirements, hence confirming the existence of a positive relationship between formality and human capital. Once we distinguish between informal salaried and self-employment, however, interesting differences arise. In particular, employment in white collar activities increases the probability of being a salaried worker in the informal sector, while employment in blue collar activities increases the probability of being self-employed in the informal sector.

4.15 In sum male primary earners, older and more educated workers are on average more likely to be formally employed than other individuals. We find evidence, however, that these relationships may vary as individuals progress along their working careers—i.e. some older and more educated workers may contemplate informal self-employment as an attractive alternative to formal employment. An issue we will return to later on in this chapter.

4.16 Differences across demographic and, particularly, education groups in terms of access to formal and informal employment, combined with the fact that the poor tend to be less educated than the non-poor, explain why the poor are more likely to be informally employed. In addition this relative concentration of the poor in the informal sector, combined with recent labor market trends, explains, as we discuss next, why urban poverty has not been very responsive to economic and, more recently, employment growth in urban areas.

### Recent Labor Market Trends

4.17 The macroeconomic developments of 1997-2004 had a direct impact on urban labor markets. Urban employment in formal firms with 10 or more employees fell as a consequence of the 1998 economic crisis and started to recover only in 2002. Wages paid by these firms also declined after 1998, but bounced up faster than employment surpassing pre-crisis levels by 2003. The same general employment and wage trends can be detected in Lima, where increases in employment have been accompanied by increases in unemployment as labor market participation rates have gone up in response to better economic prospects (Table 4.3).

**Table 4.3: Urban employment and wages declined after the 1998 crisis and recovered as economic growth resumed.**

	1997	1998	1999	2000	2001	2002	2003	2004
<b>Urban areas</b>								
Employment index <sup>A</sup>	114.7	111.7	105.8	103.1	101.9	104.3	106.1	109.4
Wage index <sup>B</sup>	98.0	98.1	95.2	96.5	96.8 <sup>D</sup>	NA	101.6	
<b>Metropolitan Lima</b>								
Employment index <sup>A</sup>	113.6	111.1	104.9	101.2	101.8	103.8	105.8	108.2
Unemployment rate	8.6	6.9	9.4	7.8	8.8	9.7	10.3	
Wage index <sup>C</sup>	85.8	84.3	83.0	82.8	83.5	86.2	88.5	88.7 <sup>E</sup>
Managers	117.3	129.0	131.4	136.4	139.3	143.0	153.9	157.7 <sup>E</sup>
White collar employees	93.6	98.1	101.1	101.6	102.8	102.4	105.4	104.4 <sup>E</sup>
Blue collar employees	85.8	84.3	83.0	82.8	83.5	86.2	88.5	88.6 <sup>E</sup>

Note: January 2001 = 100, <sup>B</sup> March 1996 = 100, <sup>C</sup> 1994 = 100. <sup>D</sup> Data from September 2001, <sup>E</sup> Data from June 2004.

NA: Not available.

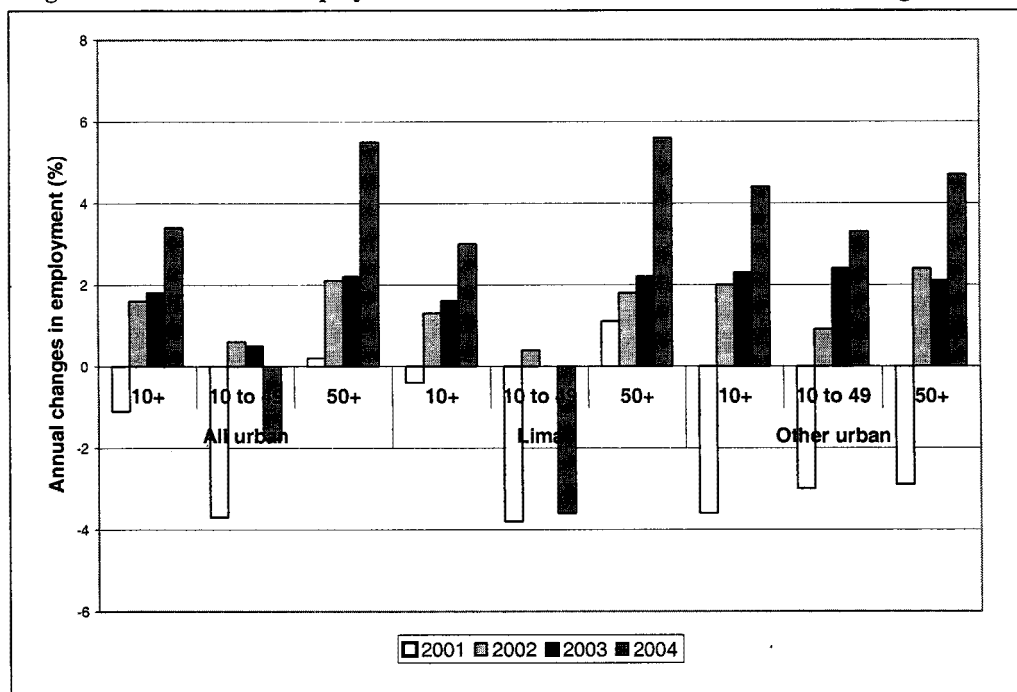
Employment and wage figures correspond to formal firms with 10 or more employees.

Source: Labor Statistics from the Ministry of Labor (Encuesta Permanente de Empleo e Informe Estadístico Mensual)

4.18 Improvements in average wage and employment levels, however, have not benefited all workers and sectors equally. The bulk of labor income adjustment fell primarily on low-skilled workers (blue collar workers or “obreros”), compared to managers or white collar workers (Table 4.3). In addition, as we pointed out in Chapter 1, the composition of urban employment has changed as its level has recovered. First, improvements in employment in firms with 10 or more employees have been driven by improvements in large firms (i.e. firms with 50 or more employees), especially in Lima (Figure 4.2). Second, if we consider all urban employment, rather than just employment in firms with 10 or more

employees, and pay attention to the employment rate<sup>28</sup>, rather than the level of employment, we observe that this rate has remained constant during 1997-2003, at around 70 percent<sup>29</sup>. Finally the informality rate has increased significantly in recent years, from 75 percent in 1997 to 80 percent in 2000 to 83 percent in 2003.

**Figure 4.2: Increases in employment have been concentrated in medium and large firms...**



Note: Employment figures correspond to firms with 10 or more employees.

Source: Ministerio de Trabajo (*Informe Estadístico Mensual*, 2001-04).

4.19 One important limitation of the data produced by the Ministry of Labor, on which the numbers above are based, is that it only covers formal employment. Casas and Yamada (2005) use the ENAHO 2001-2004 to document overall labor market trends, both formal and informal, and reach similar conclusions. Overall employment levels have increased but the quality of employment, proxied by the incidence of underemployment, has deteriorated and hourly earning for the average workers have remained constant in real terms.

4.20 Furthermore weak linkages between large and small firms have prevented positive growth among the former from trickling down to the latter. In 2003 about 46 of all large firms interviewed by Cuánto, a think-tank<sup>30</sup>, declared that they buy at most 20 percent of their inputs from small suppliers and 60 percent declare that they sell at most 20 percent of their output to small clients (Table 4.4).

28. Percentage of (potential) labor force participants who are employed.

29. See Figure 2.8 in Chapter 1.

30. Encuesta de Opinión (Cuánto, 2004).

**Table 4.4: The linkages between large and small and medium firms are weak**

	Sales			Purchases		
	2001	2002	2003	2001	2002	2003
	Percentage of large firms that sells/buys from medium and small firms:					
Up to 20%	45.9	44.0	62.0	42.3	36.6	46.5
Between 20% and 40%	24.3	26.1	18.6	12.6	21.6	12.9
Between 40% and 60%	12.6	15.7	4.7	14.4	12.7	2.9
Between 60% and 80%	9.0	3.7	1.2	13.5	14.2	5.9
Between 80% and 100%	2.7	3.7	1.2	9.9	6.7	4.1
No answer	5.4	6.8	12.3	7.2	8.2	27.7

Source: Authors' calculations using data from Cuánto (2004).

4.21 Given these developments and the fact that the poor are more likely to be employed as blue collar workers and in small and/or informal firms than the non-poor, it is no surprise that recent improvements in wages and employment levels in urban areas has done little to bring urban poverty down (Table 4.5). Sixty-five percent of the working poor is employed in blue collar occupations, compared to 45 percent of the non-poor, and hence were exposed to the decline in wages that took place during 1997-2000. Similarly only 17 percent of the poor work in firms with 50 or more employees, compared to 30 percent of the non-poor, so that positive increases in employment levels among these firms could only have limited impact on this group.

**Table 4.5: The poor are more likely to work in blue collar occupation and in informal and/or small firms than the non-poor**

	Poor	Non-poor
	Percentage of workers in group	
<b>Occupation</b>		
Managers	3.7	15.7
White collar employees	20.4	37.2
Blue collar employees	66.5	43.6
<b>Informality rate</b>	83.9	67.3
<b>Firm size</b>		
0-9	76.2	60.2
10-49	6.7	8.2
50+	17.1	31.5

Note: All workers in firms with 10 or fewer employees and all unregistered self-employed individuals, with the exceptions of professional, are considered informal.

Source: Authors' calculations using data from ENAHO 1997.IV-2003.IV (INEI).

4.22 Future declines in urban poverty will therefore depend on the capacity of the urban economy to generate more productive, well-paid jobs, particularly in those sectors that employ the poor. The acceleration in employment and wage growth observed in 2004 and the first months of 2005 constitutes a step in the right direction, but further progress will be needed. We examine this issue in the second part of this chapter. We use firm-level data from a recent *Investment Climate Survey* conducted by the World Bank in Peru to analyze existing constraints to urban employment creation by large, medium and small firms, paying special attention to labor market rigidities and the role of labor legislation. In addition, because most of the urban poor are employed in small, informal businesses we also examine the determinants of productivity of informal activities, as well as the barriers to formality these and other firms face.



## CONSTRAINTS TO EMPLOYMENT CREATION IN URBAN AREAS: AN ANALYSIS OF THE MANUFACTURING SECTOR

4.23 In this section we discuss the existence and nature of constraints to employment creation in urban areas using information on manufacturing employment. Although manufacturing represents only 12 percent of total urban employment in the private sector, there are important insights to be gained regarding the overall functioning of the urban economy. Neighboring manufacturing and service sector firms operate in very similar economic environments, are subject to the same macroeconomic shocks and face the same set of labor and business rules and regulations. Therefore, to the extent that the decision to grow or to be formal or informal depends on the economic environment rather than on the sector the firm operates in, observations on the behavior of manufacturing firms will be informative about the potential behavior of service firms.

### Barriers to Employment Creation and Business Development

4.24 We use firm-level data collected in Peru by the Investment Climate Project (Development Economics Research Group, The World Bank). The sample contains information on 534 manufacturing firms located in urban areas in Ancash, Arequipa, Ica, La Libertad, Lima and Callao, Puno, Piura and Ucayali. For the purpose of the analysis, we divide firms in three groups according to their size: small, with 1 to 10 employees and (normally) not subject to labor inspection; medium, with 11 to 99 employees; and large, with more than 100 employees. Large firms are more likely to have more than one establishment, to count with public or foreign participation and to engage in export activities than medium and small firms (Table 4.6).

Table 4.6: Firm characteristics vary with firm size

	All	Small (0 to 10)	Medium (11 to 99)	Large (100+)
Number of firms	534	199	256	79
Average size	85.3	5.6	34.0	452.3
Age of firm (years)	17.6	13.3	18.2	26.1
Number of establishments	1.4	1.5	1.1	1.8
Foreign participation (% of total capital)	5.6	1.5	4.6	18.9
Exporter (% of all firms)	44.0	21.6	50.0	84.8
Share of production in exports (%)	22.0	9.1	24.1	47.7
Total sales in 2001 (Nuevos Soles 1,000) <sup>A</sup>	20,457.3	6,014.6	3,365.8	89,150.2
Total costs in 2001 (Nuevos Soles 1,000) <sup>A</sup>	15,511.9	4,375.6	3,178.2	66,250.9
Food and beverages	6.7	2.0	5.0	24.0
Textiles	43.6	47.7	44.9	29.1
Wood and paper	11.9	13.5	12.8	5.0
Chemical	20.0	14.0	22.2	27.8
Metal	11.0	13.5	10.1	7.5
Other	6.5	9.0	4.9	6.3

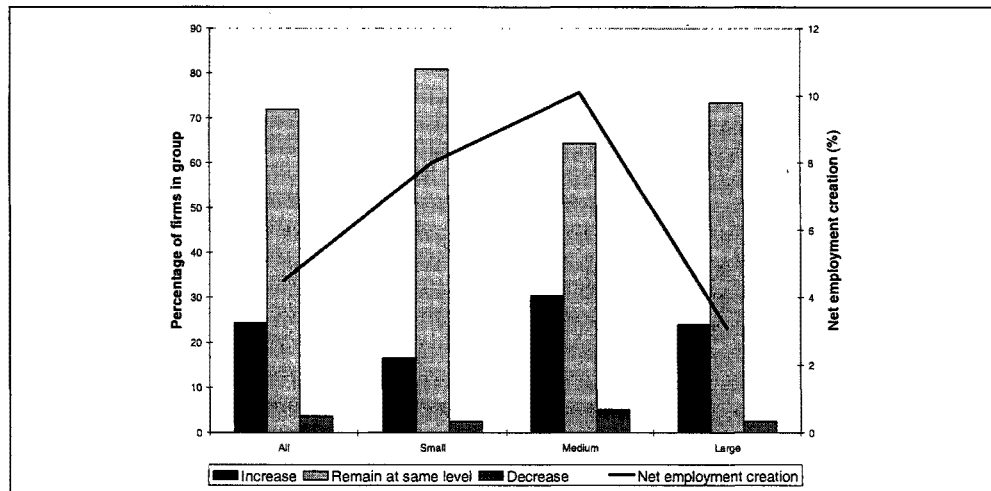
Note: <sup>A</sup> Data on sales and costs is only available for 116 firms (36 small firms, 58 medium firms and 22 large firms).

Source: Authors' calculations using data from the Investment Climate Assessment (World Bank, 2003b)

4.25 All interviewed firms were asked whether, if faced with no constraints, they would increase, decrease or maintain the actual number of permanent workers employed at the firm, and, when choosing to increase or decrease it, by how much. Using this information we construct estimates of firms' unconstrained preferences regarding net employment creation.

4.26 Twenty-five percent of all firms declared they would like to increase the number of permanent workers they employed, compared with less than 5 percent that would decrease it, and 70 percent that would maintain it at its current level. Since firms were also asked to report the magnitude of the desired change, we can calculate a hypothetical 'unconstrained' net employment creation rate, which stands at 4.5 percent (Figure 4.3).

**Figure 4.3: Twenty-five percent of all firms would like to hire more workers in unconstrained**



Source: Authors' calculations using data from the Investment Climate Assessment (World Bank, 2003b)

4.27 Unfortunately we can not benchmark this figure by comparing it to the actual rates of employment creation and destruction among firms in the survey because this information is available only for a very small number of these firms and, when available, it appears to be inconsistent with other employment data in the survey. We can, however, compare it to changes in urban employment levels in the manufacturing sector in the last few years, as recorded by the Ministry of Labor. The manufacturing employment index increased from 88.0 in 2000 to 92.0 in 2004, a 4.5 percent increase. That is, the desired net employment creation reported by firms in the sample in 2001 is equivalent, in percentage terms, to that observed in urban areas over a span of 4 years.

4.28 The share of firms reporting desired changes is largest among medium firms, while reported desired changes are largest among small firms. Medium-size firms more frequently report they would like to increase or decrease the number of permanent workers they employ than other firms. However, conditional on a desire to increase or decrease employment, it is small firms that report the largest "ideal" changes. Regarding hiring (firing) small firms report they would increase (decrease) the size of their workforce by 64 (47) percent, compared to 40 (24) and 28 (12) percent among medium and large firms respectively.

4.29 Differences in desired changes across firms are consistent with the idea that small firms are relatively more constrained when thinking about employment changes, and particularly employment growth, because most of them operate informally and significant increases in size would force them to become formal.

4.30 The reasons given for the difference between actual and desired hiring and firing behavior vary somewhat with firm size, and do not appear to be symmetric with respect to the desired course of action. This is not surprising given that small firms are less likely to be unionized and to comply with certain labor regulations than larger firms, as long as they remain small. For instance, firing costs appear to be a greater constraint when thinking of contracting than when thinking of expanding, probably due to the fact that in the first case they would have to be incurred immediately while in the second they would only materialized if the newly employed workers were to be fired in the future. Similarly firing costs also appear to be a stronger constraint for medium and large firms who are more likely to comply with existing regulations than for small ones. This asymmetry could indicate that a reduction in legislated firing costs could initially lead to a reduction in permanent employment and/or a substitution of permanent employees for temporary ones. Uncertainty regarding future sales also plays an important role in shaping hiring and firing decisions, which is consistent with our discussion in Chapter 2. Finally unions and bureaucratic procedures with the Ministry of Labor do not seem to impose to heavy a burden on either hiring or firing (Table 4.7).

**Table 4.7: Firing costs and non-wage labor costs are the main reasons for not hiring and firing permanent workers as desired**

	All	Small (0 to 10)	Medium (11to 99)	Large (100+)
<b>Not increasing</b>				
Firing costs	50.0	39.3	50.0	68.4
Non-wage labor costs	73.8	69.6	76.9	68.4
MOL procedures	6.1	15.1	3.8	0.0
Unions	1.5	0.0	1.2	5.2
Sale expectations	29.2	39.3	26.9	21.0
<b>Not decreasing</b>				
Firing costs	70.0	NA	76.9	NA
Non-wage labor costs	55.0	NA	69.2	NA
MOL procedures	5.0	NA	0.0	NA
Unions	5.0	NA	0.0	NA
Sale expectations	15.0	NA	15.3	NA

*Note:* NA: Not available due to the small number of firms in this group reporting desired decreases (5 small firms and 2 large firms).

*Source:* Authors' calculations using data from the Investment Climate Assessment (World Bank, 2003b)

4.31 Although the discussion in this chapter is focused on the impact of labor legislation on employment creation, it is important to keep in mind that there are numerous other factors that also affect employment and, more generally, business decisions by firms. In fact in some cases these factors may be considered more important or binding constraints than labor legislation.

4.32 Firms interviewed in the Investment Climate Survey were asked to identify constraints to business expansion. The main constraints mentioned were uncertainty regarding economic performance and policy, informal and unfair competition and the limited access to and high cost of credit as the most important constraints (Table 4.8). We have already discussed the issue of uncertainty (Chapter 2). We discuss informality in the next section and summarize the results on access to and the cost of credit presented in the Peru's Investment Climate Assessment (World Bank, 2003b) in Box 4.1.

**Table 4.8: Uncertainty about economic performance and policy, informality and access to credit appear as the most important constraints to business expansion**

	Small (0 to 10)	Difference S and M	Medium (11 to 99)	Difference M and L	Large (100+)
Percentage of firms in group					
<b>Labor</b>					
Workforce skill level	7.0	**	16.0	*	10.1
<b>Infrastructure</b>					
Telecommunications	5.0		3.5		3.7
Electricity	10.5		11.3		10.1
Transport	8.0		7.4		6.3
Access to land	15.5		12.5	**	1.2
<b>Financial resources</b>					
Access to (national) credit	50.7	**	38.6	**	22.7
Access to (international) credit	48.2	**	34.1		29.1
Cost of credit	66.1	**	58.8	**	31.6
<b>Economic environment</b>					
Uncertainty about economic policy	69.3		74.2	**	56.9
Macroeconomic instability	67.8	**	59.3	**	44.3
Corruption	59.7		58.2	*	49.3
Crime	58.2	**	50.0	**	36.7
Informality and unfair competition	69.8		71.0	**	58.2
Smuggling	67.8	*	62.1	**	43.0

Source: Authors' calculations using data from the Investment Climate Assessment (World Bank, 2003b)

\*\* (\*) Difference between both values is significantly different from zero at the 5 (10) percent level.

**Box 4.1: Limited access to and high cost of credit appears to be a concern for Peruvian businesses**

Limited access to and high cost of credit constitute one of the most important constraints currently facing Peruvian firms according to a recent World Bank report on the investment climate in Peru (World Bank, 2003b). In this Box we briefly summarized the report's results and recommendations regarding these problems.

In Peru, financial markets have low penetration, with only 45 percent of firms having loans, in contrast with 85 percent in Malaysia. In addition, the cost of finance is very high, particularly for small and medium enterprises (SMEs), which pay high interest rates and must post high levels of collateral. Peru has improved dramatically over the last several years on the quantity and quality of information available to financial intermediaries. However, due to very high inefficiencies in judicial enforcement of contracts, the financial system continues to depend on high levels of collateral, particularly for new clients. This has the effect of stifling dynamism and entry of new firms and ensuring that those who do manage to enter are less likely to grow quickly. A recent report by the IDB estimates that improvements in contract enforcement by the judiciary could lead to increases in sales of 25 percent or more and increases in the order of 9 percent for investment (Herrero and Henderson, 2003). Because asset registries also function poorly and judicial proceedings for asset recuperation are complex and lengthy, SMEs typically cannot use their machinery (often their largest assets) as collateral for loans and therefore find it difficult to invest, expand or upgrade their technological capabilities.

To improve access to credit, a reform of the moveable asset registries should be carried out to form a coherent integrated system that allows the identification and prioritization of claims, and facilitates their rapid, low cost registration and search. Such a registry system should facilitate the reclamation of assets by all parties and not only banks. An efficient, well functioning asset registry combined with streamlined debt collection proceedings can help revolutionize credit markets in Peru and allow the creation of new instruments that can reach smaller firms. This in turn should free up a large fixed asset class (machinery and equipment), currently not eligible for collateralization for most borrowers, particularly SMEs.

Source: World Bank (2003b).

## Labor Legislation and Employment

4.33 We examine next the nature of labor legislation and the extent to which it impacts employment levels and employment creation. In analyzing the nature of existing legislation we distinguish between what the legislation is intended to do (de jure effectiveness) and what the legislation actually achieves (de facto effectiveness) while in commenting on its impact we rely on the extensive literature already available. Finally we draw some policy recommendations based on the results presented on this section regarding employment creation and the role of labor legislation as a deterrent to further employment growth.

### *The Nature of Labor Legislation: De Jure versus De Facto Protection*

4.34 In order to examine the nature of labor legislation, or any legislation for that matter, it is important to distinguish between the level of protection that the legislation intends to provide and the level of protection that it actually provides once the extent to which the legislation is enforced is taken into account. This distinction is especially important when discussing potential changes to the legislation since well-intentioned principles may result into unintentional but inequitable outcomes once the law is implemented.

4.35 Peru's legislation provides high levels of employment and worker protection on paper—it offers good employment conditions and access to social protection and is protective of employment and of labor relationships. Botero et alia (2003) compare labor legislations across 85 countries focusing on three different dimensions: (i) employment regulation (available contractual forms, employment conditions and firing costs), (ii) labor relationships regulation (collective bargaining, participation of workers in management, conflict resolution mechanisms), and (iii) social security regulation (access to pensions, health and unemployment insurance). The authors measure a country's relative position using indices that vary from 0 (low protection) to 1 (high protection for each of the three elements within dimensions (in parentheses above) and from 0 to 3 for each dimension<sup>31</sup>.

4.36 Permanent employment conditions are good and protection is high, compared to other countries in the region and the world (Table 4.9). For instance, Heckman and Pages (2002) estimate average firing costs in 1999 to be equal to 13.8 average monthly wages, down from 15 in 1987, but still significantly higher than the regional average of 5.5 or the English-speaking industrialized countries average of 1.5. Similarly the legislation protects labor relationships and, to a lesser extent, access to social security (Table 4.10).

**Table 4.9: Permanent employment protection is high**

	Employment conditions 0 (low protection) to 1 or 3 (high protection) 0-3	Severance pay 0-1	Average firing costs Monthly wages
Peru	1.67	0.70	13.8
Latin America	0.75	0.50	5.5
Industrialized countries	0.40 <sup>A</sup>	0.12 <sup>A</sup>	1.5
All countries	0.63	0.35	

Note: <sup>A</sup> English-speaking industrialized countries

Source: Botero et alia (2003) and Heckman y Pages (2002).

31. For a detailed methodological discussion on the construction of these indices, see Botero et alia (2003).

**Table 4.10: Labor legislation protects labor relationships and access to Social Security**

	<b>Labor relationships</b>	<b>Access to Social Security</b>
	0 (low protection) to 3 (high protection)	
Peru	2.29	1.24
Latin America	1.45	1.75
Industrialized countries	0.53 <sup>A</sup>	2.26 <sup>A</sup>
All countries	1.24	1.67

Note: <sup>A</sup> English-speaking industrialized countries

Source: Botero et alia (2003).

4.37 These regulations, however, are relatively easy to avoid by using temporary rather than permanent contracts to hire new workers, or by operating in the informal sector. Temporary and hourly employment represents 20 percent of all private sector salaried employment and 50 percent of all contract-based employment in Metropolitan Lima (Jaramillo, 2004). This reflects that fact that restrictions on temporary or hourly hirings are significantly lower in Peru, with an index value of 0.28 (where 0 is easy and 1 is difficult), compared to those in Latin American or the industrialized countries averages, with index values of 0.55 and 0.5 respectively. In addition we have already mentioned that the informality rate in urban areas is close to 70 percent.

**Table 4.11: Coverage of severance payments is unevenly distributed**

	<b>Income quintiles</b>				
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Percentage of individuals in group				
Private sector + (formal) contract	0.5	0.6	3.0	5.9	10.1
Private sector + Social Security	0.5	2.5	5.4	10.5	16.1
Private sector + Firm with 20+ employees	0.7	1.5	4.5	7.7	11.4

Note: Private employees are salaried workers with tenure of 1 or more years.

Source: MacIsaac and Rama (2001) using data from ENNIV 1994.

**Table 4.12: Access to employment-linked social protection varies with type of contract**

	<b>All salaried</b>	<b>Permanent</b>	<b>Other</b>	<b>No contract</b>
Health insurance	32.6	97.3	80.0	6.3
Pensions	33.5	99.7	84.8	6.0
Bonuses	58.9	90.9	88.1	29.9
Individual unemployment accounts (CTS)	29.1	63.2	52.4	0.4

Source: Jaramillo (2004a).

**Table 4.13: Coverage of health and pension systems and of permanent employment varies by income level**

	<b>Income quintiles</b>				
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	Percentage of individuals in group				
Health insurance	100.0	10.0	18.3	18.9	20.6
Pensions	100.0	9.9	18.2	16.9	18.1
Permanent contract	100.0	8.2	16.6	19.2	19.2

Source: Jaramillo (2004a).

4.38 As a result labor markets in Peru are de facto flexible, although this flexibility comes at the cost of low and unevenly distributed employment protection and access to social security.<sup>32</sup> Heckman and Pages (2002) conclude that only 17.9 percent of all urban employment and 51.9 percent of all salaried employment is hired in full compliance with Peruvian labor regulation, compared to 39.5 and 60.0 respectively in LAC. The authors also estimate that non-compliance with minimum wage equals 23.5 percent of the relevant population in Peru, while it is 10.0 in LAC. In addition to low levels, coverage is unevenly distributed with higher access among non-vulnerable groups. MacIsaac and Rama (2001) analyze differences in access to severance pay in the event of job loss by income quintile and by type of contract and show that it is significantly higher among richer workers, workers with access to social security and workers employed in firms with 20 or more employees (Table 4.11). Jaramillo (2004a) explores differences in access to social protection by type of contract and income levels and finds similar patterns (Table 4.12 and 4.13).<sup>33</sup> The author also shows that only a quarter of those entitled to received severance pay compensation actually do so due to the high costs of enforcement, in terms of both time and money, associated with bureaucratic and legal procedures.

4.39 In sum, labor legislation in Peru offers high levels of protection de jure but low levels of protection de facto due to the high incidence of informal employment and the extended use of temporary contracts in the formal sector. This, however, does not mean that labor legislation does not have an impact of employment levels and, particularly on employment composition. We briefly discuss existing literature on these topics next.

### *The impact of labor legislation on employment*

4.40 Several authors have analyzed the impact of various aspects of Peruvian labor legislation on labor demand, employment tenure and job tenure, the composition of total employment, and labor productivity making use of legislative changes in the early 1990s as an identification strategy. Their main conclusions can be summarized as follows:

- **Labor demand.** Saavedra and Torero (2004) examine the impact of firing costs, measured as expected severance payments, on labor demand and show that it is negative and significant, both at the firm and sector level. They also find that the magnitude of the coefficient decreased in the post-reform period, suggesting that labor market deregulation in the early 1990s effectively brought about a reduction in the cost of employment. In addition, they find evidence that labor market flexibility facilitated formal firms' adjustment to desired employment levels during the different stages of the business cycle. Employment demand elasticity appears to have increased during the latter part of the 1990s, though evidence is not very robust. Also, it is not possible to establish the extent to which this phenomenon can be attributed to the reduction of firing costs or the larger utilization of temporary contracts (Saavedra and Maruyama, 1999). Price and output elasticities increased as well, likely due to the fact that the reforms made it easier to adjust to the desired employment levels.
- **Employment turnover and job tenure.** Saavedra and Torero (2004) also examine the extent to which increased labor market flexibility prompted an increase in turnover and a reduction of job duration, in particular in the formal sector. Using data for 1985-1997, they find that mean tenure started to decline in 1992, coinciding with the beginning of labor market legislation changes. Though the reduction in mean tenure may be related to a certain extent to the recovery initiated in 1993, the observed decline cannot be explained solely by cyclical movements of the economy. They also find that the fall in tenure was larger (and statistically significant) for formal workers than for informal

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32. This dichotomy between de jure and de facto protection levels is not exclusive to Peru and can be observed in many other countries in and outside the region where enforcement is weak and informality rates are high (Saavedra, 2004; World Bank, 2004e).

33. Jaramillo's figures are similar qualitative but different in magnitude from those in Tesliuc (2005), who shows that 1.6 percent of those in bottom quintile and 25.1 of those in top quintile contribute to pension system.

ones, and that the differences in mean tenure between the formal and informal sectors fell significantly during the 1990s. In addition Saavedra and Torero (2004) shows that worker rotation increased considerably since 1993 and argues that this change cannot be explained by demographic growth or changes in sector distribution alone, as simulations of the evolution of employment mean duration over time controlling for demographic and sectoral characteristics yield no significant changes. He also shows that employee rotation was considerably larger for salaried than independent workers, who are not directly affected by legislation, and that, after the reforms, employment duration diminished at a faster rate for formal salaried workers than for any other group. These results indicate that the observed increase in employment rotation and decline in mean tenure can be attributed to changes in labor legislation, and particularly to employers increased ability to use temporary contracts and to lower firing costs.

- **Composition of employment.** Labor market reforms in the early 1990s, combined with the economic expansion that begun in 1993, translated into higher employment levels, both in the formal and informal sectors. Positive net employment creation during this period, however, hides significant changes in the composition of the labor force (Saavedra and Torero, 2004). Layoffs were biased towards older workers while hiring was biased towards younger ones, since the relative costs of firing tenured, more expensive workers had decreased significantly after the reforms and younger workers could more easily adapt to new technologies.

In addition, Saavedra and Maruyama (1999) also report a significant shift to temporary employment contracts after the reforms were introduced. Temporary employment increased from 19 to 44 percent of all contracts between 1986 and 1997, and it grew by 400 percent among industrial medium and large enterprises. Although these increases in temporary employment may seem puzzling in the context of increased hiring and firing flexibility and lower permanent employment costs, employers' decision to use these contracts widely may have been responded to various reasons, including (i) labor cost minimization, (ii) prevention of unionization, and particularly (iii) the possibility that the new legislation was revoked given the distinct lack of consensus building that characterized the environment in which labor reforms were formulated.

Saavedra and Chong (1999) also report an increase in the number of informal workers during the 1990s, in spite of lower permanent employment costs and greater flexibility. The authors identify a number of factors that contribute to explain this rise, such as improvements in tax collection, demographic shifts and technological changes that affected the productivity of different types of workers and sectors. In addition, higher informality may have been employers' and workers' response to increases in non-wage costs in 1987 and in 1990 associated with changes in caps and minimums in several contributions and with the increase in the National Housing Fund (FONAVI) and in pension contributions.

- **Productivity.** Changes in the composition of the labor force appear to be correlated with a decline in labor productivity, even in the face of economic growth. The Investment Climate Report for Peru (World Bank, 2003b) presents evidence showing that total productivity is lower among enterprises with a higher percentage of unregistered workers. This result comes as no surprise, since total factor productivity grows as processes become more efficient and working practices improve overtime. Workers without a contract are typically the least experienced, the least skilled and least likely to receive significant training from the firm, which limits their potential contribution to total factor productivity growth.

In addition Saavedra and Torero (2004) finds a significant positive relation between salaries and productivity in the years after the reform. Wages increased only in those sectors that experienced increases in productivity, and vice versa. The author concludes that the slow growth of labor productivity that characterized Peru during the 1990s was a major factor behind the slow rate of growth of both for formal and independent workers' wages.



## Policy Recommendations

4.41 We have argued in the two previous sections that employment legislation affects not only those employed in the formal sectors, but rather all firms and workers. Legislation intended, in principle, to protect workers can, in practice, result in low and inequitable levels of protection across workers employed in different sectors or under different types of contract. In particular a small group of permanent workers (insiders) enjoys high levels of protection at the expense of their non-permanent counterparts (outsiders). In addition labor legislation has an impact on the overall level of employment and on its composition. These results have important implications for policy making.

4.42 To a large extent these patterns result from differences in wage and non-wage costs between permanent and temporary employment. According to estimations by Peru's Ministry of Labor the hourly labor cost of permanent workers is 1.4-1.5 times that of temporary workers and 5-6 times that of workers with no contract (Ministry of Labor, 2004a). These differences reflect both higher wages and higher levels of protection (i.e. non-wage costs) among permanent workers than among their non-permanent counterparts.

4.43 We present below some policy options that can contribute to diminish the cost gap between permanent and other contracts. In theory this gap can be closed by either increasing the cost of temporary employment, by decreasing the cost of permanent employment or both. However, in practice increasing the cost of temporary employment without simultaneously decreasing that of permanent employment would only result in higher relative costs of formal employment and higher levels of informality.

4.44 Moreover, although they do contribute to increase de facto flexibility, reforms that introduce flexibility at the margin but leave the main rules of the game unchanged do not constitute sustainable long-term solutions to the problem of excessive rigidity of permanent employment legislation. The experience of Spain after the introduction of temporary contracts in the early 1980s provides a good example in this regard<sup>34</sup>. This implies that comprehensive rather than partial reforms must be undertaken.

4.45 Finally the implementation of either option will generate winners and losers and thus will face political economy constraints. This needs to be taken into account and compensatory measures put in place when appropriate and/or necessary.

4.46 Increasing the cost of temporary employment could require, among other factors:

- **The limitation of their use to temporary activities.** This could be done by allowing the use of these contracts only under specific circumstances that justify doing so because of their temporary nature—for instance, replacing a sick or absent worker, or handling seasonal increases in the firm's activity. A reduction in the number of contractual modalities available could help make this process more transparent.
- **The limitation of contract duration.** Limits could also be imposed on the maximum duration of any specific contract and on the maximum number of consecutive contracts that can be offered to the same worker. It could also be stipulated that if this limit is surpassed the worker becomes automatically a permanent employee. In doing this, however, caution must be exercised in order not to mitigate incentives for employers to dismiss otherwise productive workers immediately before these limits are reached.

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34. A comprehensive discussion of the Spanish experience can be found in Dolado, Garcia-Serrano and Jimeno (2002); Hernanz, Jimeno and Kugler (2003), and Garcia-serrano (1998) among others.

4.47 In evaluating these proposals we must also take into account that certain groups of workers may be hurt by temporary contracts becoming more expensive. These are likely to be workers that we would consider vulnerable, such as women, young workers and the unskilled. To minimize the impact that these measures can have on these groups, it would be important to complement them with compensatory measures. These could range from targeted training programs to the introduction of special contracts (i.e. apprenticeship, etc) aimed at easing their labor market insertion.

4.48 Decreasing the cost of permanent employment could require, among other factors:

- **Reducing firing costs.** High firing costs discourage permanent hiring and lead to unequal access to social protection. Firing costs could be reduced in a number of ways. The most drastic approach would call for an actual reduction in the severance payments. Because this measure is likely to encounter significant opposition, it could be applied only to new contracts or, alternatively, compensation for workers hired under the previous regime could be considered. Softer approaches could include an increase of trial periods for new workers and a more flexible use of “economic reasons” as a cause for firing.  
In addition to the negative impact of firing costs on employment, complicated and costly enforcement procedures lead to low effective coverage. This could be mitigated by allowing for private arbitration under certain circumstances—for instance in cases when firing occurs because of “economic reasons”.
- **Reforming personal unemployment accounts (CTSs).** Personal unemployment accounts provide protection to the same group of workers that are covered by firing cost regulation. As a result the potential decrease in worker protection brought about by a reduction in firing costs could be mitigated by reforming individual unemployment accounts (Compensacion por Tiempo de Servicios, CTS). This reform should aim to restore the spirit under which CTSs were created. Currently workers have almost unrestricted access to the money in these accounts independent of their employment status so that their protection potential is highly undermined. The idea behind these accounts is that they should help workers smooth income shocks associated with spells of unemployment. Hence a minimum balance should be required before workers can have access to the money, and this access should be restricted to a portion of the remaining funds. This minimum balance should in turn be a function of the average duration of employment and unemployment spells. Jaramillo (2004a) calculates that given the dynamics of Peruvian urban labor markets, this balance should be equal to four times the average monthly salary. In addition employer and employee contributions could vary depending on whether the balance in the CTS is below or above this minimum.
- **Reconsidering profit-sharing rules.** Although in theory profit sharing-rules can be understood as incentives for higher productivity, their current implementation in Peru makes it difficult for them to function as such. The fraction of profits to which workers are entitled varies by sector, but this variation is not related to sectoral differences in productivity and rather is regulated by law. This creates strong incentives for firms to resort to accounting tricks in order not to declare profits. In fact only 2.9 percent of all workers covered by the system actually receive their share, so that the purpose of such rules is entirely deceived. To transform them into effective incentives, profit sharing rules should be negotiated between employers and workers (maybe within nationally fixed minimum and maximum levels) and linked to observable outcomes. Moreover agreements should be made public. Finally additional efforts should be made to increase accounting transparency by eliminating potential loopholes in corporate taxation legislations and by promoting random independent audits.
- **Reducing non-wage costs.** The main components of non-wage costs in Peru are bonuses and stipulated (paid) vacations. While it could be argued that bonuses constitute delayed wages and as such are paid for the employees in the form of lower monthly salaries, Peru is among the countries in the region with the most generous legislation in terms of paid vacations, together with Brazil and Panama. Vacations have undoubtedly a positive effect on workers’ welfare, but they can be costly if labor productivity is low as is the case in Peru. Moreover survey data indicates that only a small

percentage of salaried workers actually enjoys the stipulated vacation period suggesting that workers may be willing to sell leisure time for additional income. A more flexible approach could be adopted by allowing stipulated vacation to vary with worker's experience and, hence, with labor productivity since generally more experience workers tend to be more productive.

4.49 The Labor Commission of the Peruvian Congress has been working on a draft for a new labor code for the last couple of years and this project is now under discussion. Some of the recommendations proposed above are already contemplated in this draft, and some others are not (see Box 4.2 for a discussion on the draft proposal). Moreover, even if this new proposal is approved, it will be difficult to immediately implement all reforms since doing so will be costly and likely to encounter opposition from certain groups. Prioritization could then be established on the basis of a set of criteria that account for the reforms' costs and benefits. On the cost side, these criteria should include both the economic costs of setting up the necessary compensation mechanisms for those posed to lose from the reforms and the political economy costs associated with consensus building and bargaining with all interested parties. On the benefit side, the criteria should include the reforms' potential impact on the cost gap between permanent and temporary employment<sup>35</sup> as well as the incentives for formalization they may generate.

**Box 4.2: The current proposal for the Ley General del Trabajo**

The Labor Commission within the Peruvian Congress has been working on a draft for a new labor code for the last two years. In this box we briefly revise the proposals included in this draft regarding permanent and temporary contracts, and comment on their potential impact given the discussion presented in this chapter.

**Permanent employment.** The current draft contemplates an increase in firing costs for permanent workers, by increasing both the minimum and maximum compensations. It also extends the number of causes subject to severance pay to include those related to the firm's operations—i.e. economic, technical or structural reasons, and closing of business.

**Temporary employment.** The draft proposes measures to restrict the use of temporary contracts and a reduction in the different types on contracts available.

What could be the consequences of these changes? Simultaneously increasing the cost of firing permanent workers and hiring temporary ones could lead to higher informality. It could increase job duration, but also unemployment duration. Moreover it could lead to higher inequality in labor market outcomes by granting more protection to those who already have a job while making it harder to find formal employment for those who do not. Finally, by increasing adjustment costs it could create disincentives for firms to innovate and adopt new technologies, thus reducing their productivity and long-run growth potential (Jaramillo, 2004a).

## INFORMAL ECONOMIC OPPORTUNITIES AND URBAN POVERTY

4.50 The performance of informal entrepreneurs and small businesses is intimately linked to poverty in urban areas. Approximately half of the working urban poor are self-employed, all of them informally, and an additional 30 percent work for micro or small firms. Similarly 40 percent of all informal entrepreneurs (self-employed or otherwise) are poor, compared to 15 percent of formal entrepreneurs.

4.51 Identifying the determinants of the productivity of informal activities and implementing policies aimed at increasing this productivity are key in order to help the urban poor step out of poverty. This,

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35. Several authors have tried to quantify the relative importance of the various components of wage and non-wage costs. For a comprehensive discussion on this issue, the reader can consult Jaramillo (2004a) and Ministerio de Trabajo (2004a).

however, must be done with the understanding that informality is costly for households, businesses and the government. In this section we tackle both issues and propose a series of policy interventions aimed at, on the one hand, increasing earnings among those in the informal sector and, on the other, reducing informality.

### Productivity of Self-Employment and Small Businesses

4.52 We study the determinants of productivity of informal self-employment and small businesses, as well as the relationship between value-added, wages and employment in the case of the later using data from the “trabajador independiente” module of the 2003 ENAHO. This module asks self-employed individuals and small entrepreneurs a battery of questions about the organization and productivity of their business.

4.53 Using this information we discuss the differences between poor and non-poor entrepreneurs in terms of their reasons to be informal and the average productivity of their business. We measure productivity as value-added or value-added per worker, which we construct using information on sales, self-consumption and costs of production inputs provided in the survey. This measure is, of course, imperfect<sup>36</sup> and, as a consequence, the results discussed here should be interpreted as being suggestive of (qualitative) association among variables rather than of causal (quantitative) relationships.

4.54 Involuntary informality is more prevalent among the poor than the non-poor but, among those who chose to be informal voluntarily, the reasons to do so are similar across both groups. Fifty percent of the poor declare to be informal because they could not find employment in the formal sector, compared to 35 percent of the non-poor. Conditional on being voluntarily informal, however, the differences between both groups are very small. Approximately half of those who say they chose to be informal did so because their earnings were higher than they would have been in the formal sector, and an additional 30 percent claimed to prefer the informal sector because of its higher flexibility (Table 4.14).

**Table 4.14: Involuntary informality is more prevalent among the poor than the non-poor, but the reasons to be informal are similar across both groups**

	Poor	Non-poor
<b>Involuntary</b> (Could not find formal employment)	47.9**	35.8
<b>Voluntary</b>	52.1**	64.2
Obtains higher earnings	47.8**	50.3
Has more flexibility	28.2	28.7
Runs family business	7.6*	6.3
Other	16.3*	14.2

Note: \*\*(\*) Significantly different from average for non-poor at 5 (10) percent level.

Source: Authors' calculations using data from ENAHO 2003 (INEI).

4.55 Average levels of productivity vary across sectors and with market size, while within sectors and markets businesses managed by the poor are less profitable than those managed by the non-poor. Monthly value-added is highest in the manufacturing sector and lowest in the commerce sector. In addition, businesses operating in larger markets<sup>37</sup> are more productive than those servicing smaller ones, although the differences are insignificant for areas with population under 10,000. Differences also exist within sectors and areas between poor and non-poor entrepreneurs. In particular businesses run by the

36. Our measure of profits or value added does not account, for instance, for the depreciation of capital, such as machinery or vehicles, used in production, or for the rental costs of land or housing when the business is operated from the entrepreneur's home.

37. We assume that all businesses service their area of residence so that the size of their potential market can be proxied by the size of the survey strata in which the household resides.

poor produce less value added than those run by the non-poor in all sectors but manufacturing and irrespective of market size (Table 4.15).

**Table 4.15: Business managed by poor entrepreneurs are less profitable than those managed by non-poor ones**

	All	Poor	Non-poor
	Monthly value added measured in 2003 Nuevos Soles		
All businesses	235.7	149.1**	281.9
<b>Economic sector</b>			
Manufacturing	420.5	348.9**	472.2
Commerce	142.5	81.2**	173.2
Services	258.6	127.5**	328.0
<b>Market size</b>			
More than 100,001 households	381.6 <sup>ss</sup>	201.7**	463.0
Between 20,001 and 100,000 households	219.7 <sup>ss</sup>	140.7**	258.4
Between 10,001 and 20,000 households	132.7 <sup>s</sup>	107.0**	147.9
Between 4,001 and 10,000 households	125.9	131.0	122.4
Between 401 and 4,000 households	154.8	135.7*	171.8

Note: <sup>ss</sup>(<sup>s</sup>) Significantly different from average for next smaller strata at 5 (10) percent level.

\*\*(\*) Significantly different from average for non-poor at 5 (10) percent level.

Monthly value-added: Measure 1 = sales—self-consumption—cost of inputs.

Source: Authors' calculations using data from ENAHO 2003 (INEI).

4.56 These differences have important implications in terms of welfare, both for the entrepreneurs themselves and for their employees. Business value-added can be thought of as labor income from self-employment in the informal sector, so that an increase in value-added directly translates into an increase in household income. Similarly, because more profitable business tend to employ more workers and pay higher salaries, an increase in value-added also leads to an improvement in welfare among informal salaried employees. In particular an increase in value-added of 926 Nuevos Soles, equivalent to one standard deviation, is correlated with a 3 percent increase in firm size and a 2 percent increase in wages of paid workers after controlling for worker and business characteristics.<sup>38</sup>

4.57 The question then arises as to what explains value-added levels and, consequently, the differences in value-added that we observe between poor and non-poor entrepreneurs. Are they a function of the demographic characteristics of entrepreneurs? Of the way in which they operate their business? Of the quantity and quality of the inputs they use? After examining existing differences and commonalities between both groups and using regression analysis to identify the determinants of value-added, we will conclude below that the answer is a combination of all these factors.

#### ***Differences between poor and non-poor entrepreneurs***

4.58 The most important difference between poor and non-poor entrepreneurs in terms of their personal characteristics arises from their respective level of education. Forty percent of all poor entrepreneurs has at most completed primary education and 11 percent has completed tertiary education,

38. These figures are obtained as follows. We regress both the number of workers in the firm and (log) hourly wage of paid workers on value added, entrepreneur characteristics (demographic characteristics and education level) and business characteristics (sector of activity, location, access to markets, and inputs). The wage regression also includes information on worker demographics and education level. The coefficient on profits in the employment equation is 0.0001, significant at the 1 percent level. Multiplied by 926 Nuevos Soles, this yields a change firm size of 0.09, or 3 percent of the average firm size for business with 1 or more employees (2.6). The coefficient on profits in the wage equation is 0.00003, significant at the 1 percent level. Multiplied by 926 Nuevos Soles, this yields a change in hourly wages of 2.7 percent.

compared to 20 and 30 percent of all non-poor ones respectively (Table 4.16). Besides educational differences both groups appear to be fairly similar in terms of their demographic composition.

**Table 4.16: Non-poor entrepreneurs are more educated...**

	<b>Poor</b>	<b>Non-poor</b>
	Percentage of individuals in group	
Head of household	42.6**	39.6
Female	53.3**	55.3
Female head of household	12.2	12.0
Age	37.0**	38.1
Incomplete primary	22.1**	10.9
Complete primary	17.0**	11.1
Incomplete secondary	22.2**	12.5
Complete secondary	27.1**	31.8
Tertiary	11.4**	29.5

*Note:* \*\*(\*) Significantly different from average for non-poor at 5 (10) percent level.

*Source:* Authors' calculations using data from ENAHO 2003 (INEI).

4.59 Regarding business operation, non-poor entrepreneurs appear to be better integrated into markets than poor ones in the sense that they more often have access to (commercial) outlets and follow more market-oriented practices. Non-poor entrepreneurs are more likely to operate out of a outlet, be it in a public or private market or at home, than poor ones. The difference in access is the result of lower levels of ownership among poor entrepreneurs, combined with their limited capacity to pay rental costs. Similarly non-poor entrepreneurs are more likely to keep some form of business accounts, either formally or informally, and to employ more paid workers than poor ones. Interestingly these differences do not result from differences in the fraction of poor and non-poor entrepreneurs that are self-employed nor from differences in firm size among those who run small businesses (Table 4.17).

**Table 4.17: ... have access to commercial outlets and follow market-oriented practices more often, ...**

	<b>Poor</b>	<b>Non-poor</b>
	Percentage of businesses in group	
<b>Access to commercial outlet</b>		
No outlet	64.3**	54.8
Private/public outlet	8.8**	14.7
Owner	23.2	23.8
Other (e.g. rental)	76.8	76.2
At home	26.7**	30.3
Owner	78.5	80.2
Other (e.g. rental)	21.5	19.8
<b>Business practices</b>		
No (formal/informal) accounting	82.7**	72.3
<b>Size of business</b>		
Self-employed (%)	69.4	70.7
1 or more employees	30.6	29.3
Total number of workers	1.4	1.4
Share of unpaid (family) workers	86.2**	77.0

*Note:* \*\*(\*) Significantly different from average for non-poor at 5 (10) percent level.

*Source:* Authors' calculations using data from ENAHO 2003 (INEI).

4.60 Non-poor entrepreneurs also seem to use more and better inputs and to have more access to infrastructure than poor ones. A larger fraction of non-poor entrepreneurs declares to employ and own machinery and/or furniture, but these differences disappear once we account for the fact that non-poor

entrepreneurs are more likely to operate out of a outlet than poor ones. No significant differences exist regarding the use of vehicles or smaller tools. In addition firms run by non-poor entrepreneurs employ a smaller share of female workers and a larger share of more educated workers (Table 4.18). Finally non-poor entrepreneurs have higher access to water, electricity and phone services than poor ones, irrespective of whether they conduct their business in the street, in a formal outlet or at home (Table 4.19).

**Table 4.18: ... use more capital and skilled labor, ...**

	Poor	Non-poor
	Percentage of businesses in group	
<b>Machinery</b>	18.8**	26.2
Operates from public/private outlet	38.7	40.0
Owner of asset	88.0*	90.3
Owner of asset (in outlet)	87.3	86.9
<b>Furniture</b>	25.7**	33.4
Operates from public/private outlet	53.4**	61.3
Owner of asset	91.5	91.2
Owner of asset (in outlet)	90.0*	85.0
<b>Vehicle</b>	17.7	16.2
Operates from public/private outlet	4.8	3.6
Owner of asset	54.2**	62.7
Owner of asset (in outlet)	91.6	91.3
<b>Tools</b>	56.0	56.8
Operates from public/private outlet	69.3*	64.0
Owner of asset	90.9**	92.4
Owner of asset (in outlet)	94.7	92.5
	Percentage of workers in firm (excluding employer)	
<b>Characteristics of labor force in firm</b>		
Share of female workers	54.3**	49.1
Share of workers with secondary or higher education	68.8**	78.4
Share of workers with tertiary education	9.5**	20.8
Average number of years of tenure in firm	2.7	2.8

Note: \*\*(\*) Significantly different from average for non-poor at 5 (10) percent level.

Source: Authors' calculations using data from ENAHO 2003 (INEI).

**Table 4.19: ... and have higher access to infrastructure than poor ones.**

	Poor	Non-poor
	Percentage of businesses in group	
<b>Water</b>	11.5**	15.7
Operates from private/public outlet	35.5	37.3
Operates from home	31.0*	33.7
<b>Electricity</b>	22.3**	31.8
Operates from private/public outlet	54.2**	62.0
Operates from home	66.3**	75.2
<b>Telephone</b>	0.4**	2.8
Operates from private/public outlet	1.6**	5.0
Operates from home	1.2	6.8**

Note: \*\*(\*) Significantly different from average for non-poor at 5 (10) percent level.

Source: Authors' calculations using data from ENAHO 2003 (INEI).

4.61 Interestingly these differences in business practices and characteristics are not the product of independent factors but rather are inter-related. In particular the use of market-oriented practices, and access to capital and infrastructure are correlated with business location. Businesses that operate out of a commercial outlet are more likely to use some form of accounting and to employ a larger share of paid workers than businesses that operate in the street or out of the entrepreneur's home. In addition access to

machinery and other tools is higher among businesses in commercial or non-commercial outlets than among those run in the street, while the use of a vehicle is much higher among the latter—partly due to its use as a substitute for a proper outlet. Finally running a business from a commercial outlet is correlated with higher access to a phone and water (Table 4.20).

**Table 4.20: The use of market-oriented practices and access to capital and infrastructure are correlated with location**

	No outlet	Operates from public/private outlet		Operates from home
		Rental	Owner	
(Formal/informal) accounting	21.3	46.3	49.2	32.7
Share of paid workers	6.6	19.9	18.1	6.9
<b>Access to capital</b>				
Machinery	10.7	43.6	43.7	44.6
Vehicle	26.1	4.2	4.4	3.5
Tools	49.1	63.2	61.5	66.7
<b>Access to infrastructure</b>				
Water		42.9	42.9	34.9
Electricity		70.1	66.7	75.7
Telephone		11.9	10.2	8.7

Source: Authors' calculations using data from ENAHO 2003 (INEI).

4.62 Although they make it clear that poor and non-poor entrepreneurs conduct their businesses in different ways and under different conditions, the simple tabulations presented here do not allow us to identify what the effect that each of the variables considered is on value-added, either independently or once other factors are taken into account. As a result they can not be used to disentangle the relative importance of these variables in terms of explaining differences in productivity between poor and non-poor entrepreneurs either. We use regression analysis below to tackle these issues.

### ***Determinants of Value-Added per Worker***

4.63 Using an OLS model we analyze the determinants of value-added per worker (i.e. value-added per worker). We do this in two steps. We first consider the effect of different sets of variables (demographic characteristics and education level of the entrepreneur, market size and business practice indicators, and business characteristics) in a series of partial models, and then estimate a full model that includes all variables. Our results can be summarized as follows (Table 4.21):

- **Demographic characteristics and education:** Businesses run by household heads, male, older or more educated entrepreneurs have higher level of value-added per worker. The same is true about businesses run by individuals who are voluntarily informal (Model 1). The relationship between the demographic characteristics and education level of the entrepreneur and the firm' value-added remain when all determinants are considered jointly in the full model, although the effect of lower levels of education becomes insignificant (Model 4).
- **Market size and business practices:** The larger the market the business serves in the higher the level of value-added per worker (Model 2). These differences remain significant once other factors are taken into account (Model 4). Similarly keeping some form of business accounting and employing a larger share of paid workers (not shown)<sup>39</sup> are both positively correlated with profit levels in the partial and full model.

39. The effect of employment of paid workers on value-added per worker is estimated using a restricted sample of firms with two or more workers and equals 168.70 (with a standard error of 22.59).



**Table 4.21: Value added per worker is a function of entrepreneur and business characteristics, and of market size and business practices**

	Model 1	Model 2	Model 3	Model 4
<b>Demographic characteristics</b>	Dependent variable: Value added per worker (Nuevos Soles)			
Household head	43.03** (17.38)			34.88** (17.32)
Female	-136.38** (16.30)			-127.99** (17.13)
Female HH head	-21.31 (23.09)			-10.57 (23.01)
Age	8.34** (2.03)			7.31** (2.03)
Age squared	-0.08** (0.02)			-0.07** (0.02)
<b>Education</b>				
Incomplete primary		Baseline category		
Complete primary	1.51 (18.44)			-7.15 (18.33)
Incomplete secondary	42.30** (18.36)			21.49 (18.35)
Complete secondary	53.94** (16.86)			26.46 (16.95)
Tertiary	190.21** (17.54)			145.19** (17.98)
<b>Voluntarily informal</b>	54.04** (10.50)			46.87** (10.54)
<b>Access to markets</b>				
More than 100,001 households		Baseline category		
Between 20,001 and 100,000 households		-18.71 (20.08)		-8.84 (19.69)
Between 10,001 and 20,000 households		-108.71** (25.11)		-92.63** (24.53)
Between 4,001 and 10,000 households		-98.62** (24.31)		-68.65** (23.76)
Between 401 and 4,000 households		-82.03** (24.78)		-38.64 (24.37)
(Formal/informal) Accounting		127.65** (11.33)		110.19** (11.84)
<b>Business characteristics</b>				
Self-employed			55.71** (11.60)	70.19** (11.61)
No outlet		Baseline category		
Operates from private/public outlet (all)			109.49** (15.89)	58.11** (15.64)
Operates from home			-8.67 (12.98)	-4.56 (13.02)
Uses machinery			51.85** (12.69)	28.22** (12.43)
Uses vehicle			58.71** (15.63)	-3.90 (15.99)
Uses tools			-30.97** (11.09)	-30.63** (10.93)
<b>Sector of activity</b>				
Manufacturing		Baseline category		
Commerce			-131.36** (16.34)	-86.89** (16.81)
Services			-67.46** (16.21)	-39.09** (16.15)
Region dummies	Yes	Yes	Yes	Yes
Number of observations	9,041	9,041	9,041	9,041

Note: \*\*(\*) Significantly different from zero at the 5 (10) percent level.

Source: Authors' calculations using data from ENAHO 2003 (INEI).

- **Business characteristics:** One-person businesses have higher profit levels per worker than those with two or more workers in both types of models. In addition value-added per worker are significantly higher among business operating from formal outlets, and among businesses that make use of machinery or vehicles, even after controlling for location. All effects, with the exception of vehicle use, are robust to the inclusion of other variables in the model. The level of education of the firm's work force, measured as the share of workers with secondary or higher education, is also positively correlated with value added per worker (not shown).<sup>40</sup> Finally average profit levels in the commerce and services sectors are lower than those in the manufacturing sector in both models (Models 3 and 4).

4.64 These results suggest that differences in productivity levels between businesses run by poor and non-poor entrepreneurs can be attributed to differences in the level of education of the entrepreneur, in the size of the market the firm has access to, in the extent to which business practices implemented by the firm are market-oriented, and in other business characteristics. Consequently policies that can help poor entrepreneurs overcome one or more of these barriers can go a long way in easing urban poverty. We discuss some of these policies at the end of this section.

### **The cost and causes of informality**

4.65 Important as it is to support poor informal entrepreneurs, it has to be done with the understanding that informality is costly for households, firms and the government. Low productivity among informal businesses translates into lower earnings for those employed in the sector—average hourly labor income in the informal sector is 50 percent below that of the formal sector, even after controlling for worker and job characteristics.<sup>41</sup> Informal workers also lack access to employment-linked social protection, such as health and pension benefits or severance payments in the event of job loss. And although some of these workers may have voluntarily foregone such benefits in exchange for higher wages or more flexibility, we noted above that more than 50 percent of the informal poor are so involuntarily. Similarly non-compliance with labor and sales taxes among informal firms has a negative impact on fiscal revenues. Finally high informality rates are associated with important costs for both formal and informal firms, as discussed in Box 4.3.

#### **Box 4.3: Informality is costly for both formal and informal firms.**

According to the results of a recent Investment Climate Survey conducted in Peru by the World Bank, formal employers rated informality the second most severe constraint to business growth and development. Subsequent analysis of the survey's data showed that in fact firms with larger numbers of informal competitors were less productive than those facing lower levels of informal competition. These productivity losses were caused by formal businesses operating at a disadvantage when competing with informal ones, which manage to reduce their production costs by not complying with existing regulation. For instance, a firm could lower its costs by about 40 percent by not paying non-wage benefits to its workers and avoiding sales taxes.

Despite the relative advantage of reduced production costs, informal firms also faced important costs that hinder their potential for growth. Often they had limited access to credit from formal financial or other institutions, which negatively impacted their capacity to invest in innovation through new machinery and equipment. They also lacked the means to protect their property rights, business transactions and contracts, as well as the incentives to invest in training. All these limitations jeopardized the capacity of informal firms to grow. As a result, firms with a large share of unregistered workers were found to be less productive than their counterparts, even after controlling for other observable differences.

*Source:* World Bank (2003b).

40. The effect of the education level of the work force on value-added per worker is estimated using a restricted sample of firms with two or more workers and equals 34.86 (with a standard error of 20.19).

41. This figure corresponds to the estimated coefficient in an earnings regression of a dummy variable taking a value of 1 for those employed in the informal sector. The model also includes worker and job characteristics, and controls for type of employment (e.g. salaried, self-employed).

4.66 Long and costly business registration procedures, or red tape, and rigid labor regulation are reported by employers to be the main reasons for informality (World Bank, 2003b). Although the creation of the Unified Business Registry in 1990 dramatically reduced red tape, registration remains a slow process that can take up to 100 days to complete, compared with 43 days in Colombia and 27 days in Chile. In addition the monetary costs of registration are relatively high compared to that of other countries with which Peru competes with in international markets (e.g. the cost of registration equals approximately 36 percent of per capita income in Peru, but only 27 and 10 percent in Colombia and Chile respectively).<sup>42</sup>

**Table 4.22: The cost of starting a business in Peru is significantly higher than in other countries in and outside the region**

	Peru	Ecuador	Colombia	Chile	United States
Number of procedures	10	14	14	9	5
Time (in days)	98	92	43	27	5
Cost (% of income per capita)	36.4	47.4	27.4	10.0	0.6
Minimum capital (% of income per capita)	0.0	10.4	0.0	0.0	0.0

Source: World Bank (2005a)

4.67 Of the procedures needed to start a business, obtaining a business license from the local municipality is by far the costliest process both in terms of time and money, taking on average up to 34 days and costing US\$439 (World Bank, 2003b). Furthermore this process appears to be particularly onerous for small firms, which can spend up to 43 days getting their operating license.

4.68 Labor regulations, although intended to protect workers, can also constitute a significant obstacle to employment creation and, more generally, business growth. As discussed above, Peru has heavy regulations regarding firing costs and non-wage compensation payments despite the reforms implemented in the early 1990s. These regulations can increase labor costs by up to 70 percent<sup>43</sup>, and although it could be argued that these costs can be absorbed by formal workers in the form of lower wages, a recent study by the Inter-American Development Bank (2001) shows that a 10-percent increase in mandatory non-wage costs rises the costs of labor between 3 and 7.5 percent.

4.69 The increases in the cost of labor implied by compliance with current regulation can be relatively heavier for small firms because of their lower average level of profits and labor productivity. Profits and labor productivity, measured as value-added and value-added per worker, are significantly lower in small firms, with fewer than 10 employees, than in medium and large ones.<sup>44</sup> Moreover, although wages paid by these firms are below those paid by medium and large ones to reflect differences in labor productivity, their wage bill tends to account for a larger percentage of total cost because of lower capital-labor ratios. As a result proportional increases in labor costs as the ones generated by various labor regulations can have a higher impact on the overall productivity and make incentives for informality stronger among small firms.

4.70 It is then important to consider policy interventions aimed at reducing red tape and labor costs and thus at attracting informal business into the formal sector. Because most of the poor are employed in

42. Other authors have measured the cost of registration in terms of time and money. De Soto (1986) estimated that in the 1980s the registration process took up to 420 days and cost US\$1,200. More recently Jaramillo (2004b) estimates these figures to be 70 days and US\$117 based on data from the Encuesta de la Micro y Pequeña Empresa (2003).

43. This figure is calculated as follows: Christmas and National Holiday bonuses (16.6 percent), paid vacation and holidays (13.3 percent), tenure bonus (9.7 percent), health and accident insurance (16 percent), training fund (1 percent), and other bonuses and contributions (13 percent).

44. According to data from Peru Investment Climate Survey (World Bank, 2003b)

small firms, which exhibit higher rates of informality, interventions targeted towards these firms may yield higher pay-offs in terms of poverty reduction and extended (though maybe limited) protection to the poor. We discuss some such interventions below.

### Policy Recommendations

4.71 In this section we have focused on informal economic opportunities. We have analyzed their productivity and, more generally, discussed the costs and causes of informality. We have concluded that, given the relative importance of labor income from informal sources as a fraction of household income among poor households, interventions aimed at increasing the productivity of informal activities can be an effective way of improving the welfare of these households. We have also argued, however, that informality is costly for households, firms and the governments, so that these interventions should be complemented with others aimed at providing incentives for formality, particularly for small firms. We briefly discuss here both types of interventions.

4.72 Increasing the productivity of informal self-employment and small businesses will require, among other factors:

- **An increase in the level of skills of both entrepreneurs and salaried workers.** General increases in the skill level of the labor force can be achieved by investing in formal education (discussed in Chapter 5) and/or by improving the relevance and coverage of the training system. There is significant evidence for Peru and for the region that training, although costly, pays off in the form of higher labor productivity. The existing system, however, fails to provide relevant training for most workers. Training does not need to be provided by the public sector, but rather incentives can be put in place by the government for firms to contract the desired training with private, and properly accredited, providers. These incentives can rely on making training expenses deductible or on (partially) matching training resources invested by firms, and can be targeted to informal firms by conditioning them on easy-to-monitor indicators such as firm size or worker education levels. The ProJoven program, which provides training for young workers, replicates some of these principles and could be extended to cover other demographic groups.
- **An increase in access to commercial outlets and in use of market-oriented practices.** Commercial spaces for small businesses in markets or other locations could be offered to those operating in the street in exchange for a rental (leasing) fee. This fee can be made to increase over time to both facilitate early investment and reflect potential future gains in productivity. Increased access to such spaces has important advantages that can make them cost effective. On the one hand they contribute to the decongestion of those streets and areas where these businesses would otherwise operate, easing traffic and decreasing hazards. On the other hand these spaces can be used as a platform for the economical provision of basic infrastructure and business services, such as management and accounting practices, simplified access to credit, and legal services, which in turn translate into higher value-added.  
Given that these initiatives should be self-sustainable over time, the role of the public sector, and particularly of local authorities could be that of a catalyzer, helping attract potential investors, and a coordinator rather than that of direct provider.

4.73 Improving incentives for firms, particularly small firms, to become formal will require, among other factors:

- **Further simplification of registration procedures.** A reduction of red tape to bring the cost of registration procedures in line with those of close competitors in and outside the region will make it easier for firms to comply with these requirements. Recently approved legislation that considered the implementation of a special, simplified registration regime for micro and small firms constitutes a

step in this direction. This legislation proposes several measures aimed at reducing the time needed for and the monetary cost of obtaining operating licenses from municipalities. Unfortunately the actual implementation of this and other changes contemplated in the new law has so far not taken place. The drafting and approval of a 'reglamento' that makes the law operational could accelerate its implementation.

A word of caution is necessary, however, regarding the potential impact of a simplification in registration procedures in the absence of other reforms. If the overall benefits from being informal are perceived to outweigh those of being formal it is unlikely that decreasing a one-time cost (i.e. the cost of registration) will attract a large number of informal firms into the formal sector. Therefore simplifying registration procedures to make them cheaper should be accompanied by others measures that make formality more attractive, such as the ones discussed above regarding labor legislation and the ones presented below.

- **The simplification of tax filing mechanisms for small firms.** A special, simplified filing regime for micro and small firms already exists, but these firms could benefit from further simplification. For instance, filing on the basis of readily observable business characteristics and according to pre-determined tax tables could be considered. These systems make it easier to file taxes for firms that do not rely on fully formal, and often costly, accounting and even firms that interact with a large number of informal partners.
- **The implementation of a special labor regime for small firms.** The new legislation mentioned above also included measures to allow micro and small firms to pay lower contributions to the pension and health systems and to reduce the duration of paid vacation. Again accelerating the effective implementation of this legislation could help in creating incentives for formalization among these firms.

4.74 In any case and regardless of the type of incentives chosen, it is important to point out that they must be appropriately packaged to minimize monitoring costs and gradually phased out so as to provide incentives for initial take-up and for future firm growth.

## CONCLUSIONS

4.75 In this chapter we have argued that the evolution of urban poverty is closely linked to the functioning of urban labor markets since labor income constitutes the main, and frequently the only source of income for urban households.

4.76 The poor tend to be informally self-employed or to be employed in small (informal) business, so that policies aimed at increasing the productivity of informal activities can help reduce urban poverty. However, because informality is associated with lower levels of productivity, these policies should be combined with others that make it attractive for informal businesses to become formal.

4.77 More broadly future sustained improvements in urban poverty will require further employment creation and income generation in those sector that tend to employ the poor. More flexible labor legislation can contribute to this goal.



## 5. ECONOMIC OPPORTUNITIES FOR THE RURAL POOR<sup>45</sup>

5.1 Poverty is more widespread and significantly deeper in rural than in urban areas. Seventy two percent of the rural population is poor and 40 percent is extremely poor, compared with 40 and 8 percent respectively in urban areas. The poverty gap in rural areas, at 28 percent, is more than double that of urban areas.

5.2 In Peru, as elsewhere, the income of poor households has traditionally been tied to the agricultural sector. Recently, however, the non-agricultural sector has become a more prominent source of income and employment in rural areas, both for poor and non-poor households. This chapter is devoted to the analysis of rural poverty in Peru with a focus on income-earning opportunities for households in rural areas. The chapter explores the distribution of households across both sectors, as well as its implications, and analyzes the potential impact of various public interventions on rural income and poverty.

5.3 The rest of the chapter is structured as follows. The first section briefly explores differences across regions in terms of the incidence of rural poverty and its responsiveness to economic growth. The second section examines the contribution of agricultural and non-agricultural income sources to total household income and the relationship between employment in each sector and poverty. The third section studies the determinants of participation in and the returns to agricultural and non-agricultural activities. The fourth section builds on these results and analyzes the potential impact of public interventions on rural income and poverty, by simulating their effect on the participation in and the returns to different economic activities. Finally, the fifth section outlines, based on the results of the chapter, the basic necessary elements for an effective development strategy aimed at promoting inclusive growth in rural areas.

5.4 The main findings of the chapter can be summarized as follows:

- There exist significant differences across geographic regions in terms of the nature of rural poverty and its responsiveness to growth. These differences respond to variation in household characteristics and endowments across regions, and to the extent to which rural areas are integrated with urban areas and in national markets.
- The average rural household obtains most of its income from agricultural activities, but important differences exist between poor and non-poor households in terms of their income-generating strategies. Poor households tend to rely on agriculture, while non-poor households tend to engage in non-agricultural activities. Moreover, poor households are more likely to rely on a single source of income, while non-poor households are able to better diversify income risk by not relying exclusively on one particular source.
- Participation in and the returns to these income-generating strategies are a function of household characteristics and endowments, access to markets and of policy levers. Both agricultural productivity and labor income are positively correlated with human capital, access to credit and public investment in basic services, telecommunications and road infrastructure.
- The impact of public investments is higher for the non-poor than for the poor as a result of the better quality of their endowments and their higher degree of market integration. This difference, however, becomes smaller when two or more public interventions are implemented simultaneously in the same area due to the existence of complementarities across interventions.
- A strategy aiming to promote inclusive rural growth must then consider policies directed towards increasing the endowments of the rural poor and improving access to markets, basic services and

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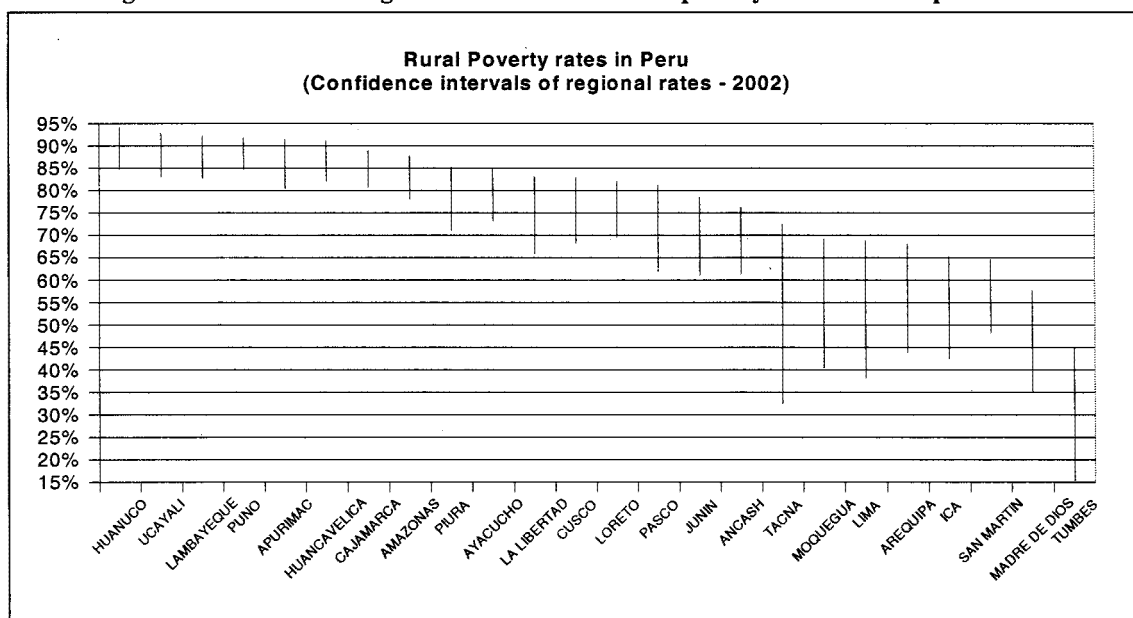
45. This chapter is based on background work prepared by the report team and on existing work by Escobal and Torero (2003) and Escobal (2003).

infrastructure. This strategy should be responsive to regional heterogeneity, be comprehensive in order to encompass both the agricultural and no-agricultural sectors, and be spatially integrated to account for complementarities across interventions

## RURAL POVERTY IN PERU: A HETEROGENEOUS REALITY

5.5 Rural poverty is higher and deeper than urban poverty all over Peru, but there exist significant differences across geographic regions and departments in terms of poverty rates. Seventy two percent of the rural population is poor and 40 percent is extremely poor, compared with 40 and 8 percent respectively in urban areas. These numbers, however, mask a substantial amount of variation across regions, with rural poverty rates being lowest in the Costa and highest in the Sierra, and even across departments, with rural poverty rates being lowest in Madre de Dios and highest in Huanuco (Figure 5.1).

Figure 5.1: There exists significant variation in rural poverty rates across departments.



Source: Authors' calculations using ENAHO 2002.IV (INEI).

5.6 Similarly there are important differences across regions in the extent to which poverty responds to economic growth. We use (regional) estimates of the output-elasticity of poverty to examine these differences. According to these estimates, a one-percent increase in output would lead to a 1.03-1.38 percent decline in rural poverty at the national level, making rural poverty slightly less responsive to economic growth than urban poverty (Table 5.1). At the regional level, rural poverty appears to be most responsive to growth in the Costa (output-elasticity between  $-0.941$  and  $-1.323$ ), and least responsive in the Sierra (output-elasticity between  $-0.559$  and  $-0.873$ ).

5.7 These regional differences reflect variation in the depth of poverty since the further away from the poverty line the poor are, the more growth will be required to reduce poverty. The poverty and extreme poverty gaps are larger in the Sierra and Selva than in the Costa.

5.8 They also reflect differences across regions in household characteristics, endowments and the degree of market development. The presence of indigenous populations is higher and education levels are lower in the Sierra than in other regions. Access to public services, such as schools and roads, is also more inadequate in the Sierra, both for poor and non-poor households, than in the Costa and the Selva.



Finally urban and rural areas are more integrated economically in the Costa than in the rest of the country. These differences are robust to controlling for other observable regional characteristics (Tables A.7, A.8 and A.9 in the Statistical Annex).

**Table 5.1: Rural poverty is most responsive to economic growth in the Costa and least responsive in the Sierra**

	All rural	Rural Costa	Rural Sierra	Rural Selva	All urban
	Output-elasticity of poverty				
1997	-1.283 (0.074)	-1.092 (0.099)	-0.737 (0.055)	-0.937 (0.085)	-1.367 (0.052)
1998	-1.385 (0.074)	-1.046 (0.091)	-0.699 (0.051)	-1.296 (0.107)	-1.358 (0.056)
1999	-1.221 (0.102)	-1.161 (0.121)	-0.647 (0.081)	-0.995 (0.113)	-1.358 (0.061)
2000	-1.366 (0.107)	-1.323 (0.150)	-0.873 (0.084)	-0.915 (0.130)	-1.393 (0.080)
2001	-1.035 (0.062)	-1.176 (0.141)	-0.559 (0.040)	-0.720 (0.074)	-1.364 (0.046)
2002	-1.087 (0.049)	-0.941 (0.080)	-0.680 (0.037)	-0.755 (0.059)	-1.274 (0.043)

*Note:* Standard errors in parentheses.

*Source:* Duclos, Esteban and Ray (2003).

5.9 In sum, the reality of rural poverty across Peru is heterogeneous and does not easily fit a single model—something we will come back to when we discuss the basic necessarily elements for a successful rural development strategy.

#### INCOME SOURCES AND POVERTY IN RURAL AREAS

5.10 Rural households obtain more than three quarters of their income through the use of their labor and other productive assets, such as land or livestock, in agricultural and non-agricultural activities. As a result the sector and type of employment households have access to bears an impact on household income and poverty. On average households that derive most of their income from agricultural activities, be it salaried or non-salaried, have lower income levels and higher poverty rates than those who have access to non-agricultural activities (Table 5.2).

**Table 5.2: Poverty rates are higher among households who depend on agricultural activities than those who do not**

	Extreme poverty	Poverty
Agricultural		
Salaried	48.7	80.7
Self-employed	53.3	79.9
Non-agricultural		
Salaried	24.8	52.8
Self-employed	41.6	71.9

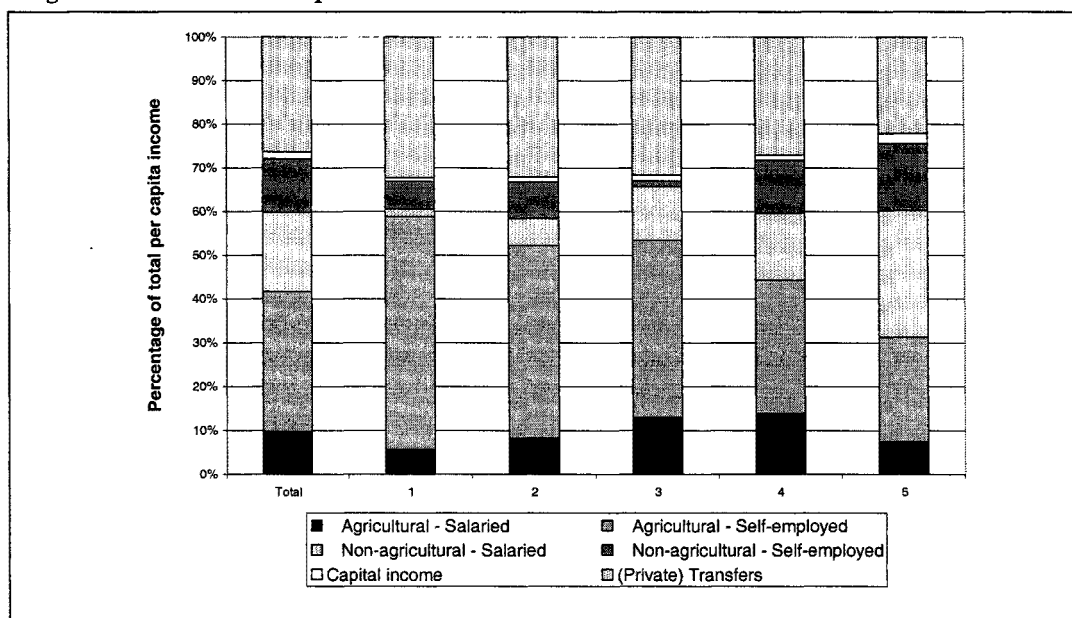
*Source:* Authors' calculations using data from ENAHO 2002.IV (INEI).

5.11 In this section we analyze the relationship between the main sector and type of employment and income. We examine the relative importance as sources of income of salaried and self-employment in agricultural and non-agricultural activities and the extent to which they are substitutes or complements.

## Income Distribution in Rural Areas: Patterns and Trends

5.12 Agricultural activities are the main source of income for the average rural household, but their relative importance varies with income (Figure 5.2). Agricultural activities, especially agricultural self-employment, account for 40 percent of all household income, compared to 30 percent for non-agricultural activities and an additional 30 percent in the form of capital income and private transfers (e.g. remittances). Agricultural activities, however, become less important as household income rises. They account for almost 60 percent of total income for households in the first quintile of the rural income distribution (i.e. the poorest 20 percent of the population) but only for 30 percent for household in the fifth quintile (i.e. the richest 20 percent of the rural population). This decline in the importance of agricultural income is accompanied with an increase in the importance of non-agricultural income, which accounts for 9 and 45 percent of household per capita income among the poorest and richest households respectively.

**Figure 5.2: The relative importance of different income sources varies with household income...**



Note: Quintiles defined using per capita household income.

Source: Authors' calculations using data from ENAHO 2002.IV (INEI).

5.13 In addition richer households seem more able to diversify income risk by not relying excessively on one particular source (Figure 5.2). Households in the top quintile obtain the largest share of their income, 30 percent, from salaried employment in the non-agricultural sector, followed by 25 percent from non-salaried employment in the agricultural sector. This contrasts with households in the bottom quintile who obtain over 50 percent of their income from self-employment in agricultural activities alone.

5.14 These patterns, however, are not static and the relative importance of different income sources varies over time (Table 5.3). The share of agricultural income declined significantly between 1997 and 2002 as a result of a decrease in producer prices. This decline was almost entirely compensated for by an increase in the share of private transfers, suggesting that households relied on migration and (national and/or international) remittances to cope with (transitory) income shocks generated by agricultural price changes—a hypothesis that is confirmed by our analysis of shocks and coping strategies in Chapter 6.

**Table 5.3: ... and over time**

	1998	2002
	% of total per capita income—All rural households	
Agricultural		
Salaried	9.4	9.8
Self-employed	35.9	31.9
Non-agricultural		
Salaried	18.7	18.1
Self-employed	17.5	12.2
Capital	1.6	1.6
(Private) Transfers	16.9	26.3

*Source:* Authors' calculations using data from ENAHO 1998.IV and 2002.IV (INEI).

5.15 In sum, the poor depend more heavily than the rich on agricultural activities and, although they are able to substitute one income source for another in the face of shocks, they appear to be less able to diversify the overall composition of income. Given that poverty rates associated with agricultural employment are higher than those of non-agricultural employment, the question then arises as to whether both types of activities are substitutes for or complements to each other and, more broadly, whether non-agricultural activities provide a door out of poverty. We turn to these two issues next.

#### **Agricultural and Non-Agricultural Income: Substitutes or Complements?**

5.16 Agricultural and non-agricultural activities appear to be complements at the department level—the finest level of disaggregation we can use given the data to proxy for common economic area or market—and substitutes at the household level. The positive correlation between the sizes of different economic sectors within departments is largely due to market size effects since economically powerful areas tend to be prosperous across sectors (Table 5.4).

**Table 5.4: Agricultural and non-agricultural activities are complements at the department level...**

	A - S	A - SE	NA - S	NA - SE
	Correlation between sector income shares			
Agricultural—Salaried (A - S)	1.00			
Agricultural—Self-employed (A - SE)	0.54	1.00		
Non-agricultural—Salaried (NA - S)	0.71	0.81	1.00	
Non-agricultural—Self-employed (NA - SE)	0.72	0.86	0.91	1.00

*Note:* Shaded cells indicated significant correlations at the 10 percent level.

*Source:* Authors' calculations using data from ENAHO 2002 (INEI).

5.17 In contrast the correlation between the share of agricultural and non-agricultural sources in household income is negative and significant, irrespective of income and for both salaried and non-salaried activities (Table 5.5). Generally speaking, and in the absence of significant improvement in labor productivity in either sector, substitutability across sectors is likely to result from the existence of an upper bound for overall household labor supply. There are, however, important differences between poor and non-poor households. The former substitute between agricultural non-salaried and salaried employment among poor households, suggesting that access to land (or the lack thereof) may be an important factor, while the latter tend to substitute all agricultural activities with salaried non-agricultural ones, suggesting that higher returns to education in the non-agricultural sector may play a role.

5.18 Given these results the question then arises as to whether the non-agricultural sector is the stepping-stone for poor rural households out of poverty. We explore this issue next.

**Table 5.5: ... and substitutes at the household level.**

	A - S	A - SE	NA - S	NA - SE
	Correlation coefficient			
	All rural households			
Agricultural—Salaried (A - S)	1.00			
Agricultural—Self-employed (A - SE)	-0.06	1.00		
Non-agricultural—Salaried (NA - S)	-0.05	-0.08	1.00	
Non-agricultural—Self-employed (NA - SE)	-0.03	-0.01	0.04	1.00
	Rural households in 2 <sup>nd</sup> quintile			
Agricultural—Salaried (A - S)	1.00			
Agricultural—Self-employed (A - SE)	-0.14	1.00		
Non-agricultural—Salaried (NA - S)	-0.05	-0.13	1.00	
Non-agricultural—Self-employed (NA - SE)	-0.10	-0.11	-0.04	1.00
	Rural households in 5 <sup>th</sup> quintile			
Agricultural—Salaried (A - S)	1.00			
Agricultural—Self-employed (A - SE)	-0.06	1.00		
Non-agricultural—Salaried (NA - S)	-0.11	-0.18	1.00	
Non-agricultural—Self-employed (NA - SE)	-0.06	-0.05	-0.05	1.00

*Note:* Data are correlations between income shares from different sources. Shaded cells indicated significant correlations at the 10 percent level.

*Source:* Authors' calculations using data from ENAHO 2002 (INEI).

### Is Non-Agricultural Employment a Door out of Poverty?

5.19 Most of the variation in household income is due to variation in non-agricultural income, particularly income from salaried employment (Table 5.6). We calculate the percentage of total income inequality that can be explained by the variation in each of its components, and find that more than 50 percent is due to inequality in non-agricultural salaried income (36 percent) and non-agricultural non-salaried income (15 percent)—a contribution that surpasses these activities' share in total income (30 and 13 percent respectively). In other words, access to non-agricultural activities explains most of the differences in income levels between poor and rich households.

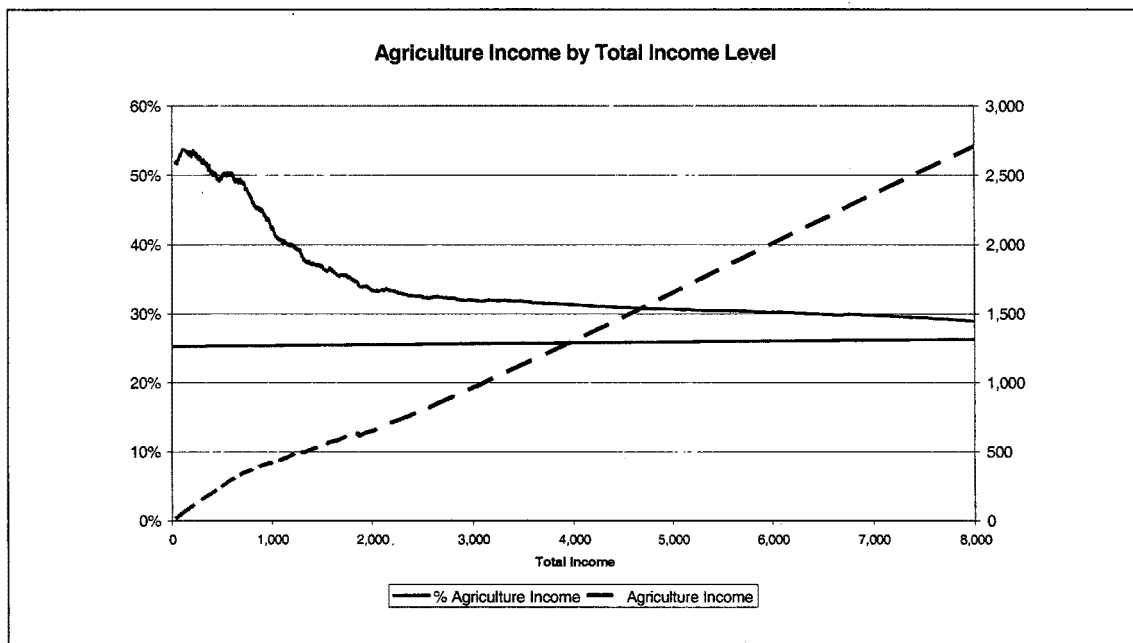
**Table 5.6: Most of the variation in per capita household income is generated by variation in non-agricultural income**

	Mean income	Variation coefficient	Correlation with total income	Explained share of total income variation
Agricultural				
Salaried	141.61	2.50	0.27	8.8
Self-employed	164.60	2.91	0.45	20.1
Non-agricultural				
Salaried	311.09	2.02	0.61	36.0
Self-employed	137.15	2.96	0.40	15.1
Capital	24.59	11.72	0.39	10.6
(Private) Transfers	244.54	1.16	0.36	9.4

*Source:* Authors' calculations using data from ENAHO 2002 (INEI).

5.20 Moreover, the share of agricultural income in total income declines as the latter rises (Figure 5.3). As we pointed out above, agricultural income represents about 60 percent of household income among the poorest households, but only 46 and 30 percent among households in the 3 and 5 quintiles of the rural income distribution respectively.

**Figure 5.3: The share of agricultural income in household income decreases with the latter, but both continue to be correlated as income increases**



Source: Authors' calculations using data from ENAHO 2002 (INEI).

5.21 These stylized facts seem to imply that non-agricultural activities do indeed provide a way out of poverty. However the economic reality of rural areas is more complex than the evidence presented so far suggests. First, it is important to notice that, despite the decline in its share of total income, agricultural income continues to rise with household income suggesting that household characteristics, and not only sector characteristics, play a role in the determination of the profitability of a particular activity. Second, 30 percent of rich households' income still comes from agricultural activities suggesting that there may exist barriers to total substitutability away from agricultural activities and that, in the presence of such barriers, sectoral diversification may be more important than total substitution as a means to avoid poverty.

5.22 In reality, with the exception of those that rely exclusively on agricultural self-employment, most households tend to obtain income from more than one source, thus relying on income-generating strategies. It is the success of these strategies, rather than that of a particular activity, that will ultimately determine whether a household is poor or not.

5.23 There is not, however, a linear relationship between household income and income diversification. Some households are "pushed" to diversify their activities beyond the agricultural sector to cope with external shocks to their own farming, while others may be "pulled" into the non-agricultural sectors because it often pays more than farming and rewards certain assets, such as education, better.

5.24 A household's ability to implement a certain strategy will then depend on the participation of its members on the activities that form this strategy, while the success of the strategy in generating sufficient income will depend on the returns that their labor and other assets obtain in those activities. In the next section we study the issues of participation and profitability.

## THE DETERMINANTS OF PARTICIPATION IN AND PROFITABILITY OF AGRICULTURAL AND NON-AGRICULTURAL ACTIVITIES

5.25 The three most frequently used income-generating strategies, pursued by over 75 percent of all households, combine employment in one or two activities. Namely, 50 percent of all households obtain all income from self-employment in the agricultural sector, 15 percent combines this activity with non-agricultural self-employment, and an additional 11 percent combines it with salaried agricultural employment.

**Table 5.7: Some income-generating strategies are more likely to provide a way out of poverty than others**

	Extreme poverty	Poverty	Shared in population
(A—SE) + (A—S)	48.6	78.3	11.2
(A—SE)	50.0	75.5	49.9
(A—SE) + (NA—SE)	41.0	71.3	15.8
(A—S)	28.7	59.9	3.6
(A—SE) + (NA—S)	26.6	56.7	4.9
(NA—SE)	19.6	41.7	3.2
(NA—S)	7.2	16.7	3.0
Other	24.5	54.3	8.5

*Note:* A—S: Agricultural—Salaried; A—SE: Agricultural—Self-employed; NA—S: Non-agricultural—Salaried; NA—SE: Non-agricultural—self-employed.

*Source:* Authors' calculations using data from ENAHO 2002 (INEI).

5.26 The implementation of these and other commonly used strategies yields different income levels, although some patterns arise. Strategies that include self-employment in the agricultural sector tend to be associated with lower income levels and higher poverty, whereas strategies that include non-agricultural activities, particularly salaried employment, tend to be associated with higher income levels and lower poverty. We next examine what determines the use of one strategy or another.

### Income-Generating Strategies: Participation in Agricultural and Non-Agricultural Activities

5.27 As we mentioned above, the pattern of income diversification between agricultural and non-agricultural activities is the result of differences in household characteristics, assets and endowments. In addition when markets do not operate in a competitive or efficient manner, personal and institutional constraints can play an important role in determining participation in a particular sector.

5.28 In order to explore this issue, we estimate the effect that various household characteristics and access to (product) markets (proxied by market size) have on the probability of choosing a particular sector of employment or income-generating strategy<sup>46</sup>. The results from this exercise are presented on Tables A.10 and A.13<sup>47</sup> in the Statistical Annex and the main conclusions are summarized below.

5.29 The main determinants of participation in a specific *employment sector* are:

46. In particular we use an ordered probit model to estimate the impact of household and household head characteristics on the probability of choosing a specific sector of employment or a specific income-generating strategy. The model includes (i) gender of household head, (ii) human capital of household head (measured by years of education and experience, proxied by age and age squared), (iii) household characteristics (composition, crowdedness and reciprocity of remittances), (iv) household access to infrastructure (water, sewerage and electricity), and (v) density of local market (proxied by size of population).
47. Household-level summary statistics by main sector of employment and by income-generating strategy are presented in Tables A.11 and A.12 in the Statistical Annex.

- **Gender of household head:** Female-headed households are more likely (14 percent) to allocate their time to the non-agricultural sector, especially to non-salaried activities.
- **Education of household head:** Households with more educated heads have a higher probability of participating in non-agricultural activities, particularly in the salaried sector. In particular the probability of participation in non-agricultural salaried activities increases by 1.4 percent with each year of education.
- **Access to basic services:** Members of households with access to electricity are less likely to be self-employed in the agricultural sector, and more likely (6 percent) to participate in non-agricultural activities.
- **Market size:** Households that reside in larger towns have a higher probability (13 percent) on engaging in non-salaried activities, both in the agricultural and non-agricultural sectors.

5.30 As a result the main factors underlying the choice of a specific *income-generating strategy*<sup>48</sup> are:

- **Gender of household head:** Female-headed households are more likely to choose strategies that include participation in the non-agricultural sector; that is, strategies that yield higher income levels and thus lower poverty. This suggests that there is no discrimination in rural labor markets, a result supported by Valdivia and Robles (1997) and Escobal (2001b) who find no gender bias in income diversification.
- **Education of household head:** Households with more educated heads tend to use strategies that are associated with higher levels of income by combining salaried and non-salaried non-agricultural activities, and self-employment in agriculture. The fact that more educated individuals and households tend to diversify rather than fully substitute across economic activities could be suggestive of the existence of barriers to full exit from the agricultural sector, such as thin land rental and sale markets—an impression that is confirmed by Escobal (2001b) as discussed below.
- **Access to basic services:** Households with access to electricity have a lower probability of choosing strategies that include self-employment in the agricultural sector—typically low income strategies.
- **Market size:** Households living in larger populations tend to use mixed strategies that combine activities in both the agricultural and the non-agricultural sectors. This seems to suggest that higher population density and larger markets make it easy for households to diversify across sectors and, therefore, to minimize the impact of shocks generated by sectors-specific factors.

5.31 Escobal (2001b) confirms the importance of location and endowments as determinants of income-generating strategy choices in his examination of the factors underlying sectoral shares in household income shares. He finds that ownership of fixed agricultural assets, such as land and cattle increase the share of agricultural income, particularly from self-employment, and that access to credit increases the share of income generated through non-salaried activities, both agricultural and non-agricultural.

5.32 In sum, better household endowments (such as higher education) and access to basic services and markets allow households to use strategies that include non-agricultural activities, while ownership of agricultural assets and lack of liquidity make it more costly for households to abandon strategies that include agricultural activities.

5.33 It is important to note, however, that there is significant variation within strategies. For instance, two farmers may be devoting the same amount of labor and effort to their plot with very different results. Similarly, two salaried employees in the food-processing sectors may be paid different wages according to their productivity. Finally, two artisans may be able command different prices for their handicrafts

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48. We have only examined those strategies that are most frequently used according to the data. These strategies are described in Table 5.7.

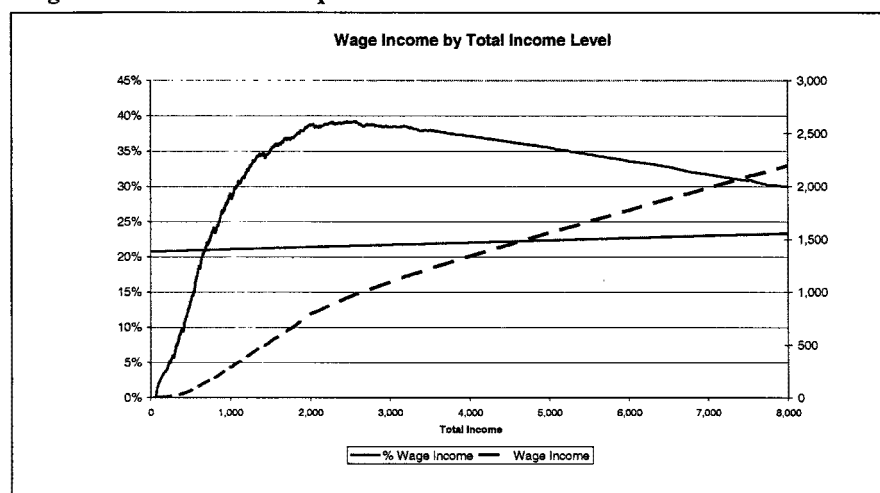
depending on the markets they have access to. We then turn our attention to the returns to agricultural and non-agricultural activities and their determinants.

### Returns to Agricultural and Non-Agricultural Activities: The role of Access to Assets and Markets

5.34 Forty percent of household income and 50 percent of labor income is generated in the agricultural sector. Similarly 30 percent of household income and 40 percent of labor income is associated with salaried activities contracted through labor markets, and these figures go up to 40 and 50 percent respectively if we take into account non-agricultural self-employment.

5.35 Moreover, the relationship between agricultural and salaried income and total income varies with the latter. As we pointed out above, poor households tend to depend more heavily on agricultural activities, particularly self-employment, than better-off ones. Similarly, the share of salaried income rises rapidly as income increases, and then declines steadily as we move towards the top of the income distribution (Figure 5.4). This inverted-U pattern results from differences in the income-diversifying strategies employed by poor and rich households—the former tend to diversify within the agricultural sector, so that the initial increase in the share of salaried income responds to increases in agricultural salaried income (Figure 5.5); as income increases, however, households engage first in non-agricultural salaried activities and then in non-agricultural non-salaried activities, giving rise to the overall decline in the share of salaried income among richer households.

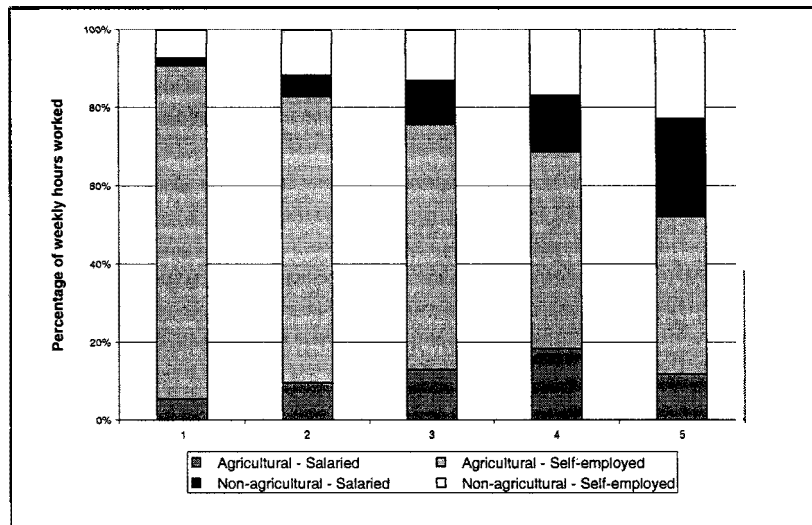
**Figure 5.4: The relative importance of salaried activities varies with income...**



Source: Authors' calculations using data from ENAHO 2002.IV (INEI).



**Figure 5.5: ... as households substitute away from agricultural activities**



Source: Authors' calculations using data from ENAHO 2002.IV (INEI).

5.36 We find a strong correlation between agricultural productivity and hourly labor income on the one hand and total income on the other (Tables 5.8 and 5.9). Agricultural productivity among farmers in the richest quintiles is double that of farmers in the poorest quintile, although productivity levels are low for all income groups. Similarly hourly labor income increases by a factor of five as we move up the income distribution, particularly in the non-agricultural sector.

	Household income quintiles				
	1	2	3	4	5
	Nuevos Soles per hectare (Median value)				
All rural areas	609.2	823.0	1,020.0	1,113.8	1,600.0
Costa	1,450.0	1,870.4	3,137.5	4,200.0	5,685.0
Sierra	509.3	642.3	646.6	799.6	749.1
Selva	775.0	776.1	866.2	3,320.5	9,252.0

	Household income quintiles				
	1	2	3	4	5
	Hourly labor income (1998 Soles—Metropolitan Lima)				
All labor income	0.71	1.19	1.63	2.23	3.82
Agricultural					
Salaried	1.10	1.54	2.15	2.39	3.21
Self-employed	0.67	1.07	1.37	1.87	2.99
Non-agricultural					
Salaried	0.94	1.98	2.34	3.27	5.84
Self-employed	0.90	1.26	1.78	2.24	3.36

5.37 For these reasons, we concentrate our attention on the determinants of agricultural productivity and the returns to salaried employment. We expect both to be a function of household characteristics, as well as of the extent to which households have access to markets where these characteristics are rewarded. We first analyze the role of household characteristics (assets and services) and then discuss the role of markets.

5.38 The main determinants of *agricultural productivity*, measured as the value of output per hectare, are:

- **Land distribution:** Agricultural productivity in Peru is low due to, among other factors, the high level of fragmentation in land distribution. The average farmer has access to small quantities of land that are often divided into several plots. According to Peru's last Agricultural Census (1994), 24 percent of all farms owed less than 1 hectare of land, 55 percent owed less than 5 hectares and only 5 percent owed 30 or more hectares. The reasons for the high level of fragmentation in land holdings vary by region. In the Costa they can be traced to the 1969 Agrarian Reform, which imposed limits on rural land holdings (150 hectares for irrigated coastal land) and converted most large landholdings into cooperatives, the majority of which subsequently broke up into small plots. In contrast, in the Sierra farmers maintain fragmented land holdings as a way of managing risks by cultivating lands in different ecological zones. This practice, together with a complicated mechanism of land division for bequests and land grouping through inter-community marriages, explain an important part of the fragmentation process in this region.  
The small size of the average plot in turn makes it difficult and often expensive for individual farmers to access credit and invest in productivity-enhancing assets, such as machinery, or infrastructure, such as irrigation. The level of mechanization of small farms is therefore low, while only 30 percent of all agricultural land is irrigated.
- **Household characteristics:** Productivity increases with the level of education of the household head. This relationship is particularly strong for small plots (less than 1 hectare) and intermediate levels of education (primary and some secondary education). The average productivity of a small plot increases from 750 to 947 soles per hectare, a 25 percent increase, as the household head completes primary education, and to 1,886, and additional 100 percent increase, as she acquires some secondary education. In contrast, the average productivity of a large plot grows from 4,045 to 5,356 soles per hectare, a 32 percent increase, and to 5,449, an additional 2 percent increase, under the same circumstances (Table 5.10). This positive relationship between agricultural productivity and human capital is not exclusive to the case of Peru—Foster and Rosenweig (1996) and World Bank (2004e) document similar effects for the cases of India and Ecuador respectively.
- **Access to assets/endowments:** Average productivity is positively correlated with the possession of a land title and with access to electricity (Table 5.10). Plots tendered by farmers with a land title are 30 percent more productive than the rest. A land title may encourage farmers to make productive investments on their land. It may also lift liquidity constraints that precluded such investments in the past by allowing farmers to use their land as collateral. Similarly plots in farms with access to electricity are 7 percent more productive than those in farms without it. Access to electricity may have a direct impact in productivity by, for instance, making it possible for water to be pumped from a well for irrigation purposes. It may also serve as an indirect measure (or proxy) for access to other productivity-enhancing infrastructure or machinery.
- **Access to services:** Access to services, such as technical assistance and credit, is also positively correlated with agricultural productivity. Plots cultivated by farmers with access to technical assistance are 15 percent more productive than other plots. Technical assistance can be thought of as additional human capital and/or technology invested on the plot. Similarly access to credit may allow farmers to make productive investments in the presence of liquidity constraints. Evidence of the positive relationship between technical assistance and credit and productivity has also been provided for the case of Ecuador (World Bank, 2004e).

**Table 5.10: Agricultural productivity increases with education, possession of land title, and access to electricity, technical assistance and credit**

	All rural		Less than 1 hectare		Between 1 and 5 hectares		More than 5 hectares	
	Prod	% of pop	Prod	% of pop	Prod	% of pop	Prod	% of pop
<b>Total</b>	2,046		1,078		2,346		5,606	
<b>Education (head)</b>								
Incomplete primary or less	1,773	15.6	750	15.7	2,767	15.1	4,045	14.0
Complete primary	1,888	60.0	947	62.6	2,136	63.3	5,356	64.7
Incomplete secondary	2,280	18.7	1,886	19.3	2,096	15.9	5,449	14.9
Complete secondary or more	2,948	5.6	1,014	2.6	3,667	5.6	11,433	6.2
<b>Access to technical assistance</b>								
Yes	2,333	19.5						
No	2,034	80.5						
<b>Access to electricity</b>								
Yes	2,125	56.2	1,288	54.5	2,377	60.2	4,837	74.1
No	1,991	43.8	1,011	45.5	2,299	39.8	7,889	25.8
<b>Access to credit in last 12 months</b>								
Yes	3,118	5.9						
No	1,969	94.1						
<b>Access to land title</b>								
Yes	2,625	30.0						
No	2,020	70.0						
<b>Number of observations</b>	1092	100.0	346	31.6	514	47.0	232	21.2

Source: Authors' calculations using data from LSMS 2000 (Cuánto).

5.39 Although the figures presented here are mere average differences and could be driven by factors other than the variables of interest, they illustrate the point in a simple manner. Escobal (2001b) confirms the robustness of these relationships in a regression context, where other factors are controlled for.

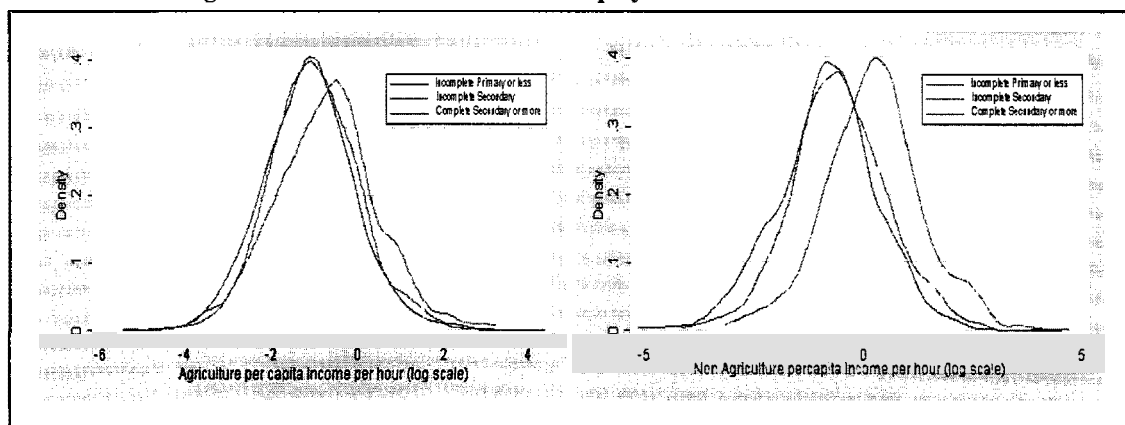
5.40 The main determinants of the returns to *agricultural and non-agricultural salaried employment* are.<sup>49</sup>

- **Sector of employment:** Hourly wages are higher in the non-agricultural sector than in the agricultural one, and within the former they are highest in the high-skilled manufacturing and the business sectors and lowest in the low-skilled manufacturing and transport sectors even after controlling for other observable worker characteristics (Sosa-Escudero and Lucchetti, 2004). Salaried workers in the non-agricultural sector earned between 18 (low-skilled manufacturing) and 36 (business) percent more than their counterparts in the agricultural sector. These differences may reflect, among other factors, variation in labor productivity across sectors.
- **Household characteristics:** Hourly wages increase with human capital. More educated workers are paid higher wages (Figure 5.5). Individuals with complete primary and secondary education received wages that are 15 and 30 percent higher respectively than those of workers who have not completed primary (Sosa-Escudero and Lucchetti, 2004). In addition the education wage premium is higher in the non-agricultural sector, particularly for workers who have completed secondary education (Figure 5.5). Experience, proxied by age and age squared, is also positively correlated with wages.

49. Estimates are from an earnings equation using (log) hourly wages as the dependent variable and a series of controls including: (i) worker characteristics (gender, education, age and age squared), (ii) information on sector and type of employment, (iii) regional controls. The model was estimated separately for urban and rural areas, and for household heads and other members.

Female workers receive lower wages than their male counterparts, and the gender gap is larger for household heads than for other workers. This result contrasts with the fact that gender did not play a significant role in explaining participation in different economic sectors.

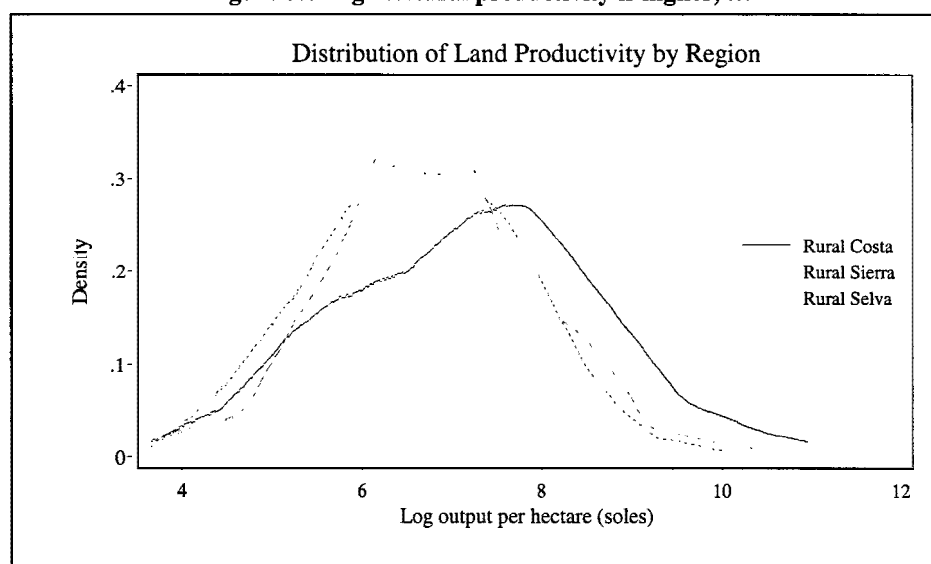
**Figure 5.5: The returns to salaried employment increase with education**



Source: Authors' calculations using data from ENAHO 2002 (INEI).

5.41 The patterns described so far generally hold across the country, but there exists substantial variation in agricultural productivity levels and in the importance of and returns to salaried employment across regions. Average agricultural productivity is higher in the Costa than in the Sierra and the Selva (Figure 5.6). The average plot in the Costa yields 3,699 soles per hectare, compared to 1,834 and 1,469 in the Sierra and the Selva. The same can be said about the prevalence of and the returns to salaried employment. Forty-five percent of all hours worked are devoted to salaried activities in the Costa, compared with 20-25 in the Sierra and the Selva (Table 5.11). Similarly the returns to salaried employment, measured in terms of hourly wages, are also higher in the Costa than in the other regions, both in the agricultural and non-agricultural sectors (Figure 5.7).

**Figure 5.6: Agricultural productivity is higher, ...**



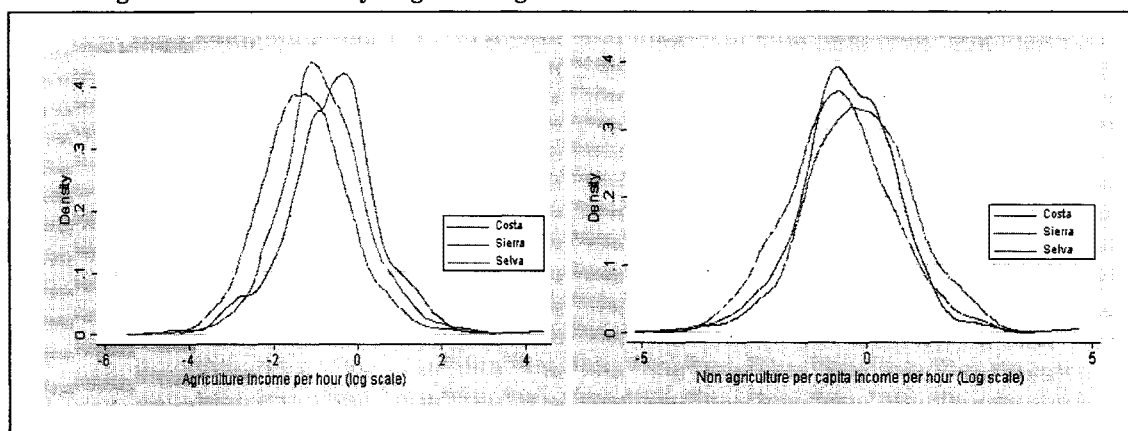
Source: Authors' calculations using data from LSMS 2000 (Cuánto).

**Table 5.11: ... salaried employment is more prevalent, ...**

	Costa	Sierra	Selva	All rural
	% of weekly hours worked			
Agricultural				
Salaried	28.5	7.6	13.0	11.9
Self-employed	39.1	66.7	58.6	60.9
Non-agricultural				
Salaried	13.1	12.1	12.4	12.3
Self-employed	19.2	13.6	16.0	14.9

Source: Authors' calculations using data from ENAHO 2002.IV (INEI).

**Figure 5.7: ... and hourly wages are higher in the Costa than in the Sierra and the Selva**



Source: Authors' calculations using data from ENAHO 2002.IV (INEI).

5.42 This variation is the result of regional differences in both endowments and returns to these endowments. To mention a few examples: regarding endowments, the average size of a plot is larger and the share of irrigated land is higher, the average worker is more educated, and access to infrastructure is more prevalent in the Costa than in the Sierra and the Selva; regarding the returns to these endowments, the returns to education, both in agricultural and salaried activities, are higher in the Costa than in the other regions (Tables 5.12 and 5.13)

**Table 5.12: The returns to education in the agricultural sector....**

	All rural		Costa		Sierra		Selva	
	Prod	% of pop	Prod	% of pop	Prod	% of pop	Prod	% of pop
<b>Education (head)</b>								
Incomplete primary or less	1,773	15.6	3028	14.0	1399	15.8	1517	16.0
Complete primary	1,888	60.0	2761	60.2	2067	59.6	1377	61.2
Incomplete secondary	2,280	18.7	5600	18.6	1576	19.0	1585	17.9
Complete secondary or more	2,948	5.6	5295	7.2	3003	5.6	1397	4.8

Note: Agricultural productivity measured as value of output per hectare.

Source: Authors' calculations using data from ENAHO 2002.IV (INEI).

**Table 5.13: ... and in salaried activities are higher in the Costa than in the Sierra and the Selva**

	All rural		Costa		Sierra		Selva	
	Median hourly income	% of pop	Median hourly income	% of pop	Median hourly income	% of pop	Median hourly income	% of pop
<b>Education (head)</b>								
Incomplete primary or less	1.29	49.7	1.87	49.9	1.09	53.1	1.29	46.2
Complete primary	1.61	23.8	2.30	18.7	1.24	25.3	1.61	24.1
Incomplete secondary	1.78	12.2	2.15	12.8	1.46	9.6	1.77	14.6
Complete secondary or more	2.43	14.2	2.82	18.5	2.17	12.0	2.43	15.0

*Note:* Hourly income measured in soles and valued at constant 1998 Metropolitan Lima prices.

*Source:* Authors' calculations using data from ENAHO 2002.IV (INEI).

5.43 Given their correlation with household income, regional differences in agricultural productivity and the returns to salaried activities in turn translate into regional income differences. In 2002 average per capita income in the Sierra, at 146 soles per month, was 60 percent that of the Costa, and this figure was 72 percent for the Selva (Table 5.14).

**Table 5.14: Regional income differences can be explained by differences in endowments and in the returns to these endowments**

	Differences in returns	Differences in endowments	Total
Costa versus Sierra	69.7	30.3	100.0
Costa versus Selva	13.1	89.9	100.0
Sierra versus Selva	127.1	-27.1	100.0
Average per capita income (2002)—Soles per month			
Costa	238.7		
Sierra	146.4		
Selva	173.1		

*Note:* Decomposition follows Cotton (1998).

*Source:* Authors' calculations using data from ENAHO 2002.IV (INEI).

5.44 The question then arises as to how much of much of the observed regional income differences can be attributed to variation in endowments versus variation in the returns to these endowments. We explore this by performing pairwise comparisons, and find that differences between the Sierra and the other two regions are mainly explained by differences in the returns to endowments, while differences between the Costa and the Selva are mostly due to differences in endowments (Table 5.14).

5.45 While regional differences in endowments are a function of several factors, including household preferences, geography and public interventions, regional differences in returns are in part the result of the thickness and dynamism of regional markets and of productivity. Population density and access to infrastructure are higher in the Costa than in other areas, despite important improvements in this area the during the 1990s in the Sierra and the Selva, and both factors could potentially contribute to create more integrated and dynamic markets in rural areas, as well as to better connect rural and urban areas.

5.46 In order to overcome regional differences, important investments aimed at improving access to assets, services and markets in those areas that are lagging behind must be undertaken (see Box 5.1 for a discussion on the impact of road infrastructure on rural poverty). The nature of these investments will depend on the characteristics of the area and, more importantly, on its potential for future productivity and economic growth conditional on such investments. Investments in portable assets, such as education and health, that allow individuals to migrate and benefit from economic opportunities elsewhere are preferable in areas with low growth potential, while investments in fixed, productive assets, such as basic services

and infrastructure, can help reduce poverty in areas with high growth potential. In the next section we evaluate the impact that a series of such investments in portable and fixed assets can have on household income and poverty.

**Box 5.1: The benefits of Rural Roads: Broadening income opportunities for the poor**

Rural roads are of great importance in Peru, as they play a crucial role in the integration of the country's irregular topography and diverse ecology and climate. Peru's geography makes road construction, rehabilitation, and maintenance a particularly challenging endeavor, and though the importance of good quality rural roads in supporting access to healthcare, education and employment opportunities is not underestimated in Peru, the high construction costs imposed by the irregular terrain, combined with sparse and scattered populations that benefit from rural roads, make investments in this type of infrastructure less appealing to politicians than other projects yielding higher political returns.

The World Bank financed two Rural Road Rehabilitation and Maintenance projects (in 1995 and 2001), which, among other things, provided backing for road rehabilitation, as well as routine and periodic maintenance of rural roads. Escobal and Ponce (2002) analyzed the project's impact on a number of important well-being indicators, including the level of income and spending on per capita consumption. The study compared households living in areas that benefited from the road rehabilitation program with households in areas that were not covered by the program, controlling for initial conditions and households' characteristics. To estimate the effect of rehabilitation, the authors used propensity score matching, with some variations used to make this methodology compatible with the database used. The study focused on two types of roads: "caminos vecinales" and "caminos de herradura". The "caminos vecinales" are dirt roads connecting towns and villages via public service or freight trucks; they typically connect to secondary roads and provide rural populations access to urban areas. On the other hand, "caminos de herradura" are paths used to transport goods, generally located in areas with irregular terrain; their quality is very low and they are less frequently used.

Results show that the improvement of rural roads had a very positive impact on the lives of the people in areas benefited by the program. In particular, access to new sources of income outside agriculture was one of the most positive outcomes of the rehabilitation program. The study also found that the improvement of rural roads generated an increase in household income, though this increase did not necessarily translate into an expansion in consumption spending. Instead, it was found that the additional income was used to increase savings, in most cases by acquiring additional cattle. Escobal and Ponce argue that this result may suggest that improvements in the quality of roads are not perceived as permanent, either due to little or no maintenance of rehabilitated roads or because, even if regular maintenance were to be a permanent component of the rehabilitation program, households do not consider these actions sustainable in the long term, and choose to save what they consider temporary gains from temporarily better infrastructure. The authors argue that if returns from road improvement investments are to be maximized, regular road maintenance should be guaranteed, both to justify these type of investments and to provide households with a clearer picture to enable informed investment and consumption decisions.

In addition, Escobal and Ponce found that households neighboring "caminos vecinales" tended to benefit more from rehabilitation than those neighboring "caminos de herradura", which may be related to the very different initial conditions observed in households close to each type of road. The available data indicates that households with access to improved "caminos vecinales" have higher levels of education, larger extensions of arable land, and more access to public infrastructure than households located on improved "caminos de herradura". Due to data limitations, it was not possible to carry out a comparative study of how the program benefited households near each type of road. Further understanding of the complementarities between initial conditions and access to adequate quality roads would be helpful for the design of public programs in rural areas.

*Source: Escobal and Ponce (2002).*

## **THE IMPACT OF PUBLIC INTERVENTIONS ON POVERTY**

5.47 We consider a series of different interventions aimed at increasing human capital levels (access to primary and secondary schooling or access to sewerage) and/or increasing local physical capital (access to a public phone) and access to markets (access to a main road). We examine the impact that such

interventions can have on household income and poverty based on simulations by Escobal (2002) and Escobal and Torero (2000).

5.48 The authors simulate the implementation of one or more interventions using data from the ENNIV. When two or more interventions are implemented simultaneously, they allow for the existence of complementarities across interventions—that is, they allow for their joint effect to be larger than the sum of their separate effects. Their use of household-level data is motivated by the wealth of information contained in the ENNIV, but has the problem of forcing them to base their results on a single cross-section which could produce endogenous estimates—i.e. in the case of a positive correlation between access to a public phone and household income levels we cannot distinguish between the following two competing explanations: (i) access to a phone actually increases income or (ii) rich people are more likely to live near or have access to a phone. In order to be able to derive policy recommendations from the results of this exercise we then rely on complementary analysis by Escobal and Torero (2002) who show that (alternative indicators of) access to basic services and infrastructure, has a positive causal effect on household income.<sup>50</sup>

5.49 The main results associated with the implementation of a *single intervention* can be summarized as follows. First, all interventions being considered (access to a public phone, access to primary and secondary school, access to sewerage, and access to a main road) have a positive impact on household expenditures, although the average magnitude of the impact differs across interventions (Table 5.15).

**Table 5.15: Public investments in infrastructure have a positive impact on household expenditure...**

	Household income quintiles				
	1	2	3	4	5
	Percentage increase in household income				
Access to public phone	1.72	3.75	5.45	6.10	12.04
Access to primary and secondary school	3.27	3.45	4.47	5.87	6.97
Access to sewerage	3.41	3.53	4.11	4.07	7.57
Access to main road (1 hour reduction in travel time)	0.95	1.04	1.30	1.17	1.52
Access to main road (2 hour reduction in travel time)	1.90	2.09	2.61	2.36	3.06

Source: Escobal and Torero (2000).

5.50 Second, the average magnitude of the impact associated with each intervention increases with expenditure. For example, access to a public phone increases expenditure by 12 and 1.7 percent among households in the fifth and the first quintiles respectively. This could be explained if richer households have access to better economic opportunities where the returns to these interventions are higher on average—for instance, by being more connected to markets.

5.51 Third, the most effective intervention for the poorest quintiles is not necessarily so for the richest quintiles. Access to primary and secondary school and access to sewerage produce the largest percentage increases in expenditure among households in the first quintile (3.27 and 3.41 percent respectively), while access to a public phone produces the largest increase for households in the fifth quintile (12 percent). This could be explained if the returns to these interventions vary by economic activity or sector, and the poor are concentrated in activities or sectors that are different from those in which the rich concentrate—something we already documented above. It could also be explained by the fact that the poor tend to

50. The authors use information from the Population Censuses and the ENNIV to construct the following indicators: number of schools and health centers in the area (in per capita terms), the Unsatisfied Basic Needs index, the level of urbanization and the distance to the provincial capital. Their results are presented and discussed in detail in Chapter 2.



concentrate in areas with low productivity and growth potential and thus are more likely to benefit from investments in portable assets and less likely to benefits from investments in productive, but fixed assets.

5.52 Fourth, as a result of their differential impact across the expenditure distribution, these interventions tend to benefit the non-poor more than the poor (Table 5.16) and, within the poor, the non-extreme poor more than the extreme poor. However, it is important to notice that the potential welfare impact of a small percentage increase in household expenditure is significantly larger among poor households than non-poor ones.

**Table 5.16: ... and this impact is larger for non-poor than for poor households**

	Non-poor	Poor
	Percentage increase in household income	
Access to public phone	8.26	3.87
Access to primary and secondary school	6.24	3.75
Access to sewerage	6.04	3.43
Access to main road (1 hour reduction in travel time)	1.37	1.06
Access to main road (2 hour reduction in travel time)	2.76	2.14

Source: Escobal and Torero (2000).

5.53 We now consider the impact associated with the *simultaneous implementation* of two or more interventions. The main results can be summarized as follows. First, the conclusions postulated about the implementation of a single intervention still hold when two or more interventions are implemented at the same time—their impact on expenditure is positive, and varies with the nature of the interventions and the level of household expenditure (Table 5.17).

**Table 5.17: Most public interventions appear to be complementary to each other**

	1: Access to public phone 2: Access to primary and secondary school 3: Access to sewerage 4: Access to main road (1 hour reduction in travel time) 5: Access to main road (2 hour reduction in travel time)				
	Household income quintiles				
	1	2	3	4	5
	Percentage increase in household income				
1 + 2	5.06	7.34	10.17	12.33	19.85
1 + 3	33.44	36.05	37.70	39.18	42.49
1 + 4	4.25	6.33	8.07	8.74	14.82
1 + 5	6.84	8.97	10.75	11.43	17.67
2 + 3	6.79	7.10	8.77	10.18	15.06
2 + 4	4.25	4.53	5.83	7.11	8.59
2 + 5	5.24	5.62	7.20	8.37	10.24
3 + 4	0.95	1.04	1.30	1.17	1.52
3 + 5	1.90	2.09	2.61	2.36	3.06
1 + 2 + 3	37.81	40.75	43.86	47.35	52.42
1 + 2 + 4	8.38	10.83	13.99	16.08	23.93
1 + 2 + 5	11.81	14.43	17.93	19.96	28.16
1 + 3 + 4	37.66	40.47	42.47	43.82	47.35
1 + 3 + 5	42.02	45.04	47.40	48.63	52.38
2 + 3 + 4	7.80	8.22	10.17	11.47	16.81
2 + 3 + 5	8.82	9.34	11.60	12.77	18.59
1 + 2 + 3 + 4	42.17	45.32	48.84	52.27	57.62
1 + 2 + 3 + 5	46.67	50.05	53.99	57.35	62.99

Source: Escobal and Torero (2000).

5.54 Second, the impact of simultaneous interventions surpasses in most cases the sum of the impact of individual ones, providing evidence of potential complementarities across different interventions (Table 5.18).

5.55 Third, even though non-poor households continue to benefit more than poor households for any intervention (individual or joint), complementarities between interventions tend to reduce the gap in differential impact between rich and poor households, especially when three or more interventions are considered. For instance, the expenditure increase generated by having access to a public phone among non-poor households is more than double that among poor ones (8.27 versus 3.87 percent), while combinations of this and any other intervention yield smaller differentials (e.g. access to a public phone and a main road increase expenditure by 13.70 and 9.09 percent for non-poor and poor households respectively).

**Table 5.18: Complementarities between interventions contribute to close the gap in differential impact between rich and poor households**

	1: Access to public phone 2: Access to primary and secondary school 3: Access to sewerage 4: Access to main road (1 hour reduction in travel time) 5: Access to main road (2 hour reduction in travel time)	
	Non-poor	Poor
	Percentage increase in household income	
1 + 3	39.05	36.11
1 + 5	13.70	9.09
1 + 2	15.02	7.76
2 + 3	12.66	7.31
1 + 4	10.95	6.45
2 + 5	9.18	5.96
2 + 4	7.70	4.85
3 + 5	2.76	2.14
3 + 4	1.37	1.06
1 + 3 + 5	49.47	45.19
1 + 2 + 3	48.58	41.21
1 + 3 + 4	44.58	40.58
1 + 2 + 5	22.93	14.95
1 + 2 + 4	18.91	11.30
2 + 3 + 5	15.77	9.60
2 + 3 + 4	14.21	8.45
1 + 2 + 3 + 5	58.80	50.63
1 + 2 + 3 + 4	53.61	45.84

Source: Escobal and Torero (2000).

5.56 Escobal (2002) takes this analysis one step further and explores the channels underlying the impact of public interventions or sets of interventions on household income/expenditure. In particular he decomposes changes in household income into changes in labor supply across sectors, measured as participation in the sector, changes in the average income obtained from each sector, and analyzes how both factors are affected by the type of interventions we have considered so far. The main conclusion of the exercise is that access to infrastructure increases participation and average income in the non-agricultural sector, especially in non-salaried activities.

5.57 Useful as these simulations are, however, we would like to conclude this section with a word of caution. The results we have presented here account only for the (direct) benefit-side, while a full assessment of the profitability or a particular intervention or set of interventions should ideally also account for its costs.

## PROMOTING INCLUSIVE RURAL GROWTH

5.58 Based on the evidence presented in this chapter we can identify four key areas in need of government action if the rural poor are to benefit from the economic opportunities generated by overall economic growth.<sup>51</sup> The areas are: promotion of rural growth through higher integration of rural areas into national markets, increases in human capital levels, improved access to credit and financial markets, and investment in infrastructure. We propose a series of policy interventions that could be implemented in each one of these areas below.

5.59 Promoting rural growth and increasing the integration of rural areas in national markets will require, among other actions:

- **The strengthening of economic connections between urban and rural areas:** This could be done by developing adequate road communications to facilitate contacts between agents and the transport of merchandise between rural and urban areas. It could also be done by facilitating knowledge and technology transmission from urban to rural areas, and contributing to develop stable economic relationships that ensure a constant demand of agricultural and non- agricultural products for industrial processing and/or exports, and create incentives for producing in bulk.
- **The development of wholesale and local markets.** The lack of accessible outlets for production in the form of wholesale markets is one of the major constraints for increases in output in rural areas. In the past the poor quality of rural infrastructure, especially in the Sierra and the Selva has made it difficult to develop wholesale markets because the cost of transportation and handling often exceeded the profits from the sale.

5.60 Increasing human capital levels in rural areas will require, among other factors:

- **An increase in the coverage and quality of rural education.** Improving educational levels and standards in rural areas can be achieved through a series of interventions including: (i) the expansion of bilingual education through the provision of adequate teaching and learning materials and the recruitment and training of quechua-speaking teachers; (ii) the expansion of secondary education, either through formal schooling or through distance learning; and (iii) the creation of incentives for school attendance through conditional cash-transfers or improvements in the feeding and nutrition programs offered in schools (see Chapter 5 for a more detailed discussion on the issue of education).
- **An increase in access to technical assistance.** Most of rural Peru has little or no access to technical assistance or extension services. The system of public extension services was essentially dismantled in the 1990s, and a private market for technical services has replaced it. Although subsidized access to these services is provided by INCAGRO, PRA and FONCODES, a large number of small farmers and rural poor are still excluded due to their high cost. Further efforts to support the provision of demand-driven technical assistance, accompanied by marketing and managerial assistance are then necessary.

5.61 Increasing access to credit among rural producers will require, among other actions:

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51. For an extensive discussion on rural development in the Sierra region the reader should consult the recent Rural Development Strategy for the Sierra prepared by the World Bank (2003).

- **The strengthening of rural financial institutions.** Rural credit is restricted by the difficulties of many producers, particularly those in small farms, to comply with the administrative and guarantee requirements of financial institutions<sup>52</sup>. As a result most existing credit is informal, or provided by small loans and savings cooperatives. These cooperatives need to be strengthened and so do other institutions with similar goals, such as women's credit groups.
- **The modification of regulation on collateral.** Credit regulation needs to be modified to allow for the use of other family assets, such as land and livestock, as collateral. At the same time efforts to increase titling (of housing and, particularly, land) should continue. Provisions should also be made to account for the high prevalence of communal property of land among the indigenous population, and the negative impact that this may have of the capacity of the individuals in these communities to access credit.

5.62 Improving access to and the quality of infrastructure will require, among other factors, and increase in public resources and partnerships with the private sector as discussed in Chapter 1 and in Box 2.4.

5.63 The evidence presented in this chapter has also helped us identify important issues regarding the implementation of policy interventions aimed at rural development. First we have argued that the nature of rural poverty is heterogeneous and varies significantly across regions, so that interventions and projects need to take into account local specificities to ensure maximum effectiveness. For instance in areas with a hostile and/or poor natural environment, it will be important to invest in mobile assets and capabilities, such as education and health, that can follow the individual, while in areas that are rich in local resources it will be important to promote interventions that maximize the returns to these resources.

5.64 Second we showed that because land is scarce relative to the population it has to support, many of those currently employed in agricultural activities will have to dramatically improve their productivity or abandon agriculture in order to escape from poverty. This implies that a rural development strategy for Peru must be multi-sectoral and consider the interaction between agricultural and non-agricultural activities. It also implies that this strategy must take into account that migration, to urban areas or to other countries, may constitute an optimal coping strategy in areas where potential productivity and economic growth is low.

5.65 Third we have provided evidence of the existence of complementarities across different policy interventions, implying that a comprehensive spatial approach to rural development can yield high returns in terms of poverty reduction. This, however, must be done attending to the issues of costs and equity. The simultaneous introduction of multiple services may come with too high a bill for poor households to afford, so that in some instances sequencing may be preferable. Similarly when resources are scarce we may decide to spread, rather than concentrate them so that a larger fraction of the population can benefit from them.

5.66 Finally it is important to notice that there already exist several programs in rural areas that support interventions in the areas we have identified and provide a structure through which the GoP can work towards to the goal of rural inclusive growth. These programs, however, suffer from several problems related to some of the implementation issues identified above that need to be addressed if further interventions are to be effective. Escobal and Valdivia (2004) critically evaluate the most important of these programs, and we present a summary of their main findings in Box 5.2.

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52. For instance, the FOGAPI (Fondo de Garantía de Prestamo para la Pequeña Industria) has not been able to extend its services to agricultural micro and small enterprises.

**Box 5.2: An overview of rural development programs in Peru**

Escobal and Valdivia (2004) examine the objectives and impact of the most important rural development programs in terms of budget (i.e. a total of 18 programs with an annual budget of US\$460 million or 0.9 percent of GDP). We summarize their main findings in this box.

The authors classify the programs according to their main objective into five categories: (i) market development, (ii) social infrastructure, (iii) human capital investment, (iv) temporary relief (or social protection), and (v) management of natural resources (Table B5.2.1). At the national level most programs and, consequently, most resources are devoted to human development investment. The distribution of resources, however, varies by region. For instance in the Sierra, which receives 50 percent of the resources budgeted for these programs, relatively more attention is paid to the management of natural resources, mainly through PRONAMACHS. Programs are targeted in different ways according to their goals and objective population. Programs in categories (ii) and (iii) are targeted using the Poverty Map, while programs in category (iv) are self-targeted at the individual level.

**Table B5.2.1 Main public programs for development focused on rural areas by category**

Program	Type of program	Annual budget (US\$ million)
PETT	Development of markets for production (Uni-markets)	7.6
PRA	Development of markets for production(Multi-markets)	3.3
Corredor Puno-Cusco	Development of markets for production(Multi-markets)	2.9
Mejorando Tu Vida	Social infrastructure	42.0
Provías Rural	Social infrastructure	31.9
FITEL	Social infrastructure	5.7
Salud Básica Para Todos	Support on human capital investment	55.3
Vaso de Leche	Support on human capital investment	90.2
Alimentación Infantil	Support on human capital investment	11.2
Wawa-Wasi	Support on human capital investment	2.1
PANFAR	Support on human capital investment	17.9
PACFO	Support on human capital investment	20.7
Desayunos Escolares	Support on human capital investment	48.3
A Trabajar Rural	Temporary relief	26.7
Apoyo Alimentario a Comedores	Temporary relief	32.5
PAR	Temporary relief - Transfer of assets and production inputs	0.4
MARENASS	Sustainable management of natural resources	2.1
PRONAMACHCS	Sustainable management of natural resources	57.1
Total		458.2

Source: Escobal and Valdivia (2004).

The authors also provide a critical assessment of the overall effectiveness and impact of these programs. They conclude that:

- The design and implementation of most programs are still focused on isolated actions and goals, and do not respond to a spatial vision of development where complementarities across interventions are possible. An integrated approach, however, can be found in some interventions, especially those financed by international donors.
- The extent to which programs empower beneficiaries during the decision making process varies across programs. In some cases project goals are demand-driven, while in others demand is “induced” using some validation mechanism (i.e. town meetings where the offer coming from some central planning mechanism is transformed into local demand). Moreover, even when empowerment mechanisms are in place, the level of involvement of central authorities remains high leaving little space for direct decision-making regarding the allocation of resources by the intended beneficiaries.
- Finally projects are not evaluated systematically, making it difficult to measure their impact or their viability in different areas and/or project sizes. Baselines are rarely collected, and neither are various project models tested using pilots before up-scaling.

Source: Escobal and Valdivia (2004).

## CONCLUSIONS

5.67 We have argued in this chapter that living standards and poverty in rural areas are the product of the income-generating strategies implemented by poor and non-poor households. Participation in and the returns to these strategies are a function of household characteristics and endowments, access to markets, basic services and infrastructure, and of policy levers.

5.68 We have also shown that non-poor households benefit more from public investments in basic services and road infrastructure because they have better endowments and enjoy higher degrees of market integration. Differences across household, however, tend to disappear when two or more public interventions are implemented simultaneously due to the existence of complementarities across interventions.

5.69 For these reasons, a strategy aiming to promote inclusive rural growth must consider policies directed towards increasing the endowments of the rural poor and improving access to markets, basic services and infrastructure. This strategy should be responsive to regional heterogeneity, be comprehensive in order to encompass both the agricultural and no-agricultural sectors, and be spatially integrated to account for complementarities across interventions. And, above all, it should tailor the nature of its interventions to the productivity and economic growth potential of the area under consideration, investing in portable assets when this potential is low and in fixed productive assets when this potential is high.

## 6. VULNERABILITY AND EXCLUSION<sup>53</sup>

6.1 The discussion presented in Chapters 3 and 4 focused on the role of economic opportunities, or the lack thereof, as a determinant of poverty. Low productivity and low income levels, however, are not the only barriers the poor must surpass. Limited saving capacity and access to financial markets and safety nets make the poor more vulnerable to shocks. Similarly low levels of social mobility and concentration in poorly endowed areas with deficient access to public services contribute to exclude the poor not only from the benefits of current economic growth but also from future economic and social opportunities.

6.2 This chapter discusses the issues of vulnerability and exclusion. The first section examines the incidence and nature of shocks, as well as the coping strategies used by poor and non-poor households and their effectiveness. The next two sections analyze the issue of social exclusion from two different perspectives. The second section looks at the problem through the lens of time by focusing on social mobility and studying it from two different but related angles—occupational mobility and educational mobility. The third section considers exclusion from public services and institutions.

6.3 Our main findings can be summarized as follows:

- ❑ Both poor and non-poor households are subject to shocks and are likely to lose both income and assets as a consequence of these shocks. In coping with shocks poor households tend to use behavioral strategies, such as increasing labor supply or cutting down consumption, while non-poor households are more likely to rely on asset-based strategies, such as reducing savings, or market-based strategies, such as requesting a loan or cashing an insurance policy. The strategies implemented by the poor seem to be less effective than those of the non-poor in helping households overcome the impact of shocks.
- ❑ Social mobility, measured as the relationship between parental and children's characteristics and proxied by education and occupational mobility, is low in Peru. Moreover recent increases in social mobility have been the result of across-the-board gains in educational attainment and changes in the productive structure of the economy, rather than the result of higher equality of educational and economic opportunities, and have been concentrated in the middle of the (income) distribution.
- ❑ Access to public services, to which the bulk of social spending is devoted, is low among the poor and in rural areas. There are also important and persistent differences in access between the indigenous and non-indigenous populations. In addition the poor are less likely than the non-poor to come in contact with various public institutions, ranging from central and local government offices to public banks to the judiciary system. These differences between poor and non-poor households, indigenous and non-indigenous households and rural and urban areas pose important challenges for the social sectors, particularly in the context of the ongoing decentralization process.

### SHOCKS AND COPING STRATEGIES

6.4 Both poor and non-poor households are subject to economic, demographic and other types of shocks. However the poor are generally more vulnerable to these shocks than the non-poor in terms of both their impact and their duration. In this section we use information from the ENAHO 2003 to analyze the incidence and impact of different types of shocks, as well as the coping strategies used by poor and non-poor households and the extent to which these strategies are successful.

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53. This chapter is based on background work prepared the report team and on existing work by Benavides and Valdivia (2004), Pasquier-Doumer (2002) and Benavides (2002).

## The Nature and Incidence of Shocks

6.5 We consider four different types of shocks: economic, demographic, shocks caused by natural disasters or accidents, and other shocks. Economic shocks capture the loss of employment of the household head or some other household member. Demographic shocks refer to the illness or death of one or more household members, as well as to changes in the composition of the household (e.g. abandonment by head of household). Natural disasters refer to all weather-related shocks, while accidents include both unintended events (e.g. job injury) and crime (e.g. robbery).

6.6 There are no significant differences regarding the overall incidence of shocks across poor and non-poor households (Table 6.1). Approximately 20 percent of households declare having suffered at least one shock in the previous year. Natural disasters and accidents are the most prevalent shocks, affecting 13 percent of households, followed by economic and demographic shocks, affecting 4.7 and 1.6 percent of households respectively.

**Table 6.1: The nature and incidence of shocks varies with income and across areas**

	National			Lima			Other urban			Rural		
	Total	Poor	Non Poor	Total	Poor	Non Poor	Total	Poor	Non Poor	Total	Poor	Non Poor
Percentage of households in group												
At least one shock	19.4	20.7	18.4	18.2	16.0	19.0	17.5	19.4	16.4	22.2	22.8	21.2
Economic <sup>A</sup>	4.7	3.9	5.4	8.1	8.1	8.1	6.0	6.9	5.4	1.1	1.0	1.2
Demographic <sup>A</sup>	1.6	1.3	1.8	1.3	1.3	1.3	2.1	1.9	2.2	1.2	1.0	1.6
Disasters or accidents <sup>A</sup>	13.1	15.3	11.5	9.6	7.2	10.5	9.2	10.0	8.8	19.7	20.7	18.0
Other	0.5	0.5	0.5	0.2	0.2	0.1	0.8	1.0	0.7	0.5	0.4	0.8

*Note:* <sup>A</sup> Economic shocks: employment loss or change in type/sector of employment; demographic shocks: changes in household composition (birth, death, marriage, divorce); disasters or accidents: weather-related shocks and/or accidents (e.g. job injury, crime).

*Source:* Authors' calculations using ENAHO 2003 (INEI).

6.7 Some differences exist, however, across areas and between poor and non-poor households once the nature of shocks is taken into account. Economic shocks are more prevalent in urban areas, while natural disasters are more frequent in rural areas. This is due to the fact that urban households rely relatively more on labor markets and rural households rely relatively more on agricultural activities for a living.

6.8 In addition, within urban and rural areas, non-poor households are more likely to suffer economic shocks while poor households are more likely to experience natural disasters and accidents. This is due to two factors. First non-poor households tend to concentrate in the formal sector of the economy and, thus, are susceptible to unemployment spells and the loss of employment benefits that it implies, while poor households generally rely on informal income sources (Table 6.1). Second the poor tend to reside in areas that are more prone to these types of shocks, or, more likely, in areas that lack the appropriate infrastructure to deal with shocks. For instance, slums in urban areas are highly susceptible to flooding in the event of heavy rain due to the absence of proper sewerage and draining systems. This is illustrated by the higher incidence of this type of shocks among poor households in Lima's marginal areas or *conos* (Table 6.2). Similarly, the rural poor are vulnerable to losses caused by erosion and landslides because their property is usually situated in more disadvantageous locations and divided into small separate plots making it hard to undertake preventive investments such as terracing and the construction of retaining walls.



**Table 6.2: The incidence of shocks is higher among poor households in marginal urban areas and among female-headed households**

	Lima - Center		Lima - Conos		Female-headed	
	Poor	Non Poor	Poor	Non Poor	Poor	Non Poor
	Percentage of households in group					
At least one shock	13.3	18.6	19.8	18.3	25.3	20.4
Economic	8.2	9.4	5.7	8.0	5.0	5.7
Demographic	0.0	1.2	1.7	2.4	5.7	5.4
Disasters or accidents	5.5	8.9	13.5	8.6	15.0	9.6
Other	0.0	0.2	0.0	0.4	0.5	0.3

Source: Authors' calculations using ENAHO 2003 (INEI).

6.9 More formally the role that sector of employment and (access to) infrastructure play in explaining the variation in household susceptibility to shocks is confirmed when we estimate the likelihood of suffering a particular shock as a function of household characteristics using regression analysis. Household informality rates are negatively correlated with the probability of suffering an economic shock, while access to water, electricity and sanitation reduces the probability of suffering a shock caused by a natural disaster.

6.10 Finally, female-headed households, both poor and non-poor, appear to be more vulnerable to shocks than male-headed ones, irrespective of their income status. The question arises, however, as to whether it may have been a shock that caused the household to be female-headed, rather than the other way around. This is particularly plausible in the case of demographic shocks, which could capture the absence or even the death of the previous (male) household head. Since we do not have information as to the situation of the household *at the time* of the shock, we cannot rule out this possibility.

### The impact of shocks

6.11 Shocks can have a negative impact on income, on wealth and assets, or on both, depending on their nature and severity. Both in urban and rural areas income losses are most frequent after economic shocks, while wealth and asset losses are most common after a natural disaster or an accident (Table 6.3).

6.12 Similar percentages of poor and non-poor households declare to have suffered losses in income and wealth after a shock. This, however, should not be interpreted as an indication that the impact of these shocks is the same for both types of households since information on the actual amounts lost is not available and, even if losses were similar in magnitude, their impact on poor households would be relatively more severe given that their income is closer to subsistence levels and that they have fewer assets. This is confirmed by the evidence presented in Chapter 3 on the determinants of flows in and out of poverty and, in particular, on the role played by economic and demographic shocks in explaining entry into (transitory) poverty.

### Coping with Shocks: Strategies and Effectiveness

6.13 Most households that suffer a shock resulting in the loss of income or wealth try actively to cope with it by using existing savings and assets, asking for a loan or cashing in an insurance policy, increasing labor supply or reducing consumption. The choice of a particular strategy depends on several factors, ranging from the household's saving capacity prior to the shock to its ability to access financial markets or to cut down consumption. These factors in turn are related to both income levels and area of residence so that we observe significant differences between the strategies used by poor and non-poor households in urban and rural areas.

**Table 6.3: Income losses are most frequent after economic shocks and wealth losses are most common after a natural disaster**

	Economic		Demographic		Disasters/Accidents		Other	
	Poor	Non Poor	Poor	Non Poor	Poor	Non Poor	Poor	Non Poor
Percentage of households in group (conditional on having suffered a shock)								
<b>National</b>								
Loss of income	89.0	86.1	71.5	65.5	50.2	52.1	64.5	66.1
Loss of wealth / assets	2.5	1.7	4.3	5.2	26.0	25.5	4.9	16.4
Both	7.5	10.5	10.4	15.0	19.1	13.9	18.2	8.8
None	0.9	1.8	13.9	14.3	4.7	8.5	12.4	8.7
<b>Urban Areas</b>								
Loss of income	88.1	86.3	74.9	65.6	61.0	52.8	78.4	68.1
Loss of wealth / assets	2.8	1.7	2.6	4.1	23.1	24.5	0.8	22.4
Both	8.4	10.2	11.2	13.9	9.0	11.8	8.7	3.5
None	0.8	1.9	11.3	16.4	6.9	10.9	12.1	6.0
<b>Rural Areas</b>								
Loss of income	94.6	82.2	66.3	65.2	46.2	50.9	41.1	62.5
Loss of wealth / assets	1.2	1.8	6.8	9.4	27.0	27.2	11.8	5.1
Both	2.4	16.1	9.1	19.3	22.9	17.7	34.0	18.8
None	1.8	0.0	17.8	6.1	3.9	4.3	13.1	13.7

Source: Authors' calculations using ENAHO 2003 (INEI).

6.14 Poor households are more likely to spend all their income and hence save less than non-poor ones. In contrast, non-poor households make more frequent use of their own savings and of loans to finance and smooth their consumption over time (Table 6.4).

**Table 6.4: Poor households save less and have more limited access to financial markets than non-poor ones**

	Extreme poor	Non-extreme poor	Non-poor	Total
Percentage of households in group				
Manages to save	2.0	3.0	6.3	4.2
Spends all income	77.5	68.5	64.8	69.1
Needs to spend savings	5.1	5.2	8.2	6.5
Finances consumption with loans	15.4	23.2	20.7	20.2

Note: Shaded cells indicated that levels are significantly different at the 5 percent level from those of group immediately above in terms of income.

Source: Herrera (2002).

6.15 Consequently, poor households tend to increase labor supply and reduce consumption after suffering a shock, while non-poor households are more likely to use existing assets or to resort to financial markets, either asking for a loan or cashing in an insurance policy. In addition the poor have a slightly higher probability of receiving assistance, especially in the event of a natural disaster, than the non-poor, although the relative importance of this strategy is very small compared to those based on behavioral responses at the household level (Table 6.5).

6.16 The differences between the strategies implemented by poor and non-poor households are more marked in urban than in rural areas due to the fact that financial markets, to which the non-poor resort more frequently than the poor, are more developed in the former. More developed financial markets could also explain why the use of loans and insurance is more prevalent in urban areas, both among poor and non-poor households, while changes in labor supply and consumption are more common in rural areas (Table 6.5).

**Table 6.5: Coping strategies vary with income and area of residence**

	Economic		Demographic		Disasters/Accidents		Other	
	Poor	Non Poor	Poor	Non Poor	Poor	Non Poor	Poor	Non Poor
Percentage of households in group (conditional on having suffered a shock)								
<b>National</b>								
Reduced savings / sold assets	20.3	27.6	18.9	24.8	14.7	18.1	29.1	14.9
Received loan / insurance	16.7	20.3	20.7	31.2	10.6	17.8	23.7	24.0
Increased household labor supply	44.2	37.0	50.3	39.1	22.9	25.2	34.6	26.1
Received assistance	0.6	0.8	0.0	0.0	3.2	1.9	1.8	0.0
Reduced consumption	20.4	17.1	5.6	9.9	11.9	8.2	14.6	16.2
Other	5.2	7.8	5.0	6.6	5.1	8.0	16.4	12.9
Nothing	9.0	10.4	11.3	14.8	42.0	31.9	10.3	22.6
<b>Urban</b>								
Reduced savings / sold assets	18.5	28.7	19.8	26.5	17.2	17.1	35.8	12.9
Received loan / insurance	27.1	16.6	16.9	23.2	23.5	24.1	16.8	17.3
Increased household labor supply	43.1	37.0	55.3	39.7	24.2	22.8	31.8	21.1
Received assistance	0.0	0.3	0.0	0.4	3.0	1.7	3.4	0.0
Reduced consumption	14.8	19.6	14.1	11.3	8.4	8.4	12.6	18.7
Other	6.0	6.2	4.2	7.9	7.7	9.0	20.6	10.3
Nothing	10.9	9.3	6.7	14.2	28.8	27.7	19.0	25.0
<b>Rural</b>								
Reduced savings / sold assets	19.6	17.3	27.7	18.6	13.8	19.5	41.9	9.6
Received loan / insurance	6.0	22.2	26.3	18.0	6.0	9.2	10.6	19.0
Increased household labor supply	46.6	42.7	34.0	38.1	22.4	27.3	29.2	24.3
Received assistance	4.1	0.0	0.0	0.0	3.3	1.6	4.8	0.0
Reduced consumption	21.3	13.1	7.6	8.6	13.2	9.2	10.8	19.3
Other	6.2	4.5	3.3	10.1	4.1	7.7	24.5	6.5
Nothing	16.0	15.6	13.4	12.7	46.6	36.9	26.9	24.8

Source: Authors' calculations using data from ENAHO 2003 (INEI).

6.17 Given these differences, the question then arises as to how effective the strategies implemented by poor and non-poor households are in coping with the impact of shocks. The data suggest that, independently of the nature of the shock, non-poor households seem to be more effective at overcoming its consequences than poor ones. A higher percentage of non-poor households declares to have already overcome the shock or expects to overcome it in the next 6 months. In contrast, relatively more poor households report that it will take more than 12 months to go back to pre-shock welfare levels or, more dramatically, that they will never be able to recover from the shock (Table 6.6).

6.18 Differences in effectiveness are particularly marked in the aftermath of a natural disaster, suggesting that the loss of wealth and assets has a more irreversible character for the poor. An idea that is consistent with the exiguous savings capacity of the poor.

6.19 Differences in the effectiveness of the coping strategies selected by poor and non-poor households are the result of two factors. First the nature of the strategies implemented by both groups is different. Poor households tend to rely more on strategies that require immediate behavioral changes (in labor and consumption), whereas non-poor households minimize such changes by using financial markets and assets. Second there are limits to the effectiveness of the behavioral strategies used by the poor since individuals can only work so many hours and it is difficult to bring consumption under the subsistence level. Households that are closer to these limits at the time of the shock will find it harder to overcome its

effects. Because these households tend to be the most needy, this creates a vicious circle of poverty and vulnerability.

**Table 6.6: Poor households are less effective in overcoming the impact of shocks**

	Less than 6 months	Between 6 and 12 months	More than 12 months	Never	Does not know	It was already solved
	Percentage of households who suffered each shock (conditional on having suffered a shock)					
<b>Poor</b>						
Economic	17.7	10.3	15.8	9.0	35.0	12.2
Demographic	14.4	13.1	19.0	12.3	30.1	11.1
Disaster	4.2	7.3	16.3	33.7	24.4	14.1
Other	NA	24.0	18.2	20.6	26.0	11.2
<b>Non-poor</b>						
Economic	19.1	16.7	14.4	10.8	23.4	15.7
Demographic	10.1	9.4	23.5	8.4	24.4	23.9
Disaster	7.3	8.6	15.8	18.3	23.5	26.3
Other	11.2	13.3	10.8	10.5	37.0	16.9

Note: NA: Not available.

Source: Authors' calculations using data from ENAHO 2003 (INEI).

6.20 Finally it is important to notice that, although our analysis of shocks and coping strategies has been very much focused on the impact of shocks on monetary variables (income and assets) and on household-based coping strategies. Shocks can and do have an effect on other outcomes, such as education and health outcomes. The next two sections explore, in turn, the impact of shocks on non-monetary outcomes, paying particular attention to differences between indigenous and non-indigenous people, and the role of social capital in providing insurance against shocks.

#### *Non-monetary Impact of Economic Shocks*

6.21 This section summarizes the results of three recent studies on the impact of economic crisis on human capital outcomes (Schady, 2004, and Paxson and Schady, 2004) and the differences in this impact between indigenous and non-indigenous groups (Benavides and Valdivia, 2004).

6.22 **Impact economic crisis on education.** Schady (2004) uses data from the Peru Living Standards Measurement Survey (LSMS) to analyze the effect of the 1988-1992 economic crisis on children's education, measured as school attendance. The data covers urban areas (covered of rural areas was limited in 1991 due to terrorism) and expands through the period before the crisis (1985/86), the crisis (1991), and its aftermath (1997). The LSMS includes detailed information on household characteristics, educational attainment, years of schooling completed, and current employment.

6.23 Schady finds that attendance remained stable across income groups and that the fraction of children who combined school with work declined significantly during the crisis, particularly among older children. The percentage of children aged 12 to 17 employed and attending school in 1991 was 12 percent, compared to 31 percent in 1985/6 and 20 percent in 1997. In addition the author finds that lower rates in child employment translate into higher education levels over time. Children exposed to the crisis have an average of between 0.1 and 0.2 more years of schooling, and that average number of years passed for a given age increased with the number of years of crisis exposure.

6.24 What explains these patterns? Schady argues that the observed decline in child and youth labor is the result of a decrease in the opportunity cost of schooling for these groups associated with the fall in real wages generated by the crisis. The evidence presented in the paper suggests that children substitute

between employment and schooling in response to changes in wages: those who did not combine work with school during the crisis years may have been more likely to focus their efforts in school and consequently make adequate grade progress.

6.25 Schady concludes that, though macroeconomic crises have serious consequences for household welfare, Peru's case demonstrates that they need not always negatively affect education. These findings point the need for further research to understand why macroeconomic crisis lead to a deterioration in education outcomes in some countries, but not in others, as well as their impact on schooling quality.

6.26 **Impact of economic crisis on child health.** Christina Paxson and Norbert Schady (2004) examine the effect of the Peruvian crisis on child health and infant mortality using data from the 1986, 1991/92, 1996 and 2000 Demographic and Health Surveys (DHS). The DHS are nationally representative, sample women aged 15-49, and include questions on the date of birth, current vital status, and the date of death (if deceased) of all children ever born to the respondent. They also contain information on circumstances surrounding the births of children aged 59 months or less and, for children who are living, height and weight, as well as information on a range of household socio-demographic characteristics, including urban status, maternal education, housing characteristics and ownership of durable goods. Finally the authors supplement the DHS with administrative data on health expenditures and consumption data from the 1985/86 and 1991.

6.27 Paxson and Schady show that infant mortality increased sharply around 1990 across the country. This increase begins with children born in the second half of 1989 and peaks for children born in the first half of 1990, rising approximately 2.5 percentage points (i.e., from 50 per 1000 births to 75 per 1000 births), or approximately 17,184 infant deaths. The author also estimate the elasticity of infant mortality with respect to per capita GDP to be  $-0.973$  ( $t=2.92$ ), suggesting that mortality and per capita GDP were conversely related at the time of the crisis.

6.28 Though the available data does not allow for a detailed identification of the causes behind the observed increase in mortality, the authors document a collapse in public expenditures on health during the crisis period, which possibly led to the important declines in health care utilization observed during the years in which the crisis was most profound. Simultaneously households appeared to have protected expenditures on food, possibly at the cost of expenditure in other items important for infant health status, such as health care and medication. Paxson and Schady find no evidence that the increase in infant mortality was due to changes in the composition of the women giving birth (i.e. their age, level of education and urbanization), outbreaks of infectious disease, or terrorism.

6.29 The authors conclude future research on the reliability of different sources of mortality data and on the importance of changes in household income and consumption relative to changes in public expenditures on health and other services would be important for the design of policies to protect child health during macroeconomic crises.

6.30 **Differential impact of the crisis on human capital outcomes across indigenous and non-indigenous groups.** Benavides and Valdivia (2004) reproduce Schady and Paxson's analysis separately for indigenous and non-indigenous groups. They find that the impact of the crisis on infant health outcomes was significantly stronger among quechua and aymara-speaking households, suggesting that these groups are more vulnerable to shocks than their counterparts.

#### *Social Capital as a Coping Strategy*

6.31 In our discussion about shocks and coping strategies we have focused on the role of income and wealth as potential instruments that households can use to overcome the impact of shocks. We turn our

attention now to the role that social relationships, or social capital, can play as both a coping strategy and a stepping stone out of poverty.

6.32 The literature on this issue (World Bank, 2001; Granovetter, 2000) has identified two different types of social relationships: close and remote (or strong and weak). The first type refers to relationships built around neighborhood associations, or locally based social programs (e.g. Comedores Populares in Peru). Households that engage in these relationships tend to have similar characteristics and to reside next to each other. As a result their income levels are correlated and they are likely to suffer common shocks, which can undermine their capacity to help each other in the presence of a negative shock. Therefore these relationships are thought of as providing day-to-day support, rather than as providing insurance against non-idiosyncratic shocks. In contrast the second type of relationships refers to associations with a more mixed membership, such as sports clubs or political parties. Higher heterogeneity minimizes the likelihood of correlated shocks, and is expected to generate broader and new opportunities for diversification.

6.33 At least 50 percent of all Peruvian households declare to have members that belong to at least one association. In addition, what we have called “strong” social capital relationships are more prevalent than “weak” ones. Forty percent of all households reports to be associated with a “strong” organization, compared to 26 percent that reports to be associated with a “weak” one (Table 6.7).

**Table 6.7: The poor are more likely to participate in “strong” social capital relationships than the non-poor**

	National			Urban			Rural		
	Total	Poor	Non Poor	Total	Poor	Non Poor	Total	Poor	Non Poor
	Percentage of households in group								
<b>Participates in:</b>									
At least one association	50.3	60.3	42.6	44.6	49.6	41.8	70.7	74.0	64.6
Culture and sports	7.6	5.1	9.6	9.2	6.6	10.6	6.5	5.2	8.9
Neighborhood	14.9	18.1	12.3	10.7	10.6	10.8	26.1	25.8	26.7
Professional / Unions	6.0	2.3	8.9	9.9	4.7	13.0	2.1	1.1	4.0
Social Programs	27.0	40.7	16.3	18.7	30.5	11.9	45.2	50.9	34.7
Other	10.9	16.3	6.8	6.6	8.6	5.5	22.3	25.5	16.5
<b>Nature of association:</b>									
Strong	41.9	58.9	28.6	29.4	41.1	22.7	71.3	76.7	61.4
Weak	24.6	23.7	25.3	25.7	19.9	29.1	30.9	31.8	29.4

*Source:* Authors’ calculations using data from ENAHO 2003 (INEI)

6.34 There are, however, important differences between urban and rural areas and between poor and non-poor households. The level of association is generally higher in rural areas, particularly through “strong” organizations. Similarly poor households exhibit higher overall participation rates in social organizations than rich ones, particularly in “strong” organizations and in urban areas (Table 6.7).

6.35 In sum, there appears to be more social capital, proxied by association with various groups, among poor households than among non-poor ones. These groups may be able to provide support in the event of a household-specific shock, such as an illness episode, a death or the loss of employment. They cannot, however, provide support or insurance in the face of a common shock, such as a natural disaster or an economic slowdown.

## Policy Implications

6.36 We have argued in this section that the poor are more vulnerable to shocks and less effective in overcoming them than the non-poor because of their limited capacity to save and to access financial markets and safety nets. As a result interventions aimed at lifting these constraints can go a long way in breaking the vicious circle of high poverty and high vulnerability. These interventions must take into

account the nature of the shocks the poor are exposed to, particularly whether they are idiosyncratic or common to a specific area or group, and the implications that this has for risk-pooling opportunities. They must also be designed in ways that support the poor without making them dependent. We propose below a series of such interventions that can be applied in both urban and rural areas.

### ***Increasing the savings capacity of the poor***

6.37 Saving is difficult for poor households given their daily needs and their scarce resources. In addition their patterns of accumulation are often not optimal given their limited access to financial markets and the often inappropriate nature of the financial instruments available to them. Hence enabling the poor help themselves will require interventions aimed at (i) broadening their assets base, and (ii) increasing access to financial services and instruments among the poor.

6.38 Helping the poor broaden their asset base will require, among other factors:

- **An increase in household disposable income.** Accumulation of any type requires that income exceeds basic household needs. A first step towards increased savings is increased income, either in the form of higher labor income or in the form of transfers. We already presented in Chapters 3 and 4 a series of interventions directed at increasing the productivity and earnings of the urban and rural poor respectively.  
On the issue of transfers, it is possible to use existing programs or to develop new ones that may be more suited to the specific goal we have in mind. Existing public transfers are insufficient to provide significant poverty alleviation due to their low level and regressive distribution<sup>54</sup>. An alternative option is to follow the steps of the numerous countries in and outside the region that have had very positive experiences with conditional-cash transfer programs (e.g. Mexico with Oportunidades; Brazil with Bolsa Escola; Argentina with Jefes y Jefas; Ecuador with the Bono de Desarrollo Humano). These programs serve the double objective of providing short-term poverty alleviation and promoting medium-term human capital investments. The GOP is currently considering the creation of a conditional cash transfer program, Pro-Peru. We discuss the program's design and objectives in Box 6.1.
- **An increase in the marketability of housing and land:** Housing and land are the most valuable assets held by the poor, but they are often of little use in the event of a shock due to their low levels of marketability. Increasing access to adequate housing in urban areas and promoting housing and land titling in both urban and rural areas would allow poor households to use them as collateral for credit if necessary. Titling would also go a long way in activating what are currently very thin housing and land markets, especially in rural areas, and thus increasing the value of these assets when liquidity is needed.

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54. Herrera (INEI, 2002b) reports that the poverty in 2001 would have increased from 54.8 to 55.4 percent in the absence of public cash transfers. Similarly Tesliuc (2005) argues that poverty in 2003 would have increased from 54.7 to 55.2 percent in the absence of public in-kind transfers in the form of nutrition and feeding programs.

**Box 6.1: Is Peru ready for a Conditional Cash-Transfer Program? A few observations on Juntos**

The Government of Peru has recently proposed the creation of a new conditional cash transfer program (CCT) known as Pro-Peru. CCTs have been widely and successfully used in other countries in and outside the region to promote short-term poverty alleviation and long-term human capital accumulation. The case of Oportunidades in Mexico and Bolsa Escola in Brazil provide two good examples of such programs.

The program will pay beneficiary households approximately 100 Soles (or approx. US\$30) per month conditional on children attending school, being taken to the health center for periodic check-ups, and/or complying with adequate intakes and use of nutritional complements. The program will serve families with children under the age of 14 residing in poor rural communities in 110 selected districts (to be extended to 320 during 2006), where poor communities are identified using information on poverty, unsatisfied basic needs, chronic malnutrition and social violence. Based on this general framework we present in this box a brief discussion of some important issues the GOP should consider if and when Pro-Peru is implemented. In particular we pay attention to the issues of coverage and targeting, program objectives and program financing.

**Coverage and targeting.** Based on the selection criteria described above the program is expected to cover 2.5 million people nationally. In 2003 6 million Peruvians were extremely poor and an additional 9 million were non-extremely poor out of a population of approximately 27 million. This implied that the program, if well targeted, would cover 30 percent of the extreme poor and 15 percent of all poor.

**Objectives.** The main objectives of Juntos appear to be short-run poverty alleviation and long-term human capital accumulation through increased schooling and access to basic health care. The first objective seems relevant given that access to social protection is rather limited and unevenly distributed, as we have discussed in this report. The second objective, however, presents some problems. With respect to primary education, quality rather than coverage is the problem, and the program would do little to solve this issue. Moreover there already exist other social programs, such as the Desayuno Escolar, which promote school attendance. Finally, although coverage is an issue in initial and secondary education, increasing it would require significant supply interventions in the form of school construction and provision of teachers, which have not been budgeted for.

The same can be said with respect to health, where distance to the nearest health center and inadequacy of services provided, rather than lack of demand, seem to be the main constraints to access (see discussion later on in this chapter). In addition, vaccination rates do not constitute a problem and, as was the case with education, there exist other programs design to increase household demand for basic health care, such as PACFO.

All of this is not to say the program is unnecessary, but rather that its objectives need to be clearly defined according to existing sectoral needs and in coordination with existing programs, and that, when these objectives require complementary supply interventions, additional resources must be budgeted.

**Financing.** Social spending in Peru, at 5 percent of GDP, is low compared to the region's average, and we have already mentioned that social protection for the poor is almost non-existent. In that sense a program like Juntos could fill up an important gap. Unfortunately available fiscal space to finance this initiative is small. Providing coverage for 100,000 households during the first phase of the program would cost 10 million Nuevos Soles per month, 120 million Nuevos Soles or US\$40 million per year. Similarly providing coverage for 2.5 million people, or 532,000 households, would cost 53 million Nuevos Soles per month, 636 million Nuevos Soles or US\$212 million per year. These figures are equivalent to 8 and 44 percent of the 2004 social protection budget, respectively, and to 1 and 5 percent of the overall social sector budget. To this we need to add set-up and administrative costs, as well as the cost of developing and maintaining appropriate targeting tools.

The 2006 budget for Juntos is 300 million Nuevos Soles, of which 30 percent will be transfer to the education and health sectors to ensure adequate service supply for program beneficiaries. Given that the program's objectives as currently stated overlap with those of other existing programs, it would be important to recognize that implementing Juntos may imply that other programs need to be scaled-down or retargeted to avoid overlap and inefficiencies.

**Other risks.** Finally it is necessary to point out that the development and implementation of a CCT program requires careful planning and extensive discussion regarding its coverage and objectives, as well as the rules by which beneficiaries will be chosen. If the GOP is committed to the implementation of Juntos, it should not allow the proximity of national elections and the mounting pressure for more populist measures these will generate to jeopardize this process. To avoid this risk, the GOP should put forward for discussion a proposal that describes Juntos characteristics and implementation strategy clearly and ensures that beneficiaries are selected and the program is operated in a transparent manner and according to widely accepted criteria.



6.39 Increasing access to financial services and instruments among the poor will require, among other factors:

- **An increase in access to the banking system.** Bridging the gap that exists between the poor and the banking system could be done by expanding ATM services to poor areas, and by providing financial literacy programs for poor households. Increased contact between poor households and the banking systems could also be achieved by channeling social program payments through banks, as is done for example in Ecuador in the case of the Bono de Desarrollo Humano.
- **The creation of financial instruments that cater the poor.** This could be done by offering savings accounts that pay lower returns but do not require a minimum balance, or by developing community-based instruments such as rotating saving and credit schemes.

6.40 In designing and implementing the interventions discussed so far we must take into account that their benefits may vary across groups, and even among poor households. For instance, given their limited savings capacity the extreme poor are more likely to benefit from interventions aimed at increasing their asset base than from interventions aimed at increasing access to the banking and financial systems. In contrast the non-extreme poor are more likely to benefit from access to financial tools that allow them to save profitably and at the same time maintain a certain degree of liquidity.

***Increasing access to insurance and credit among the poor***

6.41 The poor suffer from higher levels of exposure to risk than the non-poor because they have very limited or no access to insurance or credit. As a result they tend to save in liquid assets that can be quickly retrieved in the event of a shock but that yield very low returns. Increasing access to insurance and credit among the poor, as well as providing them with profitable savings opportunities can be an effective way of helping the poor cope with shocks.

6.42 We focus here on the issue of insurance, since we already discussed policy options aimed at increasing access to credit among the urban and rural poor in Chapter 4 and 5. In doing so we distinguish between interventions whose objective it is guarantee a minimum level of income for poor households (income insurance), and interventions whose objective is to cope with asset losses associated with natural disasters (catastrophic insurance).

6.43 Improving access to insurance will require, among other factors:

- **An increase in access to income insurance.** Income insurance can be provided in the form of workfare programs, of which Peru's *A Trabajar* is an example, or as non-contributory pensions in the case of older or disabled individuals—an option whose fiscal sustainability would have to be carefully examined prior to its implementation. Involving insurance companies in the provision of this service to the poor may prove cumbersome, since it requires a careful assessment of the specific risks that the poor face and of their willingness to pay, but not impossible.
- **Catastrophic insurance:** Poor households can access catastrophic insurance through the government or through private providers. In the first case governments can seek insurance in international markets and, in the event of a shock, channel the funds provided by the insurance policy to affected areas.

Although provision of disaster insurance by the private sector is fairly common in developed countries and among well-off households, irregular settlements, lack of housing and land titles and sub-optimal

housing makes the poor hard to insured. There exist, however, successful experiences in this regard in urban areas, such as that of Manizales in Colombia,<sup>55</sup> that can offer interesting lessons.

- 6.44 While its cost can be minimized by providing catastrophic insurance, the risk of a disaster can be mitigated by implementing preventive measures. Some hazards, such as floods and landslides can be reduced through engineering solutions but others cannot. Prevention, however, can be useful even in these cases. Avoiding particularly vulnerable or risky settlement areas is important. In urban areas adequate housing and infrastructure, together with slum upgrading programs can help mitigate the impact of natural disasters. Infrastructure also plays an important role in rural areas, as do measures aimed at minimizing erosion, such as agricultural terracing and reforestation.

#### *Building more effective safety nets for the poor*

- 6.45 Social protection programs can help prevent and mitigate the impact of shocks and reduce risk aversion among the poor. For these programs to be effective, however, they must be well targeted and have the ability to deliver relief shortly after shocks occur. They must also take into account existing informal social protection mechanisms.
- 6.46 Increasing access to effective safety nets among the urban poor will require, among other factors:
- **The implementation of programs that provide protection against income shocks.** We have already discussed two kinds of programs that could serve this purpose above: individual unemployment accounts and workfare programs, such as *A Trabajar—Urbano*. The main challenge is to adapt these programs to the specificity of urban areas in terms of the benefits they offer, their targeting mechanisms and their entry and graduation rules so that they truly act as countercyclical mechanisms. This last point is particularly important given our discussion in Chapter 3 on flows in and out of poverty and the large volume of households that enter and exit poverty each year.
  - **The implementation of programs that target vulnerable groups.** The elderly and the youth are particularly at risk in urban areas. Coverage of the formal pension system is extremely low among the elderly, while existing programs targeted at youth groups lack a focus on prevention. The implementation of a non-contributory minimum pension system for the needy elderly could help prevent the risk of poverty in old age, subject to the fiscal constraint mentioned above. The work of Gill, Packard and Yermo (2004) discusses how this can be done in ways that minimize both fiscal costs and potential disincentives to save or work in old age. Similarly programs that understand the determinants of youth risk (individual characteristics, family background, peer and neighborhood effects) and emphasize prevention (e.g. minimizing future income risk by providing incentives for secondary education completion) can help reduce vulnerability and risk among youth.
  - **The implementation of programs that facilitate access to the labor force and employment diversification.** Interventions that help the urban poor take greater advantage of the jobs available in cities are very important in urban areas since, as we discussed in Chapter 5, the rural poor obtained most of their income in the form of wages. In addition to interventions aimed at increasing average education levels, training programs and programs directly targeted at labor market integration, such as

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55. The local authorities have signed an agreement with an insurance company that allows any resident to purchase insurance coverage through the municipal tax collection system. The insurance contract is priced competitively and is designed so that the insurance company has a direct contractual relationship with the taxpayer who wishes to participate in the program. The municipal authority only acts as a premium collector and is not responsible for any claims under the plan, which remains at all times the responsibility of the company (World Bank, 2004c).

job search and placement services, and day care services for poor mothers can increase labor market participation and attachment among poor households, thus contributing to income diversification.

6.47 Increasing access to effective safety nets among the rural poor will require, among other factors:

- **The implementation of programs that provide protection against income shocks.** As in the case of urban areas, workfare programs, such as *A Trabajar—Rural*, and conditional cash-transfers programs are two useful tools in this regard.
- **The implementation of programs that facilitate agricultural diversification and access to the non-agricultural sector.** The rural poor tend to rely on agricultural activities for a living and are less likely than non-poor households to diversify their sources of income, as we pointed out in Chapter 5. Interventions that help improve subsistence agriculture will not lift households out of poverty but can improve food security and nutritional levels in times of crisis. Such a package could include the introduction of new seed and pasturing varieties and methods, and the provision of training to reduce post-harvest losses and improve food-conservation techniques. Similarly interventions that allow the poor to participate in the non-agricultural sector can help increase average levels of household income at the same time that they reduce income risk. We already discussed in Chapter 4 that participation in the non-agricultural sector is positively correlated with human capital levels, access to credit, and access to basic services and road infrastructure. In addition workfare and public work programs can be used to boost employment in and to provide connections to the non-agricultural sector among poor households.

## SOCIAL MOBILITY

6.48 In Chapters 4 and 5 we identified a worker's sector and type of employment and level of education as key determinants of individual and household income. In doing this, however, we took these factors, particularly the level of education, as given.

6.49 In this section we turn our attention to the impact that parental cultural and socio-economic background, rather than individual and household characteristics, has on workers' occupational choice and level of education. We investigate the extent to which parental background is correlated with children's outcomes, and whether this correlation has changed over time.

6.50 Why is this important? Peru, like the rest of the Latin America, is a fairly unequal country, both in terms of income and endowments. A high correlation between parental background and children's outcomes, or low social mobility, will tend to perpetuate these inequalities (De Ferranti et alia, 2004), while a low correlation will make it possible for individuals from disadvantaged backgrounds to break out of poverty.

6.51 We then examine changes in social mobility using two different measures: economic mobility, measured in terms of occupational mobility, and educational mobility. In order to do so we draw from existing work by Benavides (2002) in the case of economic mobility and Pasquier-Doumer (2002) in the case of educational mobility.

### Economic Mobility

6.52 Benavides (2002) examines the patterns of occupational mobility across generations, where occupational choices are assumed to be a function of (i) the individual's socioeconomic background,

ability and effort, (ii) overall economic growth and the transformation of the productive structure it generates, and (iii) secular trends such as increases in the average levels of education and urbanization.<sup>56</sup>

6.53 For the purpose of the analysis the author defines three cohorts and 9 occupational categories. The three cohorts being considered are individuals between 50 and 65 years of age who entered the labor market between 1960 and 1975, a time of rapid industrialization, individuals between 35 and 49 years of age who entered the labor market between 1975 and 1990, a period of negative growth, and finally individuals between 25 and 34 years of age who entered the labor market in the early 1990s, when economic growth was strong again. The choice of occupational categories responds to differences in human capital requirements, sector of employment (e.g. services), and type of employment—formal or informal (Table 6.8). For instance, the first category includes highly skilled professionals and government administrators, who have on average 15.6 years of education and earned in 2001 a monthly salary of 1,989 Soles. Occupational categories are then grouped in broader income strata—high-medium or A, medium or B and low-medium or C—for the sake of the analysis.

**Table 6.8: Workers can be classified into occupational categories according to their sector and type of employment and their education level**

		Years of education	Monthly income (Soles)	Income level
1	Professionals and government administration (high)	15.6	1,989	High-medium (A)
2	Professionals and government administration (low)	15.5	1,277	High-medium (A)
3a	Small entrepreneurs	10.8	1,270	Medium (B)
3b	Self-employed	9.4	735	Medium (B)
4	Salaried workers	12.5	1,032	Medium (B)
5	Technicians and other skilled workers (high)	12.2	941	Medium (B)
6	Skilled workers (medium)	9.8	748	Low-medium (C)
7	Unskilled workers	9.2	622	Low-medium (C)
8	Rural workers	7.7	631	Low-medium (C)

Source: Benavides (2002).

6.54 A simple examination of average mobility patterns over time shows that, while upwards mobility is important, horizontal and downward mobility account for most of the observed occupational mobility. Upwards mobility (moving from C to B or from B to A) represents 40 percent of all mobility, while horizontal mobility (moving within A, B or C) and downward mobility (moving from A to B or B to C) represent 35 and 25 percent of all mobility respectively. In addition, mobility patterns do not differ significantly by cohort.

6.55 A more detailed analysis reveals that overall patterns mask important differences in the experiences of various occupational groups in terms of their likelihood to experience upward, horizontal and downward mobility.<sup>57</sup> A broad characterization of mobility patterns across groups is presented below: darker cells (numbered 1 and 2) indicate a high number or density of observations, while lighter cells (4 and 5) indicate the opposite.

56. The author uses data from the ENNIV 2000 and 2001, and restricts the sample to employed males between 25 and 65 years old residing in urban areas.

57. The author uses linear and multiplicative logarithmic models to explore the issue of differences in mobility across occupational groups.

6.56 Mobility is relatively lower (i.e. intergenerational correlation is relatively higher) for those in the groups A and C than for those in group B (Table 6.9).<sup>58</sup> This implies that social mobility can to a large extent be accounted for by movements within categories in group B, and by movements between B, on the one hand, and A and C on the other. That is, economic mobility is the result of an increase in what is generally considered the low-middle class.

6.57 This pattern could be consistent with steady increases in average education levels and secular changes in the country's productive structure (i.e. decline in the share of agriculture and increase in the share of manufacturing and services), and/or with improvements in the equality of economic opportunities. In order to distinguish between these two sets of factors the author examines changes in mobility across cohorts. He finds very stable intra-and inter-cohort patterns, consistent with secular changes education levels and sectoral employment, and argues that the observed increase in occupational mobility is due to the first set of factors. This conclusion is supported by the results on education mobility, or rather the lack thereof, we discuss next.

**Table 6.9: Economic mobility is driven by mobility of those in intermediate occupational categories**

Origin (Parents)	Destination (Children)								
	1	2	3a	3b	4	5	6	7	8
1			4	4	4		4	4	5
2			4				4	4	5
3a	4		4		4	4			5
3b	5								4
4	4		4						5
5	4		4	4					5
6	5	4	4		4				4
7	5		5		4	4			4
8	5	5			4				

Source: Benavides (2002).

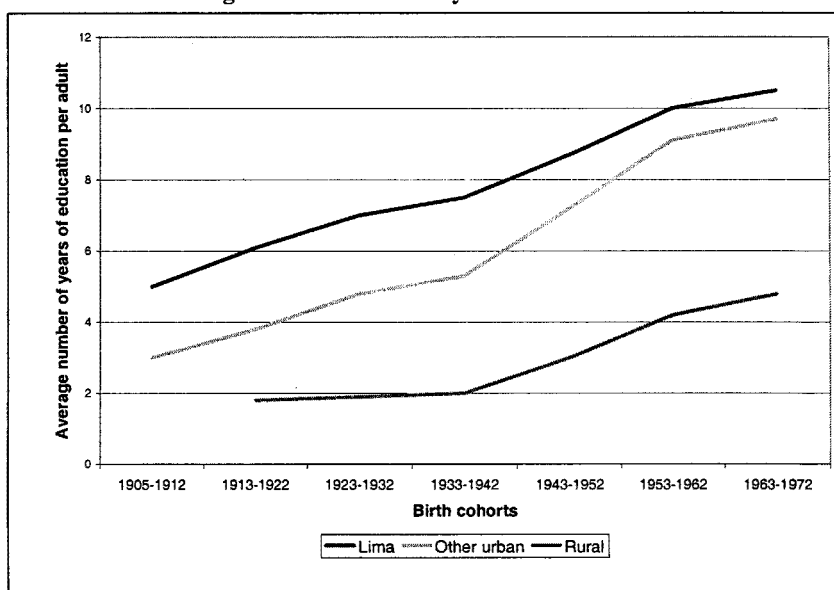
## Education Mobility

6.58 Average levels of education, measured as the average number of years of schooling, have increased steadily in Peru since the beginning of the twentieth century as the result of the expansion of the education system (Figure 6.1). Primary education has become universal in urban areas, the educational gap between men and women has declined significantly, and differences in access to primary education between indigenous and non-indigenous people have decreased.

6.59 Certain groups, however, have failed to benefit from these developments. Improvements in the level of education of the rural population have been less pronounced, especially among women, while inequality in access to secondary and tertiary education increased between indigenous and non-indigenous households.

58. These results are confirmed once the author quantifies these differences by comparing the relative probability of moving across categories, conditional on parental occupation.

**Figure 6.1: Increase in years of education**



Source: Pasquier-Doumer (2002).

6.60 This increase in the average level of education has been accompanied by improvements in educational mobility, measured as a weakening of the correlation between the education level of children and their parents. In other words, the likelihood that children are more educated than their parents has increased over time. Educational mobility has risen steadily among urban households since 1913-1922, while it has followed a more erratic pattern for rural ones, improving during 1913 and 1932, then stalling up to 1952, and again increasing after that. In both areas men and women have had similar experiences.

6.61 Education mobility can be thought of as the result of both across-the-board increases in education (access) and changes in the relatively probability of educational success for a given set of socio-economic and cultural characteristics (equality of opportunity). That is, the average education level of the population can increase because everybody completes two more years of education than their parents and/or because the causal impact of parental background on their children's education diminishes.

6.62 Pasquier-Doumer (2002)<sup>59</sup> argues that most of the observed growth in average levels of education and education mobility is due to generalized improvements in access to education. As a result, though the share of illiterate children with illiterate parents has decreased over time, the probability that a child acquires no education given that her parents are illiterate has remained unchanged. The one exception to this pattern has been women in rural areas, for whom educational progress has responded to both improvements in overall access and more equality of opportunities.

### **What do these Results Imply? Supply-Side versus Demand-Side Interventions**

6.63 The fact that most progress in education levels has been driven by general increases in access shows that supply measures, such as school construction and a higher number of teachers, have been effective in getting and retaining more children in schools. On the other hand, evidence that little progress has been made regarding what the author calls "democratization of education" indicates that there is room for alternative types of interventions that directly attempt to transform the relationship

59. The author uses data from the 1974, 1990 and 1996 Employment Surveys (Ministry of Labor) and the 1985-86 and 2001 ENNIV (Cuánto).

between socio-economic and cultural background and education achievement—that is, demand interventions, such as income-based scholarships, conditional cash-transfers, and interventions that address cultural differences, such as bilingual education. We discuss both supply and demand interventions in more detail in the next section.

6.64 In a country where inequality levels are still high, and where social exclusion continues to be a problem for certain groups, particularly the indigenous, directly tackling the issue of social mobility becomes a priority. In this regard Box 6.2 presents evidence that the gap between indigenous and non-indigenous people, measured in terms of poverty and social outcomes, did not decreased during the 1990s despite sustained improvements in access to education and health services across all population groups during the period.

**Box 6.2: The gap in poverty and social outcomes between indigenous and non-indigenous groups**

Benavides and Valdivia (2004) evaluate progress in poverty and other social indicators among the indigenous and non-indigenous population during the 1990s using data from the ENNIV (1992/94 and 2000). We briefly summarize their conclusions in this box.

The authors argue that both indigenous and non-indigenous groups experienced substantial improvements in poverty and other social indicators during the period. Both poverty and extreme poverty declined, primary enrolment increased and several infant and maternal health and mortality indicators exhibited significant improvements (Table B6.2.1).

These changes, however, did not translate into a reduction of the ethnic gap in education and health outcomes since improvements were similar in magnitude across both groups. The only exception to this rule was the relatively higher increase in institutional birth among indigenous mothers.

**Table B.6.2.1: Poverty and social indicators, 1992/4-2000**

	All population			Indigenous		
	1992/94	2000	Change (%)	1992/94	2000	Change (%)
Poverty <sup>A</sup>	52.8	54.1	-5	70.4	69.6	-2
Extreme poverty <sup>A</sup>	18.7	14.8	-20	38.3	30.6	-20
Net primary enrolment rate	87.0	94.1	7	87.0	94.4	7
Primary graduation rate	94.0	93.0	-1	82.0	83.0	1
Primary enrolment ratio female/male	1.01	0.94	-6	1.02	0.98	-4
Secondary enrolment ratio female/male	0.97	0.92	-5	0.91	0.99	9
Waisting	11.4	7.2	-36	22.5	14.8	-40
Stunting	33.6	25.4	-24	59.2	48.2	-18
Institutional births	50.4	59.3	18	13.6	21.6	53
Under-1 mortality rate (per 1,000 life births)	55.9	33.9	-40	89.2	53.9	-40
Maternal mortality (per 100,000 births)	265	185	-30			

Source: Benavides and Valdivia (2004)

<sup>A</sup> Poverty figures for 2000 measured using the ENNIV differ from those reported in Chapters 1 and 2 and measured with the ENAHO 1997-2003

Source: Benavides and Valdivia (2004).

## ACCESS TO PUBLIC TRANSFERS, SERVICES AND INSTITUTIONS

6.65 In the previous two sections we have argued that the poor are more vulnerable and less socially mobile than the non-poor due to, among other factors, their lack of appropriate endowments. We explore here the role that public policy can play in lifting some of these barriers, thus helping the poor integrate better, both socially and economically. For this purpose we consider access to public services and institutions.

## Access to public services

6.66 We present here a brief description of the differences across income levels, regions, and indigenous and non-indigenous groups in terms of access to education, health, infrastructure and public institutions. A detailed exploration of the determinants of access to public services and institutions is beyond the scope of this report since it has received significant attention in the context of both the *Public Expenditure Review* prepared by the World Bank in 2003 and, more recently, the background documents prepared for the RECURSO study (World Bank, under preparation).<sup>60</sup> Box 6.3 discusses international comparisons between indigenous and non-indigenous earnings and education.

### Box 6.3: Education and earning differentials between indigenous and non-indigenous adults: An international comparison

This box discusses differences in educational attainment and labor market earnings between indigenous and non-indigenous populations in various countries, including Peru. In all the countries the rate of secondary-school completion among indigenous people is lower than that of non-indigenous people, but there is significant variation in the size of the difference between both groups (Table B6.3.1). Peru appears to be in an intermediate position, with differential in completion rates that are smaller than those in Bolivia, Ecuador or Mexico, but larger than those in the U.S. or Canada.

**Table B6.3.1: Secondary-school completion rates are lower among indigenous than non-indigenous groups ...**

Country	Groups	Secondary -school completion (%)	Ratio indigenous/non-indigenous
Bolivia (2000)	Indigenous	16	0.46
	Non-indigenous	35	
Ecuador (1999)	Indigenous	9	0.32
	Non-indigenous	28	
Guatemala (2000)	Indigenous	8	0.28
	Non-indigenous	29	
Mexico (2000)	Indigenous	8	0.33
	Non-indigenous	24	
Peru (2003)	Indigenous	27	0.56
	Non-indigenous	48	
US (2000)	American-Indian	66	0.88
	Rest of population	75	
Canada (2000)	Aboriginal	52	0.75
	Canadian-born white	69	

*Note:* For Mexico "Indigenous" refers to residents in municipalities where more than 70 percent of the population speaks an indigenous language. "Non-indigenous" refers to residents of municipalities where less than 10 percent of the population speaks an indigenous language.

*Source:* World Bank (2004c).

Similarly in all countries the returns to education are lower for indigenous workers than for non-indigenous ones, even after controlling for other observable characteristics. As before Peru appears to occupy an intermediate position regarding earnings differentials between indigenous and non-indigenous workers, with levels that are higher than those of Bolivia and Mexico but lower than those in Ecuador or the U.S. However the fraction of this earnings differential that cannot be explained by differences in observable characteristics is highest in Peru.

60. See Annex 5 for a brief description of the objectives and contents of the RECURSO study.



**Table B6.3.2: ... and the returns to schooling are lower for indigenous than for non-indigenous groups, even after controlling for observable characteristics**

Country	Groups	Returns to schooling (%)	Ratio indigenous/non-indigenous	Unexplained earnings differential (%)
Urban Bolivia (2000)	Indigenous	6	0.49	27
	Non-indigenous	9		
Ecuador (1999)	Indigenous	8	0.64	45
	Non-indigenous	4		
Guatemala (2000)	Indigenous	10	0.54	42
	Non-indigenous	11		
Mexico (2000)	Indigenous	9	0.26	42
	Non-indigenous	11		
Peru (2003)	Indigenous	11	0.57	57
	Non-indigenous	11		
US (2000)	American-Indian	7	0.75	36
	Rest of population	6		
Canada (2000)	Aboriginal	7	0.62	9
	Canadian-born white	9		

*Note:* Unexplained earnings differentials are evaluated using minority returns to endowments.

*Source:* World Bank (2004c).

*Source:* World Bank (2004c)

6.67 The main findings regarding *access to education* can be summarized as follows (Tables 6.10a and 6.10b):

- **Poor versus non-poor:** Approximately 13 percent of children in poor households report not attending school, compared with 8 percent in non-poor households. The difference between poor and non-poor households is more marked in rural areas and at higher levels of education. Important differences also exist between poor households, where children in female-headed households exhibit lower enrolment rates than those in male-headed ones for all age groups and levels of schooling.
- **Urban versus rural:** The percentage of children of schooling age currently not enrolled in school is higher in rural than urban areas (14 percent in rural areas versus 9.7 percent in Lima and 8.2 percent in other urban areas). This difference is more acute for lower levels of schooling and among younger children. Important differences also exist within urban areas, where non-enrollment at the primary level is higher in marginal neighborhoods (“conos” in Lima) than in more affluent ones (not shown).
- **Boys versus girls:** Enrollment rates are higher among boys, especially for older groups and higher levels of schooling. These differences are more prominent among children in poor households and among those residing in rural areas. In addition, girls in female-headed households are less likely than boys to enroll in school, particularly secondary school, compared to their counterparts in male-headed households irrespective of income.
- **Indigenous versus non-indigenous:** Enrollment rates are lower among poor indigenous children than among poor non-indigenous ones. The same is true for non-poor indigenous and non-indigenous children in rural areas, but not in urban areas.

6.68 Other factors that appear to be correlated with enrolment even after controlling for income and location differences are the education level of the household head, which has a positive effect on enrollment, and the age of the child, which has a negative impact on enrollment<sup>61</sup>.

61. The coefficients associated with these variables are significant in a probit regression model that identifies the determinants of the probability that a child is enrolled in school.

**Table 6.10a: Access to services varies with income and across urban and rural areas**

	National			Lima			Other urban			Rural		
	Total	Non Poor	Poor	Total	Non Poor	Poor	Total	Non Poor	Poor	Total	Non Poor	Poor
Percentage of population in group												
<b>Education—% not enrolled</b>												
5-17 years old												
All	11.0	8.4	12.7	9.7	9.6	9.8	8.2	7.1	9.2	14.2	9.1	15.6
Boys	10.1	8.7	11.0	10.4	11.2	9.4	7.9	7.0	8.7	11.9	8.4	12.9
Girls	11.9	8.1	14.3	8.9	8.1	10.1	8.6	7.2	9.8	16.7	9.8	18.4
5-11 years old												
All	4.4	1.4	6.1	2.0	1.0	3.2	2.7	0.9	4.0	7.1	2.7	8.0
Boys	4.4	1.4	5.9	2.6	1.5	3.8	2.7	0.7	4.3	6.5	2.5	7.4
Girls	4.5	1.4	6.3	1.4	0.6	2.5	2.6	1.2	3.7	7.7	3.0	8.7
12-17 years old												
All	19.1	15.6	21.7	18.5	18.8	18.2	14.3	13.1	15.5	24.4	16.0	27.1
Boys	17.1	15.9	18.0	19.0	20.4	16.9	13.7	13.3	14.2	19.2	14.4	20.8
Girls	21.2	15.2	25.5	18.0	17.0	19.5	14.9	12.9	16.7	30.4	17.8	34.2
<b>Health—Received treatment</b>												
Public hospital/health center	48.6	36.7	65.3	40.2	33.0	60.8	36.8	27.8	53.8	71.5	65.2	75.4
ESSALUD hospital/health center	19.6	28.2	7.2	29.2	34.1	15.3	24.2	31.8	10.3	4.7	9.6	1.8
Private hospital/health center	11.0	15.4	4.8	17.1	20.3	8.4	11.7	14.7	6.1	5.0	8.8	2.7
Other (pharmacists, local healer)	22.3	21.5	23.5	15.3	14.9	16.4	29.6	28.1	30.7	19.6	17.6	20.8
<b>Health - Did not receive treatment</b>	54.7	46.9	62.5	49.7	46.9	56.1	51.3	45.6	59.3	61.7	50.0	66.3
<b>Health—Reason for no treatment</b>												
Did not have money/insurance	25.3	16.0	32.8	16.3	11.7	25.5	23.4	16.0	32.1	32.2	23.0	35.0
Had difficulty accessing center	8.5	5.9	10.6	1.7	1.7	1.7	5.0	5.6	4.3	15.8	13.2	16.6
Preferred other options	52.3	50.9	53.5	47.1	47.7	45.8	49.9	51.5	48.0	57.7	54.4	58.7
Other	9.4	11.3	7.8	8.3	9.1	6.7	11.5	13.4	9.3	7.8	9.7	7.2
<b>Infrastructure</b>												
Water	60.9	73.3	45.0	82.9	88.2	68.7	70.6	77.5	58.7	32.8	40.2	28.7
Electricity	72.4	85.9	55.1	98.0	98.5	96.9	91.2	95.8	83.2	31.8	45.9	24.1
Sanitary Services	47.5	64.3	25.9	81.4	87.0	66.3	61.1	72.3	41.6	5.7	10.8	2.8
Gas	47.3	64.3	25.6	80.8	83.8	72.9	58.1	70.9	35.9	8.7	18.9	3.2
Telephone	22.9	36.9	5.1	49.5	61.4	17.8	23.7	33.9	6.1	0.4	0.9	0.0
Distance to Municipality	45.0	22.5	73.8	1.4	1.2	2.0	3.6	2.6	5.4	123.7	95.9	138.8

Source: Authors' calculations using data from ENAHO 2003 (INEI).

6.69 In sum children in rural areas and in poor households are less likely to be enrolled in school, and these differences are larger for lower levels of education and among girls. These patterns are the result of several supply and demand factors. First there are important differences in income levels and in school infrastructure across areas and neighborhoods. Second the opportunity cost of schooling is larger in urban areas where markets are more dynamic and the productivity of labor is higher. Third households make decisions about the allocation of resources to the schooling of children based on their expectations on the children's ability and opportunity cost, and on the returns to their education investments. This can lead to intra-household inequality in education outcomes when resources (or credit) are limited or when competing investment opportunities are perceived as being relatively more profitable.

6.70 The main findings regarding *access to health services* can be summarized as follows (Tables 6.10a and 6.10b):

**Table 6.10b: Access to basic services among the indigenous, particularly the poor, is low**

	National				Urban				Rural			
	Indigenous		Non indigenous		Indigenous		Non indigenous		Indigenous		Non indigenous	
	Poor	Non poor	Poor	Non poor	Poor	Non poor	Poor	Non poor	Poor	Non poor	Poor	Non poor
Percentage of population in group												
<b>Education—% not enrolled</b>												
5-17 years old												
All	13.6	8.0	10.2	8.4	10.0	7.6	7.1	8.5	18.0	9.8	11.7	8.2
Boys	12.8	6.8	8.7	6.5	9.7	6.3	7.6	7.0	16.7	9.1	9.3	5.3
Girls	14.3	9.2	11.7	10.4	10.3	8.9	6.7	10.2	19.4	10.6	14.2	11.0
5-11 years old												
All	7.7	2.4	8.1	2.3	5.7	2.0	5.0	2.0	10.3	4.2	9.5	3.0
Boys	7.6	2.6	8.1	1.3	5.5	2.3	5.4	0.6	10.3	4.4	9.5	3.2
Girls	7.8	2.1	8.0	3.3	5.8	1.7	4.7	3.5	10.2	3.9	9.5	2.9
12-17 years old												
All	21.4	13.9	13.1	13.7	15.6	13.5	9.8	13.9	28.7	16.1	14.8	13.0
Boys	19.6	11.4	9.5	10.9	15.2	10.8	10.6	12.1	24.9	14.1	9.0	7.4
Girls	23.2	16.4	17.1	16.5	16.0	16.0	9.1	15.8	32.9	18.4	22.0	18.1
<b>Health—Received treatment</b>												
Public hospital/health center	78.1	50.5	66.1	40.2	63.2	43.5	59.3	37.0	88.4	70.8	77.8	62.0
ESSALUD hospital/health center	7.5	23.6	14.1	29.4	13.5	26.9	18.8	31.6	3.4	14.0	6.2	14.7
Private hospital/health center	4.2	11.0	6.2	16.8	7.9	12.0	7.0	17.5	1.7	7.8	4.8	12.2
Other (pharmacists, local healer)	12.6	19.3	15.5	18.4	19.0	22.3	16.9	19.0	8.2	10.7	13.1	15.0
<b>Health - Did not receive treatment</b>	29.8	23.7	25.2	21.2	27.4	23.9	23.6	21.0	31.1	23.1	27.6	22.2
<b>Health—Reason for no treatment</b>												
Did not have money/insurance	38.0	24.0	38.7	20.7	39.7	21.2	41.1	20.1	37.4	30.7	36.2	23.9
Had difficulty accessing center	13.4	2.8	5.0	1.8	0.8	0.4	1.2	1.3	17.9	8.5	8.9	4.4
Preferred other options	52.9	38.1	38.1	26.8	41.0	30.2	27.0	23.5	57.1	56.7	49.6	43.7
Other	22.0	45.2	35.2	57.3	29.9	54.7	39.5	60.4	19.2	23.0	30.8	41.8
<b>Infrastructure</b>												
Water	41.9	62.2	49.7	75.7	59.1	72.6	63.2	82.0	33.8	42.8	31.8	41.0
Electricity	45.8	76.4	55.8	87.5	84.9	95.1	84.2	96.1	27.2	41.5	18.3	40.1
Sanitary Services	13.4	45.7	30.3	67.8	39.0	67.2	50.7	78.3	1.2	5.6	3.4	10.6
Gas	11.0	43.3	26.5	67.9	31.2	59.5	43.6	76.1	1.4	13.2	4.0	23.1
Telephone	1.2	20.9	5.9	37.8	3.4	31.8	10.4	44.5	0.1	0.4	0.0	1.2
Distance to Municipality	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

*Note:* The last year for which data on ethnicity was collected in the ENAHO is 2001.

*Source:* Authors' calculations using data from ENAHO 2001 (INEI).

- **Poor versus non-poor:** Although there do not exist important differences in sickness reports across poor and non-poor households (51 percent of the poor declare to have suffered an illness during the survey period, compared to 53 percent of the non-poor), there is significant variation in the way these episodes are treated in poor and non-poor households, in terms of both the actions taken and the kind

of care received. The poor are less likely to seek treatment than the non-poor—62 percent of the poor report to have done nothing after falling sick, compared to 47 percent of the rich—due to lack of money or medical insurance and/or difficulty to access a health center. When they do seek treatment the poor make much higher use of public hospitals and health centers and much lower use of ESSALUD services and private hospitals than the rich.

- **Urban versus rural:** Households in rural areas make use of medical facilities less frequently than those in urban areas. When treatment is sought the use of ESSALUD centers and private providers is higher in urban than in rural areas, although significant differences exist within urban areas with the use of public facilities being higher in marginal neighborhoods than in more affluent ones.
- **Indigenous versus non-indigenous:** Access to medical treatment is lower among the indigenous population and this difference is more marked for poor households. The reasons for not seeking/receiving treatment vary across indigenous and non-indigenous households with distance and higher preference for alternative methods of treatment being more prevalent among the former. For those who do receive treatment the use of public hospitals and health centers is more common among the indigenous population.

6.71 In sum the urban and rural poor contact health care providers less often than the non-poor and when they do so they tend to use public health centers and hospitals rather than private ones. These differences respond to three basic factors. First public services tend to be cheaper than private ones and this makes them relatively more attractive for the poor. Second, within public services, the poor are more likely to access those that do not depend on affiliation and contributions to the Social Security system since they tend to be employed informally. Third, the public sector is more likely to serve relatively poorer and more remote areas, so that access to public services is less costly for the poor in these areas, other things being equal.

6.72 The main findings regarding *access to infrastructure* can be summarized as follows (Tables 6.10a and 6.10b):

- **Poor versus non-poor:** Poor households have lower access to infrastructure and tend to live further away from the center of their municipality than non-poor ones. These differences are more marked in rural areas.
- **Urban versus rural:** Access to infrastructure is significantly lower in rural than in urban areas, particularly regarding sanitation and access to gas and phone services. In addition, there is substantial variation in access within urban areas, with higher access rates in Lima than in other urban areas and with lower rates in marginal neighborhoods than in rich ones.
- **Indigenous versus non-indigenous:** Access to infrastructure is lower among indigenous households than non-indigenous ones irrespective of income levels and location.

6.73 In sum access to infrastructure is higher among non-poor households than among poor ones, mostly as a result of location and, to a lesser extent, income. Access, however, represents only one dimension of service provision. Often poor households in urban areas, particularly in marginal ones, have access to services but these are unreliable (e.g. water and electricity are only available a few hours a day) and of poor quality (e.g. water is unclean). In other words, urban poor households have access to “overwhelmed” services (World Bank, 2004c).

### Access to public institutions

6.74 The importance of location and road infrastructure deserves further consideration as a determinant of the extent to which poor households have both access and the capacity to interact with public institutions, since these institutions tend to be concentrated in urban, more prosperous areas. We

use information on the frequency of contacts with various public institutions to explore this issue (Table 6.11). The poor interact less frequently with institutions representing both the central and local governments, although contacts with local authorities seem to be more equally distributed in rural areas. Use of financial institutions, even more accessible ones as public banks and saving cooperatives, is less common among poor households than non-poor ones. Finally, poor households interact less frequently with law-enforcing institutions, such as the judiciary system and the police, than non-poor ones.

**Table 6.11: Contact with public institutions is less frequent among poor households**

	National			Lima			Other urban			Rural		
	Total	Non Poor	Poor	Total	Non Poor	Poor	Total	Non Poor	Poor	Total	Non Poor	Poor
Percentage of population in group												
<b>Government</b>												
Municipality	27.8	29.3	25.9	23.3	27.3	11.9	31.9	32.5	30.9	27.5	26.5	27.9
Ministry of Agriculture	2.5	2.2	2.8	0.1	0.1	0.0	2.9	2.9	2.7	4.3	5.2	3.9
Ministry of Industry	0.3	0.4	0.1	0.3	0.4	0.0	0.4	0.6	0.2	0.1	0.1	0.1
<b>Financial services</b>												
Public banks	19.8	25.7	12.2	19.1	22.5	9.4	26.9	32.6	17.4	12.2	17.2	9.8
<b>Justice and safety</b>												
Judiciary services	3.8	5.0	2.2	3.8	4.9	0.9	4.9	5.9	3.2	2.4	3.1	2.1
Police	6.4	8.4	3.7	9.3	10.6	5.5	6.8	8.0	4.9	2.9	4.4	2.2

Source: Authors' calculations using data from ENAHO 2003 (INEI).

6.75 This, however, is not to indicate that distance to a particular institution is the only factor that limits access to it. Education levels, language, and socioeconomic background are also important determinants of the willingness and capacity of households to interact with public institutions. We discuss this in more detailed in Box 6.4 for the case of the judiciary system.

## Policy implications

6.76 The evidence presented in this section has shown that important differences in access to education, health and infrastructure between poor and non-poor households and between indigenous and non-indigenous households still exist. Although significant efforts were made during the 1990s to improve access to these services, the challenge remains. A challenge that is particularly relevant given the role that these factors play as determinants of income, as discussed in Chapters 4 and 5, and of social mobility and integration, as discussed above. In this sense the decline in public investment observed in recent years is not a promising signal in terms of further progress towards poverty reduction and social inclusion.

6.77 We concentrate here on the discussion of policy interventions aimed at increasing the coverage and quality of education and health services since interventions directed at increasing access to basic services and infrastructure through increases in public investment levels have already been presented elsewhere in this report.

6.78 The main challenge regarding the implementation of these policies will be that of doing so in an increasingly decentralized environment. Peru is moving fast towards the decentralization of its social sectors: social assistance, education and health. A full examination of the implications of the decentralization process for the social sectors is beyond the scope of this chapter as it will be extensively analyzed in the RECURSO study. It is important, however, to keep in mind what the main obstacles ahead may be and we do so briefly after discussion our policy recommendations.

**Box 6.6: Improving access to the Judiciary among the poor in Peru**

Strong justice sector institutions are critical for empowering the poor; however, access to justice continues to be severely limited for a large portion of the Peruvian population. Justice sector deficiencies hit the poor the hardest, thus aggravating inequalities in access to justice for those living in rural areas, women, and indigenous groups. This is especially important since the poor generally face disputes which are associated with their most basic needs (e.g. food, housing, health care, personal security, intra-family violence, or education), yet they are unable to use the justice system to resolve their disputes. The high cost of the services is a major deterrent for low-income groups. The combination of court fees, lawyer fees, living and transportation expenses, and occasional bribes often makes justice services unaffordable. Institutional weaknesses in this sector harm the poor since they do not have the resources to cope with the systemic failures.

The low amount of justice services and their uneven distribution affects rural and indigenous populations disproportionately. In the poorest regions (in particular the Sierra), access to justice is more difficult due to acute geographical isolation of the communities and low coverage of the judiciary. Although coverage varies widely across judicial districts, rural areas are generally neglected with courts concentrated in the urban centers and relatively few first instance judges in the rural areas. Peru has a ratio of about one judge per 16,000 citizens, and the number of public defenders is insufficient to cover the poor, with only 249 legal aid and public defenders to serve the entire country. In addition, cultural and linguistic barriers make indigenous use of formal justice less likely as lawyers and judges rarely speak indigenous languages, and most importantly, judges' decisions do not reflect the cultural reality in which indigenous people live.

Certain obstacles make women's access to justice services more difficult than men's. Overall, more men than women use justice services, whether specialized courts (56.1 percent of men vs. 43.9 percent of women) or justice of the peace (58 percent of men vs. 42 percent of women). Institutional weaknesses of the Family Courts are particularly important as they tend to increase gender inequalities. Women are primarily affected by Family Courts' low response to domestic violence cases and the lack of adequate legal aid for women seeking child support. In 1998, 73.3 percent of child support cases presented by women and 66.7 percent of those presented by men did not reach judgment in the family courts. Similarly, 67 percent of domestic violence cases in 1998 did not reach a judgment. Many more did not even reach the courts, as it is quite common for judges to resist qualifying domestic violence as a serious crime and following the prescribed procedures. The burden of Family Courts' shortcomings falls mostly on poor women.

The *Justice Services Improvement Project*, approved in March 2004, seeks to equate the demand in Peru for services with their availability and accessibility. Through the "Enhanced Access to Justice Component," the Project expects to provide technical assistance to strengthen the institutional capacity of the Judiciary (Poder Judicial), the Ministry of Justice, the Consejo Nacional de la Magistratura (Judicial Council), and the Academia de la Magistratura (Judicial Academy). The Projects also aims to improve sector performance in terms of quality and timeliness as well as enhance access of the country's most economically and socially disadvantaged groups.

*Source:* Contribution by the World Bank team working on the Justice Services Improvement Project.

***Increasing the coverage and quality of education***

6.79 Access to good quality education is a function of both supply and demand factors. The presence of a secondary school in town will make it more likely for youngsters to continue studying after completing primary education because the cost of attendance is smaller the shorter the distance to the school. Similarly a higher need to complement household income will make it less likely for children in poor households to continue in school since their labor is now more valuable.

6.80 Increasing the coverage and quality of education will require supply- and demand-side policies. These could include, among others:

- **An increase in the supply of pre-school and secondary education.** Enrolment rates in pre-school and secondary education are relatively low in Peru, particularly in rural areas. Improvements in the supply of pre-school education can be achieved through non-formal schooling modalities such

women-operated child education centers, which receive training and financial support from the government in exchange for the provision of basic education services. Improvements in the supply of secondary education can be obtained through alternative, more flexible schooling modalities, such as distance learning.

- **An improvement in the allocation and quality of teachers.** The distribution of teachers has been traditionally uneven, resulting in better quality teachers favoring urban areas and causing high absenteeism in rural areas. As a consequence the coverage and quality of education is substantially lower in rural than in urban areas. A significant revision of the teacher payroll has been underway for a few years now and is expected to result in improvements in teacher allocation. In addition incentives schemes aimed at increasing teacher attendance have been implemented in pilot form in rural areas. These schemes include monetary and non-monetary incentives, including teacher training. Looking ahead these efforts should be consolidated (i.e. application of incentive system at the national level) and complemented with the provision of teacher training and materials particularly in the areas of bilingual and multilevel education. It will be important also to ensure that the decentralization process does not hinder the capacity of the authorities to manage the sector's human resources effectively and efficiently.
- **An improvement in the supply and quality of bilingual education.** Access to education is particularly low among the indigenous population, especially among indigenous girls. This can be partly remedied by increasing the number of teachers trained in bilingual and multi-level education, and by developing and distributing the relevant school materials to these kind of schools. Looking ahead effort towards the elimination of cultural barriers to access should take advantage of the increased accountability of the sector towards local authorities and users brought about by the decentralization process.
- **An increase in the demand for education.** The demand for education is a function of both its direct cost and the opportunity cost of schooling, as well as of its perceived value, both in the form of returns in the labor markets and in terms of social value. Increases in the demand for education can then be induced by effectively lowering its costs through conditional cash-transfer programs or scholarships, and through the implementation of flexible schooling schedules that allow children and youngsters to engage in other activities during the day; or by effectively increasing its value through improvement in education quality and cultural relevance (e.g. bilingual education for indigenous people).

### *Increasing the coverage and quality of health services*

6.81 As was the case with education, an increase in supply is not enough to ensure that the poor, particularly those in rural areas, have access to health services. Economic and cultural barriers contribute to making inequity in access persistent.

6.82 Increasing the coverage and quality of health services will then require supply- and demand-side policies. These could include, among others:

- **An increase in the supply of basic health services to the poor.** Making health services more accessible to the poor and particularly to those who are more vulnerable among them, such as mothers, infants and the elderly should be a priority. The recent creation of the Seguro Integral de Salud (SIS) has been a significant step in this direction. The SIS eliminates user-fees by reimbursing public providers on a fee-for-service basis for all variable costs incurred during the provision of a basic benefit package (mainly essential drugs and medical supplies). The numbers of mothers and infants receiving attention under the SIS have increased steadily since its creation, and further increases in coverage are expected in the future. Looking ahead the main challenges for the SIS are the improvement of skilled birth attendance and the control of excessive allocation of resources to tertiary care.

- **An increase in the efficiency of and coordination among public health providers.** Health services are provided by different suppliers in Peru, including the Ministry of Health and the ESSALUD, associated to the Social Security authority, which cover different population groups. The existence of multiple providers with different mandates can potentially cause inefficiencies in the allocation of resources and in the use of existing capacity. In order to increase efficiency in the health system, the Ministry of Health has signed a series of management agreements with regional health authorities. These agreements link resources to performance and outcomes. Looking ahead the main challenges regarding the management agreements include the monitoring and publication of performance results. In addition, in order to maximize the use of existing capacity the Ministry is seeking better coordination with ESSALUD. This, however, has proved politically difficult. Looking ahead the efforts to promote coordination between both institutions should be renewed. This will be particularly important in an increasing decentralized environment where the risk of fragmentation in the system may rise significantly.
- **A reduction of cultural barriers.** Access to health services is particularly low among the indigenous population due, among other factors, to cultural barriers. Better accommodating the cultural expectations and beliefs of indigenous people within the health system can go a long way in eliminating or at least mitigating the impact of these barriers. The adoption of the CLAS model in 1994, based on the participation of local communities in the planning and management activities of primary health care centers, has constituted an important move in this direction. Looking ahead the GOP should continue working towards the consolidation of this model. More generally strengthening the responsiveness of health services to local needs, as well as the capacity of communities to monitor health providers will be even more important in a decentralized environment.
- **An increase in the demand for health services.** The demand for health services is a function of both its cost and its perceived value. Increases in the demand for health services can then be induced by effectively lowering its costs through subsidized services, such as that provide through the SIS, or through conditional cash-transfer programs; or by effectively increasing its value through improvements in the quality and cultural relevance of the service provided.

6.83 Many of the reforms in the education and health sectors described above have been supported through a series of World Bank programmatic and technical operations (the PRSL I-IV). In addition, as the decentralization of the social sectors progresses, financial and technical support to further reforms will be provided through the RECURSO project and through an operation directed to increase accountability for the decentralization of the social sectors.

## CONCLUSIONS

6.84 We have presented evidence in this chapter that the poor are more vulnerable and tend to have lower access to basic services than the rich. As a consequence they are exposed to higher (income) risks and exhibit lower levels of social mobility.

6.85 We have argued that the root of higher vulnerability among the poor can be found in the lack of saving capacity of the poor and in their limited access to financial markets and safety nets. Policies aimed at removing some of these barriers can then go a long way in reducing vulnerability and exposure to risk among poor households in urban and rural areas.

6.86 We have also argued that increases in social mobility and opportunities will depend on increases in access to basic services, such as education and health, and to public institutions. These in turn will require improvements in the level and quality of resources, as well as in the efficiency of and coordination among the different actors in the sectors. All of which will have to be achieved in an increasingly decentralized environment.



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## ANNEX 1: METHODOLOGICAL ISSUES REGARDING POVERTY MEASUREMENT IN PERU, 1997-2003

There exist two different household surveys in Peru, the Encuesta Nacional de Niveles de Vida (ENNIV) administered by Cuánto and the Encuesta Nacional de Hogares (ENAHOG) administered by the Peruvian Statistical Institute (Instituto Nacional de Estadística e Información, INEI). Because both surveys differ in terms of their format and both institutions apply different methodologies to measure poverty, there also exist two different sets of poverty figures (Table A.1.1).

**Table A.1.1: Poverty headcount measured by the ENNIV and the ENAHOG**

	National		Urban		Rural	
	ENNIV	ENAHOG	ENNIV	ENAHOG	ENNIV	ENAHOG
1991 <sup>A</sup>	57.4	49.9	52.2	36.0	70.8	74.0
1994 <sup>A</sup>	53.4	46.4	50.4	34.7	65.6	68.6
1997	50.7	42.7	48.9	29.7	64.8	66.3
2000	54.1	48.4	47.9	36.9	66.1	70.0

Source: Anuario Estadístico (Cuánto, 2003) and INEI

ENAHOG figures for 1991 and 1994 are not entirely comparable to those for 1997 and 2000.

Despite the fact the analysis presented in the previous Peru Poverty Assessment was based on the ENNIV, we decided to use the ENAHOG for our poverty calculations due to two reasons. First, it provides the most up-to-date data (2003, compared with 2000 for the ENNIV). Second, it produces more detailed income and consumption measures and, as a result, more accurate poverty numbers.

Preparing time-consistent, comparable poverty numbers for 1997-2003, however, required that we dealt with a number of methodological improvements to the survey implemented over this period. For this purpose we relied heavily on the work produced by the INEI, particularly by the Household Survey team.

The purpose of this annex is then twofold. First we briefly describe the methodological changes in the ENAHOG, as well as the strategies applied to deal with them. Second, we review the main methodological differences between the ENAHOG and the ENNIV, paying special attention to the effect that these differences have on income, consumption and poverty measurement. A more detailed discussion of both issues can be found in the various INEI documents cited in the text.

### Changes in the ENAHOG 1997-2003<sup>62</sup>

During 1997-2003, the ENAHOG has undergone significant methodological improvements and revisions regarding the size and composition of the survey sample and the definition and construction of the poverty line. We briefly comment on both below.

#### *Changes in the sample size and composition.*

The size of the survey sample varied during the period (Table A1.2), falling significantly between 1997 and 2000 and increasing afterwards. As a result, the level of representativeness of the survey also changed over time—at the level of the “dominio<sup>63</sup>” between 1997 and 2000, and at the level of the department from 2001 onwards.

62. This section draws heavily from see INEI (2001), INEI (2002), and Herrera (2003). The interested reader should consult these documents for a detailed discussion on the issues presented here.

63. There are seven “dominios”: Metropolitan Lima, rural Sierra, urban Sierra, rural Costa, urban Costa, rural Selva and urban Selva.

**Table A.1.2: Survey sample size, 1997-2003.**

	Sample size (unweighted)	Sample size (weighted)
1997	31,280.00	25,178,626.00
1998	35,509.00	27,319,804.00
1999	18,783.00	28,743,428.00
2000	17,177.00	26,732,023.00
2001	75,470.00	27,219,122.00
2002	83,807.00	27,483,404.00
2003	84,397.00	27,308,177.00

Source: Authors' calculations using ENAHO 1997-2003

In addition, in 2001 the sampling framework was modified to account for demographic changes as documented in the 1999 Pre-Census. The new sampling framework included new (peripheral) urban areas, especially around Lima, that had developed during the 1990s and thus were not covered by the previous sampling framework based on the 1993 Population Census (Table A1.3).

**Table A.1.3: Changes in the ENAHO sampling framework in 2001**

	All	New areas % of all sampled households	Old areas
National	100.0	18.3	81.7
Northern Costa	100.0	30.4	69.6
Central Costa	100.0	24.6	75.4
Southern Costa	100.0	28.8	71.2
Northern Sierra	100.0	9.9	90.1
Central Sierra	100.0	13.5	86.5
Southern Sierra	100.0	10.5	89.5
Selva	100.0	17.8	82.2
Metropolitan Lima	100.0	19.6	80.4

Source: INEI (2002)

### ***Changes in the poverty line.***

The overall poverty line is a function of the extreme poverty line, which in turns is a function of three different elements: (i) the definition of the caloric norm (or minimum daily caloric consumption), (ii) the reference population from which information about the consumption basket that yields the caloric norm is obtained, and (iii) the construction and valuation of this consumption basket. All three elements have experienced changes during 1997-2001.

From 1997 to 2000 the ENAHO used a single caloric norm for all individuals (2,318 calories per person per day), independent of age, gender and area of residence, therefore disregarding differences in nutritional needs across demographic groups and across different types of economic activity. This changed in 2001 when a more nuance approached was adopted. Using the 1993-4 Encuesta Nacional de Propósitos Múltiples, the INEI estimated caloric requirements by "dominio" for a representative five-member household (two adults and three children), attributing different requirements according to age and gender. Although the average caloric norm varied across "dominios", reflecting demographic differences, these "dominios" could be grouped into three categories with three different caloric norms (2,232 calories per person per day in metropolitan Lima; 2,194 calories per person per day in the Costa, the urban Sierra and the urban Selva; 2,133 calories per person per day in the rural Sierra and the rural Selva).

There were also changes in the way the reference population was defined. While in 1997-2000, consumption patterns were identified separately for each natural region by using region-specific reference

populations, in 2001 the INEI adopted a single-reference population approach. Under the old methodology, differences in (extreme) poverty lines across regions captured price level disparities and differences in food consumption patterns, but they did not take into account behavioral differences caused by regional variation in income and consumption levels—e.g. poor households tend to spend a larger fraction of their income in food than wealthier households. As a consequence, the estimated Engel coefficient<sup>64</sup> for low-income areas was systematically below that of high-income areas. These problems were solved by adopting a single population of reference for the entire country, together with a regional price deflator that made income and consumption across regions comparable.

Finally, both the composition of the consumption aggregate and the way in which the value of the poverty line was updated over time were modified. The set of expenditures to be included in the consumption aggregate was changed to make it compatible with the National Accounts Framework in 2001—for instance, double accounting associated with inter-household transfers was eliminated, the method used to compute consumption of durable goods was improved, indirect taxes not directly associated with the provision of a particular service were excluded from the consumption aggregate. Similarly, the INEI shifted from maintaining the extreme poverty line constant in real terms from year to year and updating the overall poverty line on an annual basis using yearly Engel coefficients, to maintaining the overall poverty line constant using the Consumer Price Index (CPI) for the main cities. This shift eliminated inconsistencies across years in poverty measurement caused by the negative correlation between total and food expenditure levels.

For the purpose of this report we present two series of poverty numbers. The first series incorporates all changes described above for 2001-2003. The advantage of this approach is that poverty numbers for 2001-2003 take into account the population residing in newly developed areas and are, as a result, more accurate and representative. The disadvantage is that these numbers are not comparable to the 1997-2000 ones. The second series recalculates the consumption aggregate and the poverty line for 2001-2003 using the sampling framework and the methodology applied in 1997-2000 thus producing comparable poverty numbers for 1997-2003. The table below illustrates the relative importance of sampling changes and changes in the poverty line in explaining changes in poverty rates for 2000-2001 (Table A.1.4).

**Table A.1.4: Variation in poverty figures due to sampling and methodological changes**

	Comparable series		Actual	Total variation	Variation due to changes in sampling framework	Variation due to changes in poverty line
	2000	2001	2001			
National	48.4	49.8	54.8	6.4	2.5	2.5
Urban	36.9	35.7	42.0	5.1	4.2	2.1
Rural	70.0	75.9	78.4	8.4	-0.8	3.3

Source: INEI (2001)

### **A comparison between the ENAHO and the ENNIV<sup>65</sup>**

There are three potential causes for the discrepancies between the poverty numbers produced using the ENAHO and those produced using the ENNIV: (i) sample differences across both surveys, (ii) methodological differences regarding the calculation of poverty lines, and (iii) differences in the computation of household expenditure. We briefly explore all three here using information for ENNIV

64. The Engel coefficient captures the relationship between food and total expenditures and it is used to construct the overall poverty line from the extreme poverty line (i.e. income required to afford the basic food consumption basket).

65. The discussion in this section closely follows that presented by J. Herrera in INEI (2001).

1997 and ENAHO 1997—most of the conclusions can be extrapolated to ENNIV 2000 and ENAHO 2000.

### *Size and composition of sample*

Although sample size varies significantly across both surveys, sample composition appears to be extremely similar (Table A.1.5). Consequently, this is not likely to explain differences in poverty incidence between the ENAHO and the ENNIV.

**Table A.1.5: Sample composition in ENNIV and ENAHO, 1997**

	ENNIV	ENAHO
Nacional	100.0	100.0
Urban	64.6	64.9
Rural	35.4	35.1
Metropolitan Lima	28.5	28.5
Urban Costa	17.7	17.8
Rural Costa	5.9	5.1
Urban Sierra	12.8	12.9
Rural Sierra	21.9	23.0
Urban Selva	5.5	5.7
Rural Selva	7.5	6.8

Source: INEI (2001)

### *Total and extreme poverty lines*

As we explained above constructing a poverty line involves the following steps: (i) determination of the caloric norm (or minimum caloric intake), (ii) determination of the composition and cost of the basic food-consumption basket (extreme poverty line), and (iii) determination of the cost of the basic consumption basket (total poverty line). There are important differences between the ENNIV and the ENAHO regarding all three points.

Both surveys based their calculation of per capita caloric norms on a representative five-member household, with two adults and three children. However, the ENAHO used a single per capita caloric norm for 1997-2000, and a gender-age-specific per capita caloric norm based on from 2001 onwards, while the ENNIV used region-specific per capita caloric norms in 1997 and 2000. This led to significant differences in the level of minimum per capita caloric intake stipulated in each survey, with higher intakes contemplated in the ENNIV than in the ENAHO<sup>66</sup>.

In addition, the ENAHO uses information on actual food consumption patterns from the 1993-4 Encuesta de Propósitos Múltiples (INEI) to determine the composition of the basic food-consumption basket that provides the minimum per capita caloric intake, whereas the ENNIV uses a “normative” basket whose composition reflects the views of nutrition experts rather than real consumption data.

Finally, the ENAHO uses implicit food prices by region, as captured by the survey, to cost the basic food-consumption basket. In contrast, the ENNIV uses various sources to determine food prices: market prices in Lima, market prices in selected cities for other urban areas, and prices as captured by the survey for rural areas.

66. For a detailed discussion on the differences in caloric norms between the ENAHO and the ENNIV, see INEI (2001).

As a result, we observe significant differences in the level of the extreme poverty line. These differences vary across regions, and appear to be largest for the Sierra and the Selva, and smallest for the Costa (Table A.1.6).

**Table A.1.6: Extreme poverty line in ENNIV and ENAHO, 1997 and 2000**

	1997			2000		
	ENNIV	ENAHO	Difference	ENNIV	ENAHO	Difference
	Soles per capita (monthly)					
Lima	98.53	117.52	19	101.41	125.91	24
Urban Costa <sup>A</sup>	86.06	90.12	5	90.55	97.72	8
Rural Costa	76.46	84.88	11	79.33	91.81	16
Urban Sierra	72.20	90.17	25	75.38	97.37	29
Rural Sierra	65.96	82.39	25	65.04	90.15	39
Urban Selva	76.88	93.98	22	78.8	102.81	30
Rural Selva	73.35	84.16	15	70.48	91.96	30

*Note:* Poverty lines for ENNIV are expressed in real October 1999 prices, and poverty lines for ENAHO are expressed in real October-December 1997 prices. <sup>A</sup> Excluding Lima.

*Source:* INEI (2001)

### ***Household expenditure***

The expenditure module in ENAHO questionnaire exhibits a higher level of disaggregation than the ENNIV one—the consumption aggregate used by ENAHO contains 58 food items and 113 non-food items, compared to 31 and 55 respectively in the ENNIV—and this in turn translates into a more accurate description of the level and composition of expenditure in the former than the latter. Moreover, donations received from institutions or other households are taken into account by the ENAHO, but not by the ENNIV. All in all, this results in higher estimated expenditure levels when we use the ENAHO. In fact, in 1997 average per capita expenditure measured by the ENAHO was equal to 286.56 soles, significantly above the ENNIV's 218.91 soles.

Methodological differences across both surveys generate two opposing forces. The higher poverty lines used by ENAHO would tend to produce relatively higher poverty estimates, while higher income level would tend to relatively lower poverty, other things being equal. In order to disentangle the effect of these two forces, Herrera (INEI, 2001) performs a series of counterfactual calculations using the ENNIV and ENAHO poverty lines and levels of aggregation of expenditures (Table A.1.7).

**Table A.1.7: Effect of methodological differences on estimates of poverty incidence**

	ENNIV poverty line		ENAHO poverty line	
	ENNIV aggregation ENAHO 1997	ENAHO aggregation ENAHO 1997	ENAHO aggregation ENAHO 1997	ENNIV aggregation ENNIV 1997
National	44.5	36.6	42.7	50.7
Urban	33.1	25.5	29.7	43.0
Rural	65.0	56.6	66.3	64.8

*Source:* INEI (2001)

## ANNEX 2: GROWTH INCIDENCE CURVES—ROBUSTNESS CHECKS

### A short theoretical introduction<sup>67</sup>

Growth incidence curves (GIC) illustrate the distribution of growth, showing growth rates by quantiles ranked by income, useful to understand poverty and inequality trends.

Let  $y$  denote the income of the  $p$ -th quantile at date  $t$ . The income for the  $p$ -th quantile can be obtained by inverting the cumulative distribution function (CDF) of income of that quantile, denoted by  $F(y)$ :

$$y_t(p) = F_t^{-1}(p) \quad \text{where } (y'_t(p) > 0)$$

The growth rate in income of the  $p$ -th quantile can be expressed as:

$$g_t(p) = [y_t(p) / y_{t-1}(p)] - 1$$

Letting  $p$  vary from zero to one,  $g_t(p)$  traces out the growth incidence curve.

Because  $F_{t-1}(p) = L'_t(p)\mu_t$ , where  $L'_t(p)$  is the Lorenz curve, with slope  $L'_t(p)$  and mean  $\mu_t$  (Gastwirth, 1971), the GIC also can be defined as:

$$g_t(p) = \frac{L'_t(p)}{L'_{t-1}(p)}(\gamma_t + 1) - 1$$

Where  $\gamma_t = (\mu_t / \mu_{t-1}) - 1$  is the growth rate in  $\mu_t$ , which clearly indicates that if the Lorenz curve does not change, then  $g_t(p) = \gamma_t$  for all  $p$ . In addition,  $g_t(p) > \gamma_t$  if and only if  $y_t(p)/\mu_t$  increases over time.

When the GIC is positive at all percentile points ( $g_t(p) > 0$ ) for all  $p$  there is first-order dominance (FOD) of the distribution at date  $t$  over  $t-1$ ; that is, there is an unambiguous reduction of poverty between period  $t-1$  and  $t$ . If the GIC switches sign, though, it is not possible to generally infer that a higher-order dominance holds by simply observing the GIC. An upward shift of the GIC implies greater levels of poverty reduction. Finally, a  $g_t(p)$  decreasing (increasing) function for all  $p$  indicates falling (rising) inequality over time.

### Robustness checks

As was mentioned in Chapter 2 and as explained in Annex 2, the Encuesta Nacional de Hogares (ENAH) has undergone significant methodological changes during 1997-2003, the most important of which are (i) the adoption of a new sampling framework in 2001 and, (ii) the adoption of a new (spatial) price deflator in 2001.

In order to minimize the impacts of these changes on our growth incidence calculations, we presented GIC for 1997-2000 and 2001-2003 separately in Chapter 1. In this annex we present some additional robustness checks intended to explore to what extent our results are dependent on some of these changes. Our checks use data from 2001 and 2002 since these are the years for which both sampling frameworks can be used.

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67. Based on Ravallion and Chen (2003).

First it is important to examine how mean expenditure has changed over 1997-2003 using the old and new sampling frameworks. A comparison of data for 2001 and 2002 (the period in which both frameworks can be made to overlap) reveals a significant difference in mean expenditure levels and small difference in mean expenditure trends. This second difference being the more relevant since GIC depicture changes in expenditure.

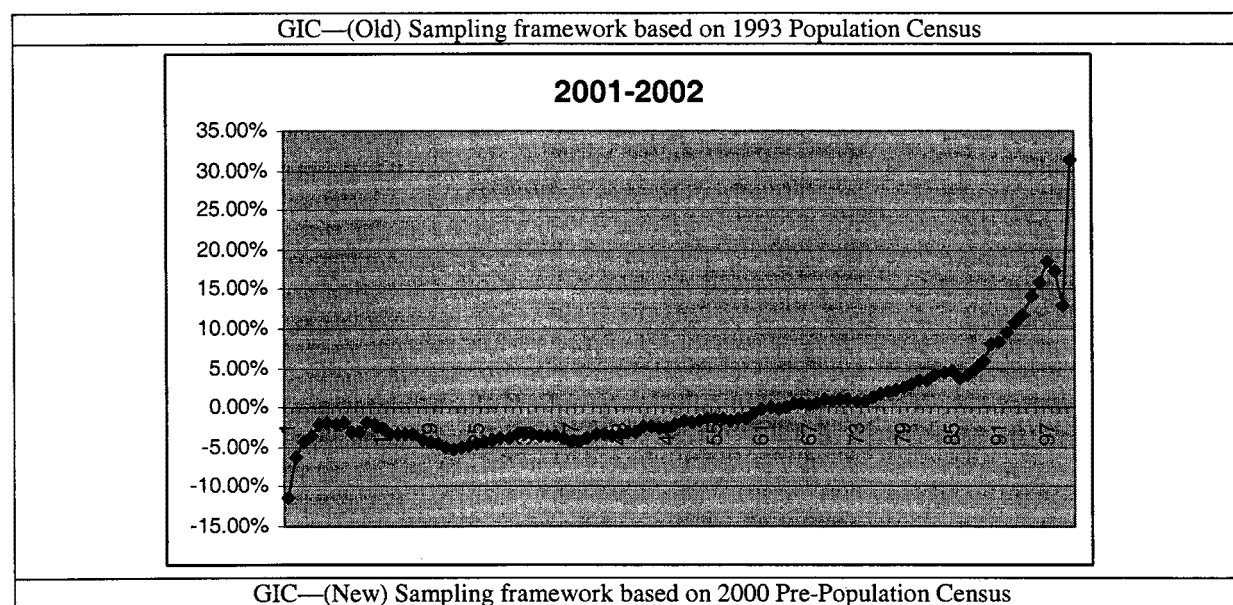
**Table A.2.1: Changes in mean expenditure under the old and new sampling frameworks.**

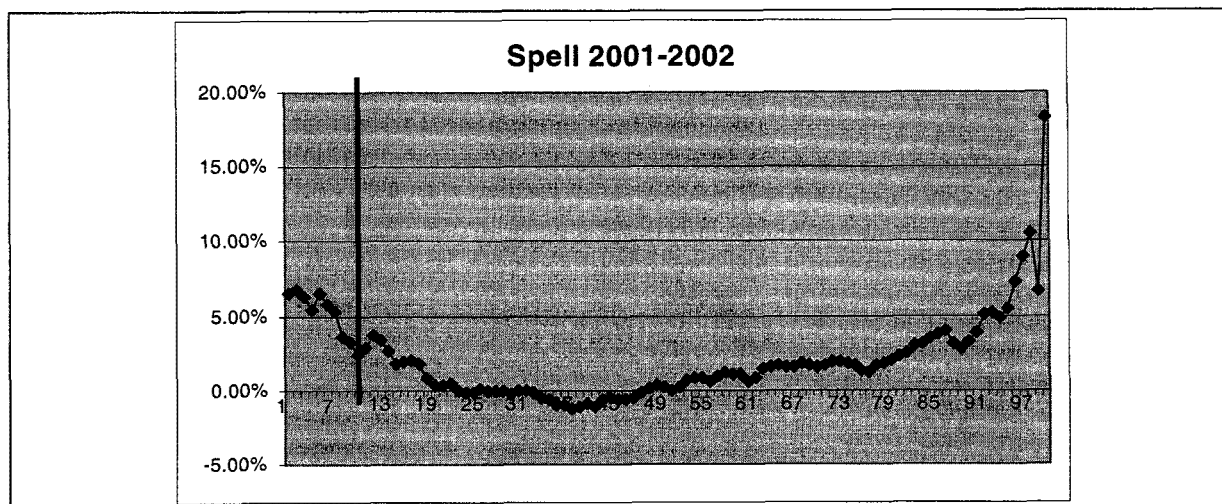
	1997	1998	1999	2000	2001	2002	2003
Old sampling framework	1.53	1.54	1.46	1.34	1.34	1.42	
New sampling framework					1.24	1.29	1.23

Source: Authors' calculations using data from ENAHO 1997-2003

We then construct GIC for 2001-2002 under the old and new framework. The picture we obtained are rather different. Under the old sampling framework, only household in the top 40 percent of the distribution experienced positive (expenditure) growth during 2001-2002. In contrast under the new sampling framework (which is nationally representative), household at the bottom of the distribution also experience positive growth. Given that the difference between both frameworks consists mainly in the inclusion of newly developed, mostly poor areas in the sample, these results suggest that growth in 2001-2002 was positive in these areas.

**Figure A.2.1: GIC under the old and new sampling frameworks.**

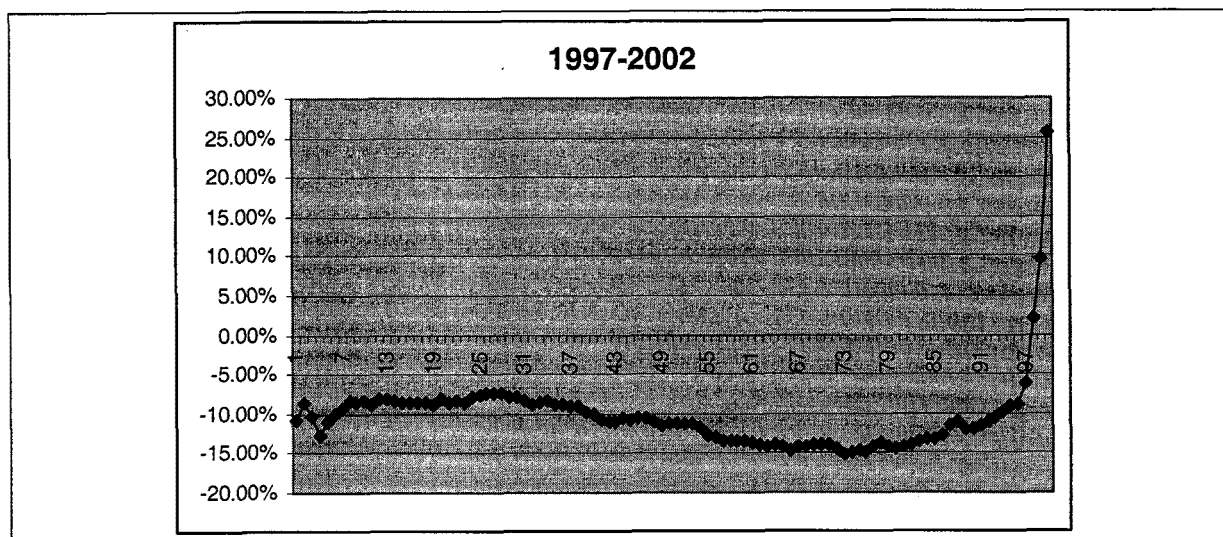




Source: Authors' calculations using ENAHO 2001-2002.

These results also explain why, if we construct a GIC for 1997-2000 using the old sampling framework we obtain a rather bleak picture in terms of expenditure growth.

**Figure A.2.2: Growth incidence in 1997-2000 under the old sampling framework**



Source: Authors' calculations using ENAHO 1997-2002.



### ANNEX 3: INTERNATIONAL COMPARISONS

**Table A.3.1 Labor Force Participation**

	Labor Force Participation Rate All		Labor Force Participation Rate Female	
	1990	2003	1990	2003
Bolivia	72.1	72.8	36.9	38.1
Colombia	67.1	70.5	35.9	39.3
Ecuador	61.8	64.7	24.8	29.0
Peru	58.7	62.3	27.5	32.2
Venezuela	64.1	67.0	31.3	35.6

*Source:* Authors' calculation based on data from the World Bank (2004).

**Table A.3.2 Employment by Sector**

		Agriculture			Manufacturing			Services		
		All	Male	Female	All	Male	Female	All	Male	Female
Bolivia	1990	1.2	1.9	0.2	25.1	34.6	11.5	72.8	62.8	87.3
	2000	4.9	6.1	3.3	28.2	39.2	14.2	66.8	54.6	82.3
Colombia	1990	1.4	1.9	0.6	30.9	34.7	25.0	67.7	63.4	74.3
	2001	22.2	32.5	6.6	18.4	19.2	17.3	59.4	48.3	76.2
Ecuador	1990	6.9	10.3	2.5	26.8	30.0	16.5	66.3	59.7	81.0
	2001	7.7	10.2	3.9	24.3	29.6	16.2	67.5	59.8	79.0
Peru	1990	1.2	1.7	0.6	27.3	32.2	19.7	71.5	66.1	79.7
	2001	8.8	10.9	6.1	17.9	24.1	10.2	73.3	64.9	83.8
Venezuela	1990	13.4	18.5	2.2	25.3	29.6	15.5	61.2	51.7	82.2
	2001	9.6	14.5	1.7	22.1	28.3	12.0	68.2	57.1	86.1

*Source:* World Development Indicators, The World Bank (2004).

**Table A.3.3 - Poverty Level in the Andean Region**

	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change (%) <sup>A</sup>
Bolivia				64.7 <sup>a</sup>			65.4 <sup>a</sup>		63.8 <sup>a</sup>	-1.4%
Colombia		48 <sup>b</sup>				55 <sup>b</sup>				14.6%
Ecuador	40.6 <sup>c</sup>				44.1 <sup>c</sup>					8.5%
Peru				42.6 <sup>a</sup>		47.4 <sup>a</sup>		54.9 <sup>a</sup>	54.2 <sup>a</sup>	27.2%
Venezuela		47.0 <sup>a</sup>			44.8 <sup>a</sup>		50.0 <sup>a</sup>			6.4%
LAC										

*Note:* <sup>A</sup> Between first and last data points in Table.

*Source:* a) SEDLAC: moderate; b) Colombia PA 2002; c) SEDLAC: USD2

**Table A.3.4 –Extreme Poverty Level in the Andean Region**

	1994	1995	1996	1997	1998	1999	2000	2001	2002	Change (%) <sup>A</sup>
Bolivia				34.0			45.3		42.0	23.43%
Colombia		48 <sup>b</sup>				55 <sup>b</sup>				14.6%
Ecuador	40.6				44.1					8.5%
Peru				34.6		35.8		39.5		
Venezuela		32.5			31.2		34.0			4.68%
LAC										

Note: <sup>A</sup> Between first and last data points in Table.

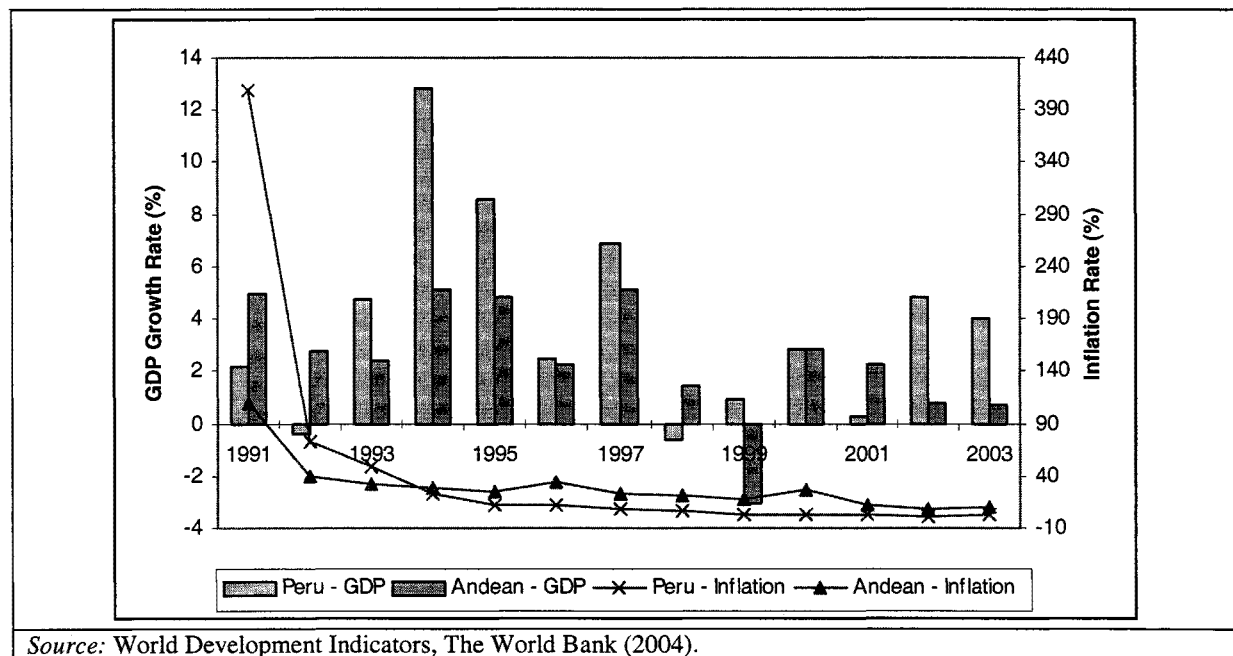
Source: SEDLAC: USD2, except for b from Colombia PA 2002

**Table A.3.5 Human development index trends**

	1975	1980	1985	1990	1995	2000	2002
Bolivia	0.512	0.548	0.58	0.603	0.635	0.67	0.681
Colombia	0.661	0.689	0.706	0.727	0.751	0.771	0.773
Ecuador	0.63	0.674	0.696	0.71	0.719	..	0.735
Peru	0.642	0.672	0.696	0.706	0.733	..	0.752
Venezuela	0.716	0.73	0.739	0.759	0.768	0.776	0.778

Source: Human Development Report, UNDP (2004).

**Table A.3.1. GDP and Inflation in the Andean Region**



Source: World Development Indicators, The World Bank (2004).

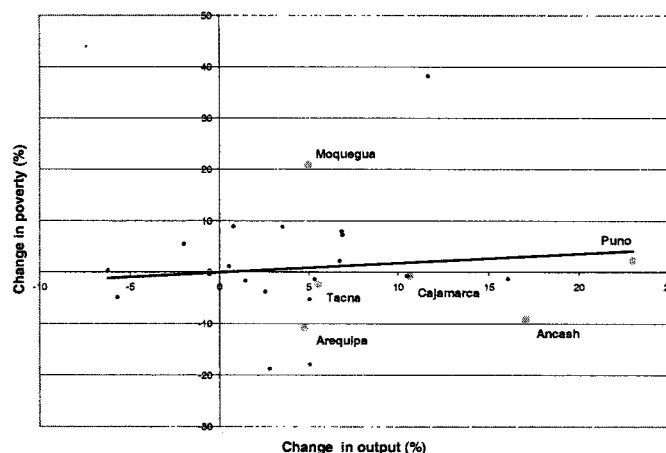
#### ANNEX 4: PROGRESS TOWARDS THE MILLENNIUM DEVELOPMENT GOALS

Targets proposed for the first seven MDGs	Position of LAC	Progress achieved in Peru in the 1990s
1. Reduce the proportion of people living in extreme poverty and suffering from hunger by half between 1990 and 2015.	In 1998, the percentage of LAC population living on less than US\$ 1 a day PPP was 12 and less than US\$ 2 PPP a day was 32 (WB estimates using PPP 1993 and household surveys data).	The incidence of extreme poverty in Peru has increased from 23.0 percent in 1991 to 23.9 percent in 2002, though indicators at the national level mask important differences across regions, and rural and urban areas. With current efforts, it is unlikely that the goal to reach 11.5 percent be achieved. Child malnutrition (under 5) decreased from 10.8 percent in 1992 to 7 percent in 2000.
2. Achieve universal completion of primary education by 2015 for boys and girls and 75 percent completion of secondary education.	Net enrollment ratio in primary education in LAC was 97 percent in 1998 and in secondary education, 60 per cent (WDI 2002).	The net enrollment rate for basic education decreased from 90.6 percent in 1991 to 89.5 percent in 2002; at which rate of progress, Peru can meet the 100 percent primary education completion rate by 2015. The proportion of students who reach 5 <sup>th</sup> grade to 84.1 percent in 2002 from 75.1 percent in 1991. The country could also reach the 100 percent literacy level, which as of 2002, was 96.64 percent.
3. Eliminate gender disparities in primary and secondary education by 2005, and for all levels by 2015.	The ratio of girls to boys attending primary and secondary school in LAC in 1998 was 99:100 (WDI 2002).	Though aggregate figures indicate that this goal was achieved by 2002 for primary and tertiary education, an analysis of desegregated data indicates that gender disparity in rural and extreme poverty areas is actually rising. The girl-boy in secondary school actually decreased from 94.5 percent in 1991 to 90.28 percent in 2002. Peruvian women earn 23 percent less than men with the same level of education and experience.
4. Reduce infant and child mortality rates by two-thirds between 1990 and 2015.	The under 5 mortality rate per 1,000 live births in the region was estimated at 37 for 2000 (WDI 2002).	Under 5 mortality was reduced from 92 per 1,000 live births in 1992 to 60 per 1,000 live births in 2000, while infant mortality declined from 64 per 1,000 to 43 per 1,000. Peru is on track to reach this goal.
5. Reduce maternal mortality rate by three-quarters between 1990 and 2015.	In 1995, there were 188 maternal deaths per 100,000 live births in LAC (estimates depend on method used; UNDP).	The maternal mortality rate decreased from 265 per 100,000 live births in 1996 to 185 per 100,000 live births in 2000 (ENDES 2000). The level of deliveries that received institutional attention rose from 52.5 to 59.3 percent. The target of 66 per 100,000 live births by 2015 is unlikely to be achieved with current efforts.
6. Halt and reverse by 2015 the spread of HIV/AIDS, malaria, and other diseases.	In 2003, the prevalence rate of HIV/AIDS among adults aged 15-49 in LA was 0.5-0.7 percent, while in the Caribbean was 1.9-3.1 percent (WHO 2003).	The average rate of HIV/AIDS infection remained stable around 0.25 percent between 1996 and 2000. Peru continues to endure high incidence of malaria and tuberculosis.
7. Ensure environmental sustainability - One indicator among others is access to an improved water source.	In LAC, in 2000, approximately 85 percent of the population had access to water (WDI 2002).	The urban population with access to safe water dropped from 88 percent to 87 percent, while in rural areas increased from 42 percent to 62 percent between 1990 and 2000. Access to sanitation increased from 77 to 79 percent (Human development report).

## ANNEX 5: THE MINING SECTOR AND POVERTY REDUCTION

Contemporary mining in Peru has a controversial and ambivalent image among local stakeholders. Mining has developed in poor and sometimes extremely poor rural areas, characterized by economic stagnation, lack of employment opportunities and weak, underdeveloped social capital. However, the presence of profitable mining activities has not always translated into significant improvements in local living standards—i.e. high economic growth in departments with large mining investments has not necessarily led to a decline in poverty (Figure A.5.1). As a result it has often been argued that there is no real connection between the minerals extracted and the wealth generated in a specific area, which, over the years, has strengthened the debatable argument that mining does not generate wealth nor improve the quality of living of the affected communities.

**Figure A.5.1: High economic growth in areas where mining is strong did not always translated into lower poverty in 2001-2002**



*Note:* The choice of Moquegua, Tacna, Puno, Arequipa, Cajamarca and Ancash responds to the fact that during 1996-2003 approximately 80 percent of the resources distributed by the canon minero were directed to these departments

*Source:* Authors' calculations using data from ENAHO 2001-2002 (INEI) and Cuánto (2004).

In this annex we comment on four basic aspects of the interaction between the mining sector and the local community that are likely to have an impact on local living standards and poverty: the capacity of the mining sector to generate employment, the extent to which mining revenues revert to local communities, and the role of mining companies and social investors.

**The redistributive effect of the Canon.** The creation of the Canon has resulted into significant increases in the amount of resources transferred to regional and local governments by the Central Government, potentially mitigating some of the problems outlined above. These positive effects have been reinforced by the recent increase in the price of metals and minerals in international markets, as well as by changes in the Canon law that increase the share of regional and local government in Canon revenues.

**Mining activities and employment generation.** Most of the formal mining in Peru takes place in remote and economically depressed areas, where employment rates are low and education is of poor quality and where most of the population is indigenous. These factors explain the high and somewhat disproportionate expectations that local people have regarding large- and medium-size mining

investments, which are expected not only to provide jobs, but also to improve access to basic public services.

The mining industry has fulfilled some of these expectations through their community programs, but one cannot expect that mining by itself can solve the issue of local unemployment, since generally, after the development phase, mining requires only a small number of specialized employees. This is more evident since most potential local workers lack specific training and education to prepare them to become qualified mining workers.

In addition to the limited creation of local jobs and the provision of some benefits, mining has the potential to serve as a catalyst for the creation of local services associated with the mine. This is where the potential for future sustainability resides and where donor and government efforts should focus in terms of channeling the benefits of mining to support capacity building and capital investment at the local and regional levels in order to create business partnerships between the mine and the local people.

Finally there are some undesirable side effects of mining on local economies that have had limited exposure to a cash economy and that should receive more attention (local inflation of prices, potential increases in criminality and immigration). Some of these problems can be prevented through adequate local employment policies, campaigns to educate the workers' families on the use of cash for improving their livelihoods and the creation of housing saving programs.

**Distribution of mining revenues.** It is clear that mining companies alone cannot and should not be expected to solve the complex issue of the sustainability of the services and goods that they provide to local communities as a matter of compensation. Government intervention and commitment is crucial to any attempt at sustainability, but because resources are always limited, these more remote regions have historically received very little support. However, this trend has started to change due to the *derecho de vigencia* and the *canon minero* and to other legal requirements that channel some investment to the municipal, district and provincial levels.

Revenues from the canon represent 27 percent of all transfers to local government. Moreover the volume of resources distributed through the canon have increased from 0.1 to 0.11 percent of GDP between 1996 to 2003.

In addition recent changes in the criteria used for the canon distribution will link it directly to the lack of basic necessities and the infrastructure deficit. This change responds to the complaints about the fact that, under the previous allocation rule based on population density, some urban high-income municipalities—usually not impacted by mining - received a high share of the canon.

**Social investment by mining companies.** Not all the investment received by communities comes through local governments and transfers. International mines tend to invest more in communities than the national entities, and make a greater effort for the sustainable development of the community than in the past. This may be the result of having greater resources, better capacity for community relations and local development, and of being more carefully scrutinized by public interest groups in the international community. National large and medium scale mines may also lack some of the capacity shown by the international industry leaders.

In comparison with other sectors, it is estimated that mining companies have a higher rate of social investment: more than half of the mining companies participate in these kinds of investments. The majority have supported rehabilitation of roads (93.3 percent), support to local activities (70 percent), support to local sports (66.7 percent), provision of electricity (63.3 percent), donation of books (60 percent), among others. Yet, in general these benefits tend to be punctual economic compensations based on informal agreements and do not contribute to development frameworks whereby communities are

empowered through a process of capacity building and understanding of their own priorities. This fairly typical approach on the part of the mining companies does not help in developing a more integral relationship among the stakeholders.

In sum more needs to be done beyond the issue of financial resources, to have a more balanced share of benefits among local stakeholders, lower expectations in communities and address the issue of social sustainability.

**Recommendations.** Before any first contact is made between a mining company and the local people, the government should lead a formal communication process with affected communities aimed at educating the local residents about the basic economics of mining—the limited job intake capacity; the potential for benefiting the community through an agreed process of compensations that would occur within a process of local development with the active participation of the affected population; the potential for the creation of local services for the mine; and the distribution of royalties and canon.

Channeling of resources to communities through the derecho de vigencia, the canon minero and the recently approved royalties should continue. However, existing concerns that these revenues may end up financing the salaries of the local bureaucracies instead of funding the development priorities of the local communities should be addressed. To help prevent this, the government should establish fiscal mechanisms to oversee the use of the canon and the new royalties to help ensure that these funds are directed to supporting the community plans for development as established in the law of the canon minero. In this regard it is also worth considering the law of the canon minero be amended to allow resources to be used for projects other than infrastructure—e.g. the canon and the royalties could be used to finance local capacity building for adequate management of local business and long-term sustainability of the benefits of mining.

Finally, mining operators should, to the extent possible, avoid compensating affected communities with direct cash payments and instead should seek to support the development priorities of the local communities. Formal benefit agreements should have a participatory monitoring mechanism in place to ensure compliance and timely interventions to improve its implementation. From the first stages of mining operation and throughout the entire life cycle of the mine, both short term physical infrastructure works that will benefit local communities, and long-term local development (LED) projects such as local capacity building should be implemented to promote sustainable development. These types of LED programs are mutually beneficial because they will encourage mines to use and purchase the goods and services of their area of influence for their operations and personnel needs, which will in turn increase economic development and employment opportunities for the local community per se.

In this regard, the Decreto Supremo 042-2003-EM on “Previous Commitment” has set forth the guiding principles for buying local goods and services and hiring local workers, but in order to make these principles plausible, capacity building which enables local enterprises to enter into supply contracts with mining companies and supply quality goods as well as training programs to provide local workers the necessary skills to be employed by the mining company must be developed.

# STATISTICAL ANNEX

## CHAPTER 1

**Table SA.1: Statistics for simulated per capita income by regions  
Different annual growth rates in total income until 2015**

	Real 2002	g=1%	g=3%	g=5%	g=8%	g=10%
<i>Inequality</i>						
Gini	55.67	55.67	55.67	55.67	55.67	55.67
<i>Poverty (Lima)</i>						
FGT(0)	48.2	41.5	27.7	17.8	8.45	5.33
FGT(1)	19.3	15.7	10.3	6.67	3.77	2.98
FGT(2)	10.7	8.67	5.78	4.02	2.75	2.37
<i>Exreme poverty (Lima)</i>						
FGT(0)	14.3	10.9	6.31	4.34	3.29	2.49
FGT(1)	5.31	4.35	3.22	2.67	2.19	1.98
FGT(2)	3.41	2.99	2.49	2.19	1.93	1.83
<i>Poverty (Costa)</i>						
FGT(0)	57.7	49.5	36.1	24.2	11.7	7.65
FGT(1)	24.1	20.1	13.4	8.62	4.47	3.12
FGT(2)	13.6	11	7.18	4.68	2.66	1.97
<i>Exreme poverty (Costa)</i>						
FGT(0)	24.5	19.7	11.9	7.41	4.09	2.93
FGT(1)	8.84	7.02	4.5	3.08	1.98	1.58
FGT(2)	4.83	3.91	2.69	1.97	1.38	1.13
<i>Poverty (Sierra)</i>						
FGT(0)	76.7	72.4	63.3	53.3	39.6	31.1
FGT(1)	45.5	41.5	33.8	26.8	17.9	13.2
FGT(2)	32	28.5	22.2	16.8	10.5	7.34
<i>Exreme poverty (Sierra)</i>						
FGT(0)	58.8	53.6	44.6	35.6	24.5	17.7
FGT(1)	31.1	27.6	21.4	16	9.6	6.5
FGT(2)	20.4	17.7	13	9.25	5.16	3.37
<i>Poverty (Selva)</i>						
FGT(0)	76	71.4	60.8	47.5	31.7	23.7
FGT(1)	41.7	37.3	28.7	21.5	13.3	9.36
FGT(2)	27.5	23.9	17.7	12.8	7.52	5.15
<i>Exreme poverty (Selva)</i>						
FGT(0)	57.4	50	38.2	28.7	17.8	11.8
FGT(1)	26.6	22.8	16.6	11.8	6.69	4.51
FGT(2)	16.2	13.7	9.63	6.62	3.65	2.44

**Table SA.2: Statistics for simulated per capita income  
Different redistributive policies by regions**

	Real 2002	t=10%	t=20%	t=30%
<i>Inequality</i>				
Gini	55.67	51.30	46.51	41.51
<i>Poverty (Lima)</i>				
FGT(0)	48.24	49.33	50.84	52.37
FGT(1)	19.28	18.34	17.44	16.57
FGT(2)	10.69	9.38	8.17	7.07
<i>Exreme poverty (Lima)</i>				
FGT(0)	14.31	11.57	9.33	6.35
FGT(1)	5.31	3.87	2.59	1.59
FGT(2)	3.41	2.15	1.22	0.59
<i>Poverty (Costa)</i>				
FGT(0)	57.69	56.83	55.75	54.58
FGT(1)	24.12	21.10	18.11	15.14
FGT(2)	13.57	10.51	7.86	5.61
<i>Exreme poverty (Costa)</i>				
FGT(0)	24.45	20.10	13.75	7.80
FGT(1)	8.84	5.58	2.94	1.14
FGT(2)	4.83	2.44	0.98	0.26
<i>Poverty (Sierra)</i>				
FGT(0)	76.65	76.22	75.51	74.66
FGT(1)	45.54	39.42	33.32	27.26
FGT(2)	31.95	24.13	17.43	11.87
<i>Exreme poverty (Sierra)</i>				
FGT(0)	58.76	54.42	48.73	39.30
FGT(1)	31.11	22.61	14.66	7.57
FGT(2)	20.37	11.69	5.59	1.91
<i>Poverty (Selva)</i>				
FGT(0)	76.00	75.66	74.63	73.02
FGT(1)	41.72	35.83	29.99	24.23
FGT(2)	27.49	20.54	14.71	9.97
<i>Exreme poverty (Selva)</i>				
FGT(0)	57.39	51.60	44.99	33.36
FGT(1)	26.58	18.87	11.85	6.06
FGT(2)	16.22	9.09	4.28	1.55



## CHAPTER 2

**Table SA.3: Poverty, extreme poverty and inequality by department, 2004**

	Poverty	Extreme Poverty	Gini
Amazonas	60.9	28.9	0.37
Ancash	55.3	23.4	0.38
Apurimac	65.9	30.7	0.36
Arequipa	40.9	10.7	0.37
Ayacucho	64.9	24.9	0.33
Cajamarca	74.2	36.9	0.37
Cusco	59.2	25.9	0.40
Huancavelica	84.4	59.9	0.38
Huanuco	77.6	46.9	0.39
Ica	29.2	2.4	0.33
Junin	52.6	18.3	0.34
La Libertad	48.2	22.5	0.41
Lambayeque	46.7	12.5	0.35
Lima	37.2	4.4	0.42
Loreto	62.7	32.0	0.35
Madre de Dios	20.4	4.5	0.30
Moquegua	37.2	10.5	0.32
Pasco	61.6	27.3	0.34
Piura	60.9	20.8	0.35
Puno	79.2	49.8	0.38
San Martin	57.1	24.0	0.35
Tacna	26.7	5.2	0.38
Tumbes	21.6	1.1	0.31
Ucayali	55.8	30.2	0.40

Table SA. 4: Probability of being poor (Probit estimates)

	Total	Lima	Urban	Rural
	Marginal effects			
Characteristics of the Head				
<b>Demographic</b>				
Age 25-55 years old	-0.026 (0.032)	0.059 (0.066)	-0.038 (0.048)	-0.063** (0.032)
Age more than 55 years old	-0.230*** (0.031)	-0.145*** (0.055)	-0.209*** (0.042)	-0.238*** (0.039)
Female	0.044* (0.023)	-0.019 (0.048)	0.030 (0.034)	0.068*** (0.025)
<b>Marital Status</b>				
Cohabiting	0.181*** (0.033)	0.264*** (0.085)	0.123** (0.061)	0.129*** (0.032)
Married	0.092*** (0.033)	0.173*** (0.065)	0.005 (0.059)	0.082** (0.036)
Widow / divorced	0.048 (0.032)	0.180* (0.096)	0.003 (0.053)	0.016 (0.035)
<b>Education</b>				
Primary	-0.160*** (0.021)	-0.089 (0.080)	-0.075** (0.037)	-0.147*** (0.021)
Secondary	-0.272*** (0.023)	-0.195** (0.093)	-0.171*** (0.038)	-0.281*** (0.030)
University	-0.401*** (0.020)	-0.282*** (0.067)	-0.307*** (0.031)	-0.406*** (0.048)
<b>Employment</b>				
Employer	-0.168*** (0.029)	-0.122*** (0.033)	-0.168*** (0.031)	-0.167** (0.068)
Self-Employed	0.064** (0.030)	0.021 (0.045)	0.067* (0.035)	0.031 (0.059)
Worker "Obrero"	0.086*** (0.029)	0.099** (0.046)	0.076** (0.035)	0.019 (0.053)
Other (Family / domestic worker)	-0.034 (0.046)	-0.009 (0.071)	0.007 (0.052)	-0.150 (0.099)
Informal Sector <sup>1</sup>	0.178*** (0.027)	0.133*** (0.047)	0.128*** (0.034)	0.246*** (0.055)
<b>Industry</b>				
Public Administration	-0.068* (0.037)	-0.050 (0.076)	-0.069 (0.043)	-0.033 (0.062)
Construction	-0.007 (0.030)	-0.022 (0.070)	0.053 (0.038)	-0.09 (0.066)
Industry	-0.053** (0.025)	-0.008 (0.071)	-0.064** (0.027)	-0.071 (0.049)
Services / utilities	-0.163*** (0.018)	-0.107 (0.074)	-0.148*** (0.023)	-0.170*** (0.031)
<b>Household characteristics</b>				
Size of the Household	0.090*** (0.005)	0.069*** (0.008)	0.092*** (0.007)	0.072*** (0.006)

% members younger than 9 or older than 60	0.352*** (0.026)	0.357*** (0.063)	0.341*** (0.040)	0.251*** (0.028)
At least one migrant in the household	-0.162*** (0.025)	-0.046 (0.076)	-0.137*** (0.029)	-0.196*** (0.034)
Income earners over total adults 10 years or older	-0.349*** (0.026)	-0.409*** (0.052)	-0.322*** (0.037)	-0.204*** (0.031)
Employed in informal sector over total adults 10 years or older <sup>1</sup>	0.009 (0.045)	0.144 (0.107)	-0.008 (0.069)	-0.095* (0.052)
<b>Infrastructure</b>				
Water	-0.057*** (0.014)	-0.080 (0.056)	-0.028 (0.022)	-0.066*** (0.016)
Electricity	-0.139*** (0.016)	0.029 (0.063)	-0.207*** (0.034)	-0.125*** (0.016)
Sanitary Services	-0.195*** (0.017)	-0.138** (0.059)	-0.199*** (0.021)	-0.102*** (0.036)
<b>Ownership</b>				
Rent	-0.019 (0.031)	0.077 (0.053)	-0.053 (0.033)	-0.148** (0.064)
Owner of the house (with title)	-0.018 (0.017)	0.031 (0.030)	-0.066*** (0.022)	-0.018 (0.022)
Owner of the house (without title)	0.107*** (0.035)	0.192** (0.081)	0.029 (0.039)	-0.032 (0.060)
<b>Regions</b>				
Urban	0.146*** (0.018)			
Costa	-0.092*** (0.020)			
Sierra	0.120*** (0.020)		0.124*** (0.020)	0.247*** (0.022)
Selva	-0.041* (0.022)		0.147*** (0.025)	0.008 (0.023)
Observations	16,117	1,516	7,203	7,398
Pseudo R-2	0.35	0.34	0.33	0.27

Note: Robust standard errors in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Source: Authors' calculations using data from ENAHO 2003 (INEI).

Table SA.5: Probit by Region 2003

	2003-2004			
	Costa	Sierra	Selva	Lima
<b>Characteristics of the Head</b>				
Age 25-55 years old	-0.018 (0.056)	-0.083** (0.039)	-0.019 (0.057)	0.059 (0.066)
Age more than 55 years old	-0.164*** (0.052)	-0.258*** (0.047)	-0.267*** (0.062)	-0.145*** (0.055)
Female	0.095** (0.044)	0.039 (0.027)	0.036 (0.055)	-0.019 (0.048)
<b>Marital Status</b>				
Cohabiting	0.285*** (0.087)	0.087** (0.037)	0.087 (0.068)	0.264*** (0.085)
Married	0.149* (0.080)	0.001 (0.039)	0.067 (0.070)	0.173*** (0.065)
Widow / divorced	0.065 (0.083)	-0.029 (0.038)	0.068 (0.071)	0.180* (0.096)
<b>Education</b>				
Primary	-0.093** (0.042)	-0.153*** (0.025)	-0.164*** (0.050)	-0.089 (0.080)
Secondary	-0.165*** (0.043)	-0.302*** (0.032)	-0.266*** (0.053)	-0.195** (0.093)
University	-0.276*** (0.033)	-0.457*** (0.036)	-0.422*** (0.050)	-0.282*** (0.067)
<b>Employment</b>				
Employer	-0.157*** (0.041)	-0.192*** (0.051)	-0.064 (0.073)	-0.122*** (0.033)
Self-Employed	0.068 (0.048)	0.048 (0.044)	0.099 (0.067)	0.021 (0.045)
Worker "Obrero"	0.102** (0.049)	0.021 (0.039)	0.087 (0.063)	0.099** (0.046)
Other (Family / domestic worker)	0.016 (0.070)	-0.121 (0.078)	0.074 (0.103)	-0.009 (0.071)
Informal Sector	0.152*** (0.040)	0.154*** (0.046)	0.130* (0.069)	0.133*** (0.047)
<b>Industry</b>				
Public Administration	0.017 (0.069)	-0.109** (0.052)	-0.198** (0.083)	-0.050 (0.076)
Construction	0.112** (0.049)	-0.047 (0.049)	-0.048 (0.090)	-0.022 (0.070)
Industry	-0.079** (0.037)	(0.049)	(0.069)	(0.008)
Services / utilities	-0.085*** (0.031)	-0.190*** (0.026)	-0.260*** (0.035)	-0.107 (0.074)

<b>Characteristics of the Household</b>				
Size of the Household	0.075*** (0.007)	0.092*** (0.007)	0.093*** (0.009)	0.069*** (0.008)
% Members younger than 9 or older than 60	0.243*** (0.050)	0.282*** (0.031)	0.447*** (0.057)	0.357*** (0.063)
At least one migrant in the household	-0.108** (0.045)	-0.177*** (0.035)	-0.269*** (0.049)	-0.046 (0.076)
Income earners over total adults 10 years or older	-0.325*** (0.046)	-0.213*** (0.035)	-0.319*** (0.055)	-0.409*** (0.052)
Employed in informal sector over total adults 10 years or older	-0.01 (0.090)	-0.049 (0.057)	-0.099 (0.102)	0.144 (0.107)
<b>Infrastructure</b>				
Water	-0.042 (0.026)	-0.071*** (0.018)	-0.032 (0.030)	-0.08 (0.056)
Electricity	-0.191*** (0.032)	-0.122*** (0.019)	-0.146*** (0.035)	0.029 (0.063)
Sanitary Services	-0.176*** (0.028)	-0.197*** (0.026)	-0.140*** (0.036)	-0.138** (0.059)
<b>Ownership</b>				
Rent	-0.019 (0.063)	-0.063 (0.041)	-0.120** (0.061)	0.077 (0.053)
Owner of the house (with title)	(0.040) (0.028)	(0.029) (0.023)	-0.088** (0.037)	0.031 (0.030)
Owner of the house (without title)	0.037 (0.039)	0.038 (0.096)	-0.128 (0.089)	0.192** (0.081)
<b>Regions</b>				
Urban	0.149*** (0.028)	0.051** (0.023)	0.339*** (0.035)	
Observations	4,325	7,027	3,249	1,516
Pseudo R-2	0.30	0.33	0.31	0.34

Note: Robust standard errors in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Source: Author's calculations using data from ENAHO 2003.

Table SA.6  
Rural Poor relevant indexes, 2002

	Rural Coast			Rural Highlands			Rural Jungle		
	Extreme poor	Poor	Non poor	Total	Extreme poor	Poor	Non poor	Total	Extreme poor
<b>Characteristics of household head</b>									
Age	45.6	46.2	51.0	48.2	46.4	48.5	52.6	48.5	41.9
Male	9.2	12.9	17.3	14.3	14.9	18.9	22.7	17.9	7.1
Level	90.8	87.1	82.7	85.7	85.1	81.2	77.3	82.1	92.9
Level	81.2	69.5	56.4	65.5	83.5	74.3	64.1	76.2	77.1
No education	18.0	27.6	34.4	29.0	15.7	22.9	23.4	19.5	21.3
Year	0.8	2.9	9.2	5.5	0.8	2.8	12.6	4.3	1.7
<b>Characteristics</b>									
Average Income per head	157.4	238.7	556.1	380.4	111.8	204.4	507.8	236.2	146.0
Land's prices	6.2	5.1	3.6	4.6	5.2	4.1	3.1	4.4	5.7
Land size (#)	2.7	1.7	0.8	1.5	2.3	1.4	0.7	1.7	2.8
Members between 0-13	3.3	3.2	2.4	2.9	2.6	2.4	2.1	2.4	2.8
Members between 14-65	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.1
Members between 66-99									
<b>Public Services</b>									
Drinking water	13.1	28.0	38.1	30.0	32.0	39.3	47.2	37.7	13.1
Electricity	18.0	37.6	55.2	42.2	20.5	34.8	47.8	31.1	13.6
Phone	1.2	3.7	11.3	6.8	2.3	4.2	12.6	5.4	1.3
Durable goods	278.8	696.1	1377.2	939.9	234.3	399.0	796.7	419.4	174.3
Land's prices	119.9	209.2	474.3	317.9	114.8	214.4	448.8	225.2	122.3
NAHO 2002									

Table SA.7

## Rural Peru: Structural characteristics

	RURAL COAST			RURAL HIGHLANDS			RURAL JUNGLE		
	Extreme poor	Non-extreme poor	Non-poor	Extreme poor	Non-extreme poor	Non-poor	Extreme poor	Non-extreme poor	Non-poor
Public sector employment	0.9%	0.9%	4.4%	2.1%	7.1%	12.5%	2.2%	3.0%	13.4%
Paved road	4.0%	8.0%	9.2%	7.6%	9.1%	8.8%	8.1%	12.5%	14.4%
Access to public phone	22.6%	33.7%	31.3%	11.3%	13.0%	12.5%	19.2%	27.8%	27.4%
Access to police	4.6%	3.2%	4.4%	3.3%	3.4%	3.7%	7.9%	12.8%	13.1%
Access to secondary school	22.8%	42.9%	48.3%	23.0%	21.8%	21.5%	32.0%	41.3%	36.9%
Access to health center	31.0%	52.0%	40.5%	27.3%	29.5%	30.5%	42.0%	50.7%	45.4%
Number of assets	1.1	1.9	1.9	1.2	1.3	1.5	1.3	1.9	1.8
Quality of natural resources (1 very poor, 6 excellent)	2.6	2.6	2.3	4.1	4.1	3.7	5.0	4.7	5.0
Agricultural surface (Census)	52,878	46,044	36,337	39,240	37,427	35,789	55,497	61,516	58,574
Percentage of irrigated land	90.7%	95.5%	98.5%	34.4%	36.3%	44.1%	10.3%	14.4%	9.7%
Plots of land by hectare	61.2%	50.9%	37.8%	87.2%	85.7%	86.7%	29.9%	28.8%	27.5%
Area used only for market	42.5%	50.8%	51.4%	9.2%	9.7%	14.5%	27.0%	25.2%	25.3%

Source: ENAHO (Household Survey) 2001 and 1994 Agricultural Census

**Table SA.8**

Rural poverty profile - including ethnicity variable (marginal effects of a probit model)				
	(1) Rural	(2) Rural coast	(3) Rural highlands	(4) Rural jungle
Gender (1=male)	-0.02 (0.02)	-0.00 (0.14)	-0.01 (0.02)	-0.06 (0.06)
Age of household's head	0.00087 (0.00067)	0.00240 (0.00483)	0.00076 (0.00059)	0.00086 (0.00198)
Maximum years of education achieved by a household member	-0.02 (0.00)***	0.01 (0.02)	-0.01 (0.00)***	-0.04 (0.01)***
Number of household members	0.06 (0.01)***	0.13 (0.04)***	0.05 (0.01)***	0.07 (0.02)***
Ratio of members younger than 14 years	0.27 (0.05)***	0.71 (0.29)**	0.21 (0.04)***	0.33 (0.14)**
Ratio of members older than 65 years	-0.03 (0.03)	0.35 (0.30)	-0.05 (0.03)	-0.07 (0.14)
Ethnic group (native language)	0.08 (0.02)***	-0.08 (0.15)	0.06 (0.02)***	-0.00 (0.06)
Number of rooms	-0.03 (0.01)***	-0.05 (0.03)*	-0.03 (0.01)***	-0.03 (0.02)
Earth floor	-0.15 (0.03)***	-0.21 (0.16)	-0.11 (0.04)***	-0.11 (0.05)**
Precarious ceiling	0.04 (0.02)**	0.28 (0.09)***	0.00 (0.01)	0.05 (0.11)
Drinkable water inside the dwelling	0.04 (0.06)		0.02 (0.06)	0.17 (0.14)
Dwelling with electricity	0.02 (0.02)	0.29 (0.08)***	-0.02 (0.02)	0.16 (0.04)***
Received or sent transfers	-0.07 (0.02)***	-0.05 (0.10)	-0.05 (0.01)***	-0.17 (0.05)***
Durable assets	-0.12 (0.01)***	-0.23 (0.07)***	-0.09 (0.01)***	-0.18 (0.04)***
Transportation assets	-0.00 (0.00)	0.01 (0.01)	-0.00 (0.00)	-0.00 (0.01)
Livestock	0.03 (0.01)***	-0.19 (0.11)*	0.02 (0.01)**	-0.09 (0.04)**
Number of observations	4779	252	3647	872
Likelihood (log):	-1811.19	-105.73	-1227.42	-385.00
LR chi2:	16.00	15.00	16.00	16.00
Pseudo R2:	0.28	0.36	0.30	0.28
Standard errors in parenthesis				
* significant at 10%; ** significant at 5%; *** significant at 1%				
Source: Own estimates based on ENAHO (Household Survey) 2001				



Table SA.9

Profile of Rural Dwellers by Income Generating Sources (Probability of choosing specific income sources)						
	Waged Agricultural Income		Waged Non- Agricultural Income		Non-waged Agricultural Income	Non-waged Non- agricultural Income
	$dy/dx$		$dy/dx$		$dy/dx$	$dy/dx$
Age of household head	-0.006 (0.001)	***	-0.015 (0.001)	***	0.005 (0.001)	-0.013 (0.001)
Age of household head squared	0.000 (0.000)	***	0.000 (0.000)	***	0.000 (0.000)	0.000 (0.000)
Household head male	0.002 (0.020)		-0.086 (0.017)	***	0.137 (0.021)	-0.087 (0.021)
Years of education of household head	-0.016 (0.002)	***	0.014 (0.001)	***	-0.009 (0.001)	0.002 (0.002)
Number of rooms in the house	0.005 (0.005)		0.011 (0.004)	***	0.006 (0.003)	0.030 (0.005)
% of members between 14 and 65 years	0.152 (0.026)	***	0.087 (0.019)	***	-0.049 (0.015)	0.086 (0.028)
House with drinking water	-0.054 (0.019)	***	0.033 (0.013)	**	0.005 (0.011)	0.032 (0.019)
House with pipeline	-0.048 (0.038)		0.091 (0.033)	***	-0.093 (0.029)	0.132 (0.043)
House with electricity	0.034 (0.020)	*	0.062 (0.015)	***	-0.070 (0.013)	0.061 (0.020)
House sent or received remittances	-0.022 (0.014)		0.002 (0.011)		0.007 (0.008)	-0.024 (0.015)
Population in town	-0.072 (0.000)	**	-0.143 (0.000)		0.112 (0.000)	0.118 (0.000)

Note \* p&gt;0.10; \*\*p&gt;0.05; \*\*\*p&gt;0.01

Source: Own estimations based on ENAHO IV quarter

Table SA.10

## Characteristics of Rural Peru by Poverty and Source of Income

	Waged agricultural			Non-waged agricultural			Waged non-agricultural			Non-waged non-agricultural			Transfers		
	Extreme poor	Non-extreme poor	Non-poor	Extreme poor	Non-extreme poor	Non-poor	Extreme poor	Non-extreme poor	Non-poor	Extreme poor	Non-extreme poor	Non-poor	Extreme poor	Non-extreme poor	Non-poor
<b>Household's head characteristics</b>															
Age (years)	44.5	45.3	46.0	45.8	47.8	52.0	44.2	45.9	44.3	45.0	45.4	48.4	49.6	51.0	55.5
Sex (%)															
Female	13.1%	13.9%	19.2%	12.3%	14.5%	17.2%	10.0%	10.4%	18.2%	14.5%	15.2%	16.8%	19.7%	22.8%	26.4%
Male	86.9%	86.1%	80.8%	87.7%	85.5%	82.8%	90.0%	89.6%	81.8%	85.5%	84.8%	83.2%	80.3%	77.2%	73.6%
Education level															
Household's head years of education	3.8	4.8	5.8	4.2	4.9	5.6	5.8	7.3	9.9	4.4	5.5	7.1	3.7	4.4	5.6
Primary / without formal education	85.5%	74.1%	64.3%	82.7%	75.0%	68.1%	69.4%	52.1%	32.3%	81.0%	69.5%	55.2%	84.7%	77.8%	68.7%
Secondary	14.2%	23.9%	31.6%	16.5%	22.4%	25.2%	22.5%	31.1%	28.1%	17.5%	26.7%	31.2%	14.5%	19.5%	21.1%
Tertiary	0.2%	1.9%	4.1%	0.8%	2.6%	6.7%	8.1%	16.7%	39.6%	1.6%	3.9%	13.5%	0.9%	2.7%	10.2%
<b>Household's characteristics</b>															
Monthly per capita income (soles a precios de Lima)	144.5	234.5	426.9	109.7	199.1	415.6	168.7	252.8	702.4	127.7	219.5	497.7	119.8	210.5	462.4
Household's size	5.8	5.1	3.7	5.4	4.4	3.5	6.6	5.9	4.1	5.8	5.0	4.1	5.0	4.2	3.2
Members between 0 and 13 years	2.6	1.7	0.9	2.4	1.5	0.8	2.9	2.0	1.2	2.6	1.8	1.1	2.1	1.3	0.7
Members between 14 and 65 years	3.1	3.2	2.5	2.7	2.7	2.3	3.4	3.7	2.8	3.0	3.0	2.8	2.6	2.5	2.1
Members between 66 and 99 years	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.1	0.2	0.2	0.1	0.3	0.3	0.3	0.5
<b>Access to public services</b>															
Water	21.6%	26.9%	33.4%	28.0%	32.1%	38.8%	52.1%	46.6%	49.0%	30.8%	39.7%	53.6%	29.6%	34.9%	43.2%
Electricity	19.0%	31.3%	42.4%	18.6%	29.4%	41.1%	40.8%	48.3%	63.0%	20.2%	36.8%	60.0%	21.5%	34.9%	48.3%
Sewerage	1.8%	1.9%	6.2%	1.8%	3.3%	8.0%	6.5%	8.7%	21.2%	3.8%	5.9%	18.5%	2.2%	4.5%	11.2%
Value of durable assets	257.9	506.9	705.3	227.0	410.3	774.3	350.8	703.7	1560	325.6	558.2	1458	223.0	422.4	881.3

Source: ENAHO(2002)



Table SA.12

**Profile of Rural Dwellers by Income Generating Strategy**  
(Probability of choosing specific income generating strategy)

	nwa + wa dy/dx	nwa dy/dx	nwa + nwna dy/dx	wa dy/dx	nwa + wna dy/dx	wna dy/dx	nwna dy/dx
Age of household head	-0.007 (0.001) ***	0.007 (0.002)	-0.012 (0.001) ***	-0.002 (0.001) ***	-0.009 (0.001) ***	-0.001 (0.000) ***	-0.002 (0.000) ***
Age of household head squared	0.0001 (0.000001) ***	-0.0001 (0.000002) ***	0.0001 (0.000001) ***	0.0000 (0.000001) ***	0.0001 (0.000001) ***	0.0000 (0.000000) ***	0.0000 (0.000000) ***
Household head male	0.015 (0.013)	0.111 (0.022)	-0.016 (0.016)	-0.003 (0.007)	-0.030 (0.012)	-0.020 (0.006) ***	-0.041 (0.012) ***
Years of education of household head	-0.012 (0.002) ***	-0.011 (0.002)	-0.003 (0.002)	-0.001 (0.001)	0.005 (0.001)	0.001 (0.000) ***	0.001 (0.000) **
Number of rooms in the house	0.002 (0.004)	-0.029 (0.007)	0.015 (0.004)	-0.002 (0.001)	0.004 (0.003)	-0.001 (0.001) **	-0.001 (0.001)
% of members between 14 and 65 years	0.046 (0.020)	-0.188 (0.030)	-0.006 (0.024)	0.022 (0.007)	0.003 (0.013)	0.004 (0.002) **	0.005 (0.005)
House with drinking water	-0.023 (0.013) *	-0.024 (0.022)	0.023 (0.015)	-0.013 (0.005)	0.024 (0.010)	0.001 (0.002)	0.008 (0.004) *
House with pipeline	-0.080 (0.017) ***	-0.119 (0.041)	-0.024 (0.027)	-0.012 (0.004)	-0.009 (0.013)	0.012 (0.007) *	0.031 (0.011) ***
House with electricity	-0.009 (0.014)	-0.108 (0.022)	0.012 (0.016)	0.017 (0.007)	0.012 (0.009)	0.004 (0.002)	0.010 (0.004) **
House sent or received remittances	-0.017 (0.011)	0.037 (0.017)	-0.020 (0.012)	-0.005 (0.004)	0.003 (0.007)	-0.001 (0.001)	-0.007 (0.002) ***
Population in town (millions)	-0.021 (0.000)	-0.073 (0.000)	0.113 (0.000)	-0.035 (0.000)	0.004 (0.000)	-0.013 (0.000)	-0.026 (0.000) ***

Note: wa=Waged Agricultural Income; nwa=Non-waged Agricultural Income; wna=Waged Non-agricultural Income; nwna=Non-waged Non-agricultural Income

\* p>0.10; \*\*p>0.05; \*\*\*p>0.01

Source: Own estimations based on ENAHO IV quarter



