

INTEGRATING LEADING AND LAGGING AREAS A Strategy for Making Prosperity for All a Reality¹

1 INTRODUCTION AND OVERVIEW

1. **Uganda's fast growth, which has averaged more than 7 percent during the past 2 decades, has helped reduce poverty**—the proportion of people living in poverty in the early 1990s has declined to less than half, from 56 percent to 24.5 percent by 2010. However, the reduction in poverty was uneven, and in some cases, poverty increased and inequality persists between and within regions. Partly driven by the uneven reduction in poverty, persistent inequality, and rising unemployment, Ugandan authorities have raised concern about the inclusiveness of Uganda's development. New programs, including Prosperity for All,² are being undertaken by the government to raise the incomes of households and, hence, close the income gap.

2. **Many developing countries are facing the same challenge of reducing spatial differences in living standards.** The structural transformation that takes place as countries grow from low to high incomes is accompanied with prosperity in a few places, as has been observed from the history of many developed countries, and is being repeated in many developing ones, such as China, India, Indonesia, and Sri Lanka. According to the *World Development Report 2009: Reshaping Economic Geography* (WDR 2009), unbalanced growth is the norm, but development can still be inclusive. How then can uneven landscapes of growth deliver inclusive development? Using insights from the territorial development framework of the WDR 2009, this Policy Note highlights how policies should be adjusted to make sure Uganda benefits from both uneven growth and inclusive development. It concludes with four main recommendations: (a) to prioritize equity and quality of basic social services; (b) to use infrastructure investments selectively on what it can achieve (place-specific physical infrastructure is best suited to go where it has the largest economic returns, while social and connective infrastructure is needed across regions to promote equity of social services and support mobility); (c) to urgently reform the land tenure system and institutions for land management to make land markets more active; and (d) to use special interventions in the North that are geared at specifically equalizing social services in that region with the rest of the country by, providing market and connective infrastructure to support the market access for internal trade as well as for trade with the Democratic Republic of the Congo and Sudan, and to make land more fluid to support agriculture, given the region's comparative advantage.

3. This note is organized into six sections. Section 2 outlines the geography of living standards. Section 3 describes the transformation that has already happened in the geography of production and how it relates to the geography of living standards. Section 4 analyzes how the fluidity of two important markets in labor and land should contribute to Uganda's transformation and where the constraints to

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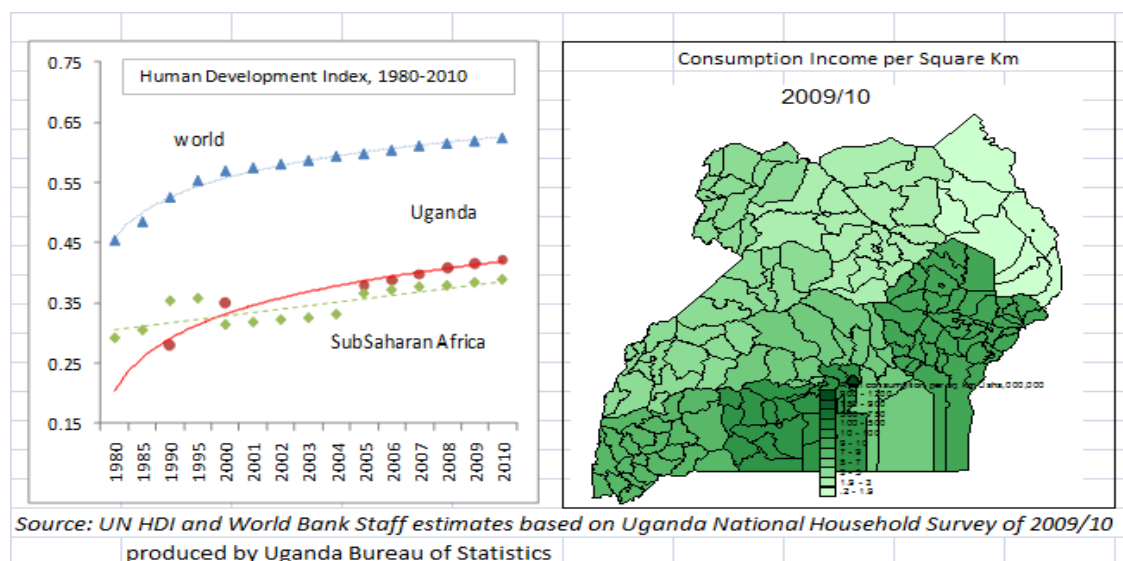
² The Prosperity for All program started as a post-2006 election plan to implement the new government's manifesto. The program aspires to see that every household earns sustainable income to transform itself into an economically viable entity. With particular emphasis on agriculture, the plan envisages raising agricultural productivity through zoning, providing start-up capital and inputs, and supporting mechanization and value addition (agro-processing). It ran parallel to the Poverty Eradication Action Plan and later the National Development Plan, which have been government's poverty reduction strategy program.

increased fluidity could be. A strategy for connecting people to prosperity is presented in section 5. And finally, section 6 concludes with the summary of recommendations.

2 GEOGRAPHY OF LIVING STANDARDS

4. **Uganda has made some progress in improving the standards of living of its people.** According to the United Nations (UN) Human Development Index (HDI), which gives a broader definition of well-being,³ living standards are twice as good as what they were two decades ago. Uganda's HDI increased from 0.281 in 1990 to 0.422 in 2010, compared to Sub-Saharan Africa of 0.293 in 1980 to 0.389 today, placing Uganda above the regional average. Uganda's HDI is ranked 143th out of 169 countries worldwide (left panel of Figure 1).

Figure 1: Welfare of Ugandans Improves Steadily at the National Level, But Not for Some Parts of the Country



5. **Amid commendable progress at the national level, gaps in income welfare remain with some geographical pockets not improving as much as others.** The gaps in welfare at the regional level raise the following question: what extent can public policies work toward balancing living standards to make development inclusive in Uganda? The fact that living standards are unbalanced is corroborated by the spatial concentration of prosperity. The greener consumption density⁴ in the Central and Southwest is a deep contrast to the density in the North and Northeast (right panel of Figure 1). The monthly income consumption of U Sh 1.5 billion per square kilometer in Kampala contrasts miserably with that of the Northeast region of U Sh 1.3 million per square kilometer. Kampala accounts for about 13 percent of the national income but uses only 0.08 percent of Uganda's total land, whereas the Northeast accounts for 1.7 percent using 11.5 percent of the total land.

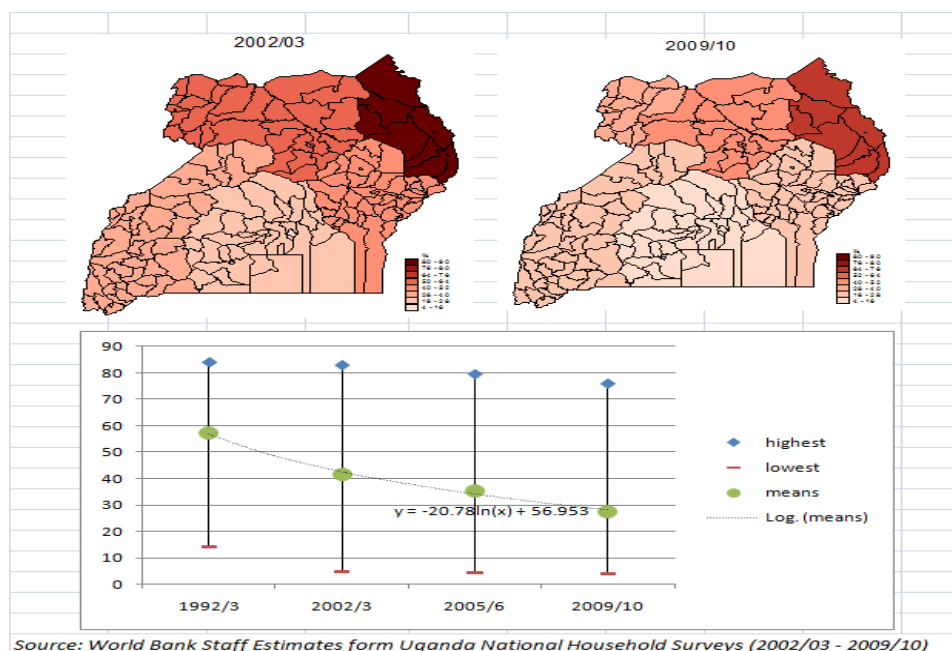
6. **Uganda's progress on the Millennium Development Goals (MDGs) also suggests tremendous effort in raising the living standards of its people.** At the aggregate, Uganda ranks among the few Sub-Saharan African countries that have achieved the first MDG of halving extreme poverty earlier than 2015. In 1992, the proportion of poor people living below the poverty line stood at 56.4 percent, but by 2009/10, it had dropped to 24.5 percent. In 1992, the poverty incidence in the poorest

³ The HDI represents a push for a broader definition of well-being and provides a composite measure of three basic dimensions of human development: health, education, and income.

⁴ Consumption density is proxied as the total household expenditure per square kilometer.

region of the Northeast was 83.9 percent and had dropped to 75.8 percent by 2010. In the richest region, Kampala, the poverty rate dropped from 14 percent to 4 percent during the same period (see Figure 2).

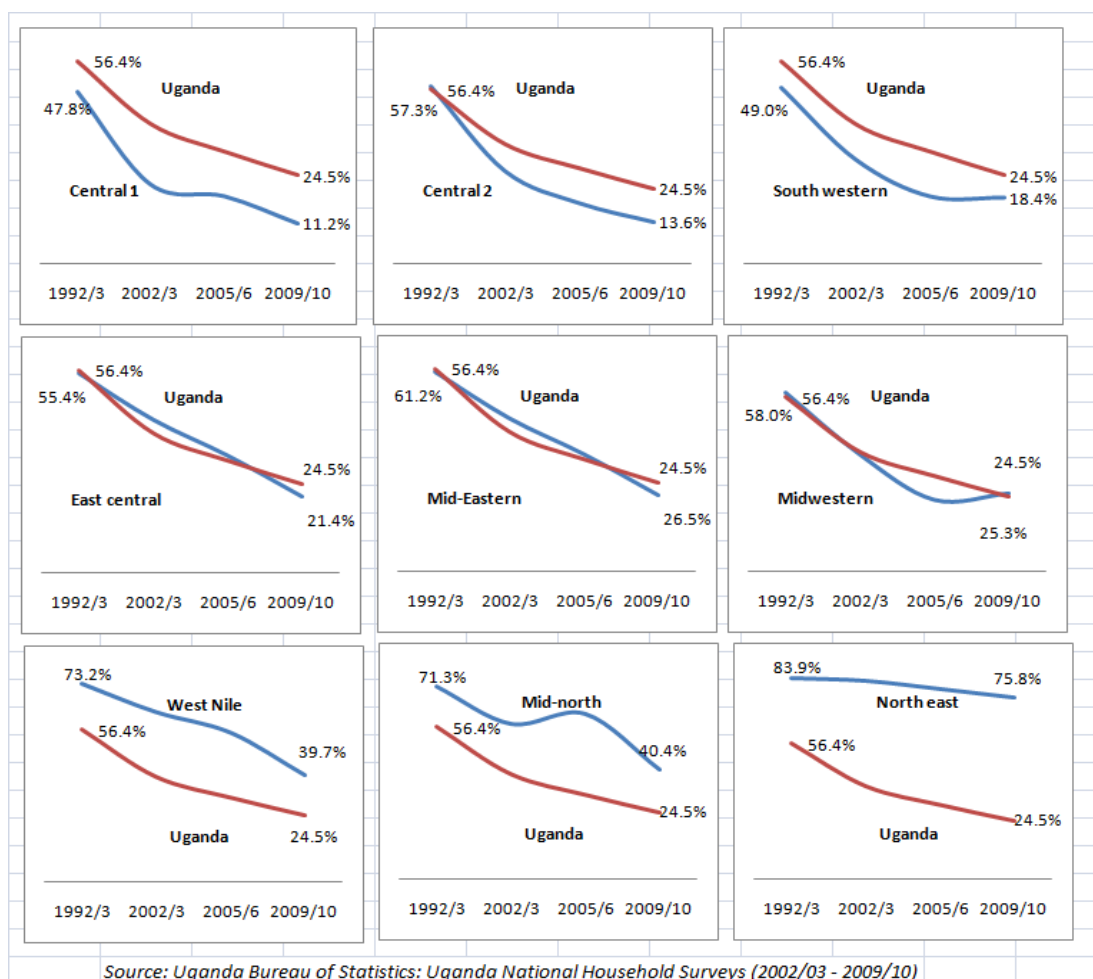
Figure 2: Incidence of Poverty Reduces while Inequality Persists



7. **Nonetheless, progress in convergence of livings standards across subregions is markedly uneven.** The sub-regions⁵ of the Midnorth, Northeast, and West Nile are lagging behind in terms of incidence of poverty, even as the poverty was declining at a faster rate than the national average in the latter part of the 2000s. Kampala is well ahead of other regions with the poverty head count declining from 14.0 percent to 4.0 percent between 1992 and 2010. Beyond Kampala, income poverty was reduced faster and the poverty levels are trending below the national average in Central 2, Central 1, and Southwest regions (see Figure 3). In East Central, Mid-east and Midwest, poverty is trending around the national average. Consequently, inequality has persisted, mainly driven by differences in income within regions. However, the rise in inequality because of differences between regions is increasing too.

Figure 3: Income Poverty Declining, but at Different Pace Across Region

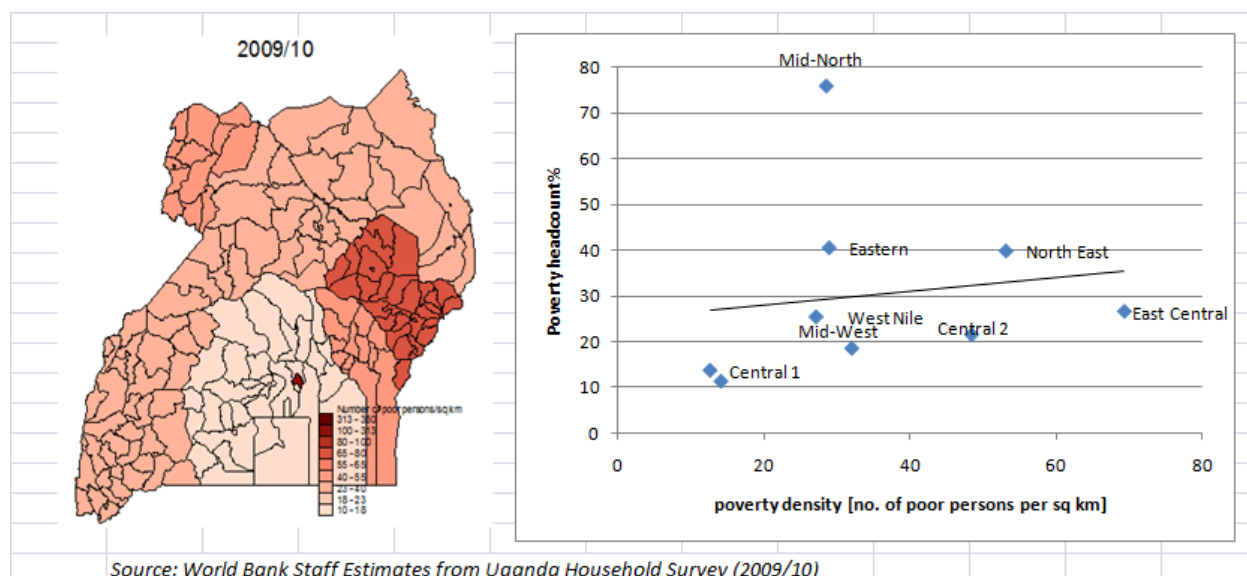
⁵ This analysis is done for 10 sub-regions, disaggregated from 4 broader regions, which include North, West, East, and Central. The North is subdivided into Northeast, Mid-north, and West Nile; the West is divided into Midwest and Southwest; the East is divided into Mid-east and East-Central; and the Central is divided into Kampala, Central 1 and Central 2. The sub-region of **Northeast** includes the districts of Abim, Kaabong, Kotido, Moroto, and Nakapiripiriti; **Mid-north** includes Amolatar, Amuru, Apac, Dokolo, Gulu, Kitgum, Lira, Oyam, and Pader; **West Nile** includes Adjumani, Arua, Koboko, Moyo, Nebbi, Nyadri, and Yumbe; **Midwest** includes Bullisa, Bundibugyo, Hoima, Kabarole, Kamwenge, Kasese, Kibaale, Kyenjojo, and Masindi; **Southwest** includes Bushenyi, Ibanda, Isingiro, Kabale, Kanungu, Kiruhura, Kisoro, Mbarara, Ntungamo, and Rukungiri; **Mid-east** includes Amuria, Budaka, Bududa, Bukedea, Bukwa, Busia, Butaleja, Kaberamaido, Kapchorwa, Katwaki, Kumi, Manafwa, Mbale, Paliisa, Sironko, Soroti, and Tororo; **East Central** includes Bugiri, Iganga, Jinja, Kaliro, Kamuli, Mayuge, and Namutumba; **Central 1** includes Kalangala, Lyantonde, Masaka, Mpigi, Rakai, Sembabule, and Wakiso; **Central 2** includes Kayunga, Kiboga, Luwero, Mityana, Mubende, Mukono, Nakaseke, and Nakasongola; and **Kampala**, which is Kampala district.



8. **Leading areas are not necessarily devoid of poor people.** Although lagging areas have higher proportions of poor people, poverty density is highest in the leading area: Kampala, where the poverty rate is only 4 percent (the average of 312 poor people per square kilometer is almost 30 times that of the neighboring area of Central 1, where poverty density is only 12.6 poor people per square kilometer). Although they do not compare with Kampala, Mideast, West Nile, and East Central also have a very high density of poverty.

9. **Beyond Kampala, poverty density is generally higher in areas where poverty is high.** The exception is the Midnorth, which although very poor, portrays relatively low density of poverty because it also has a very small population density (Figure 4).

Figure 4: Poverty Density Highest in Kampala and the Eastern Region, but Elsewhere Higher Levels of Poverty Have Been Followed with Higher Poverty Density



10. **Beyond income welfare, Uganda has made significant progress toward meeting at least three of the seven MDGs directly related to living standards at the aggregate level, but not across all regions.** Uganda has made progress in reducing the share of the population that suffers from hunger, in promoting gender equality, and in empowering women, while universal primary education has already been met. Uganda is on track to meet the targets for access to the human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) treatment and access to safe water. Nonetheless, performance differs across regions (see Table 1).

Table 1: Several Regions Falling Behind on the Millennium Development Goals

Goals/Targets set in 1990 to be achieved by 2015	Achievement	
	At national level	Districts/regions lagging
Goal 1: Eradicate extreme poverty and hunger		
Target: Halve the proportion of people whose income is less than \$1 a day Indicator: Poverty head count	Surpassed	Midnorth, Northeast, West Nile
Target: Halve the proportion of people who suffer from hunger. Indicator: Prevalence of underweight children under 5 years	On track	North, Southwest
Goal 2: Achieve universal primary education		
Target: Ensure that children everywhere can complete a full course of primary schooling Indicator 1: Net enrollment ratio in primary school Indicator 2: Primary completion rate Indicator 3: Literacy rate of 15-24 year olds	Reversed Reversed Slow	Northeast, West Nile Midnorth East, North
Goal 3: Promote gender equality and empower women		
Target: Eliminate gender disparity and with regard to secondary education and to all levels of education Indicator 1: Ratio of girls to boys in primary Indicator 2: Ratio of girls to boys in secondary Indicator 3: Ratio of girls to boys in tertiary	On track	Midnorth, Midnorth, Midnorth,
Goal 4: Reduce child mortality		
Target: Reduce by two-thirds, the mortality rate for children under 5 years, Indicator 1: Mortality rate for children under 5 years (per 1000) Indicator 2: Mortality rate for infants(per 1000) Indicator 3: Ratio of 5 year olds immunized for measles	Slow Slow Impressive	West Nile, Southwest, North Northeast
Goal 5: Improve maternal health		
Target: Reduce by three quarters the maternal mortality ratio, and achieve universal access to reproductive health Indicator 1: Maternal mortality ratio (per 100,000) Indicator 2: Births attended by skilled health personnel Indicator 3: Unmet need for family planning	Slow Slow Slow	North, West, South west West Nile
Goal 6: Combat HIV/AIDS, malaria and other diseases		
Target: Halt and begun to reverse the spread of HIV/AIDS, malaria and tuberculosis Indicator 1: Condom use at least for high-risk sex(male/female) Indicator 2: HIV infected persons accessing antiretroviral drugs. Indicator 3: Children under 5 years usage of mosquito nets. Indicator 4: Prevalence of tuberculosis	Reversed On track Impressive Slow	East, West East, West West, Southwest West, Southwest
Goal 7: Ensure environmental sustainability		
Target: Reverse natural and biodiversity loss, and halve the proportion of people with sustainable access to safe drinking water and basic sanitation Indicator 1: Proportion of population (rural/urban) using improved water sources. Indicator 2: Proportion of population (rural/urban) using improved sanitation facilities.	On track On track	North, West North, West

Source: Ministry of Finance, Planning and Economic Development, *MDGs Report for Uganda*, 2010 and World Bank staff adjustments

11. **By 2010, Uganda's overall literacy levels reached 73 percent, but the North and East regions still lag behind.** Since the introduction of universal primary education (UPE) in 1997, net enrollment has increased to about 92 percent for boys and girls, and access indicators suggest that all regions have reasonable access to primary education, with good take-up of the services. However, learning outcomes differ significantly across regions. The difference between girls and boys net enrollment has widened and high drop-out rates have resulted in low completion rates in several regions. By 2009, the districts of Kotido, Moroto, and Nakapiripirit, in the Northeast registered completion rates below one-third of the national average for either sex; in addition to even greater differentials within them. Compared to the national average male completion rate of 66 percent, Moroto had 20 percent, Nakapiripirit had 11 percent, and Kotido had 8 percent. Similarly, girls' completion rates in those districts stand at a mere 13 percent, 5 percent, and 6 percent, respectively, compared to a national average of 63 percent.

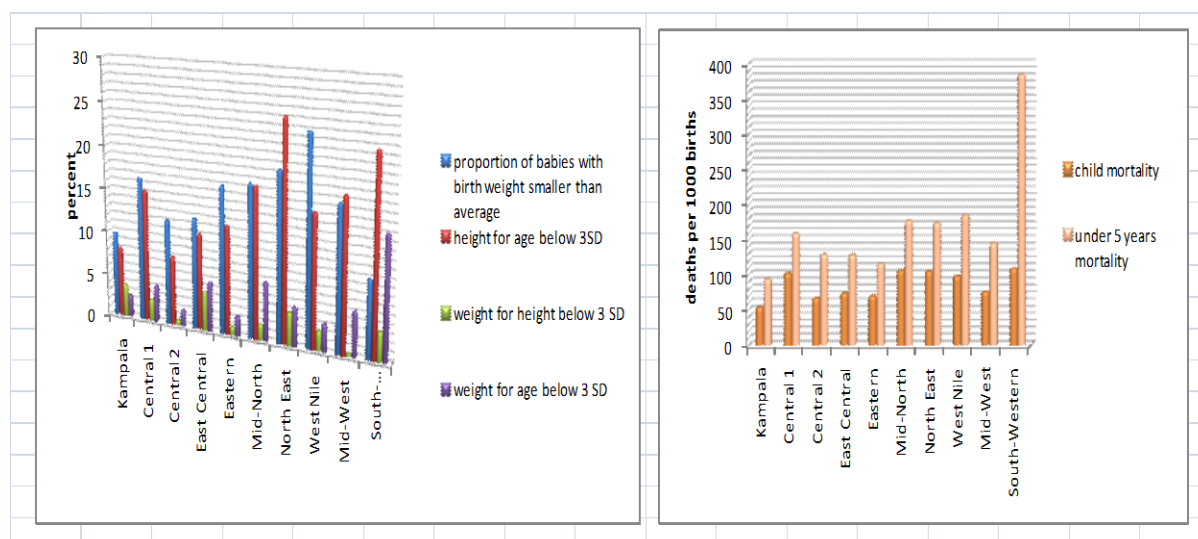
12. **Even within regions—at almost the same level of development in other indicators—differences in education outcomes are appalling.** In the Midnorth, for example, the completion rates for boys in Gulu and Kitgum districts have been higher than the national average since 2004, while the reverse pattern prevails for Pader district for 2006–09. However, much lower completion rates were registered for girls in the three districts over time. Gulu presents a better picture with a registered completion rate of 31 percent in 2004, which increased to 54 percent in 2009 compared to a national average of 63 percents. Kitgum reported similar rates for girls in 2004 (31 percent) but increased to 43 percent in 2009; while Pader had a completion rate of 23 percent in 2004, but only increased to 28 percent in 2009, which is 2.2 times lower than the national average. Students in the Central and West regions are also better on cognitive (proficiency in English and mathematics). These challenges are expounded in a parallel note prepared for this project: “Human Capital for Inclusive Growth”⁶.

13. **Uganda is still challenged on the standards of health of its people at the national and lower levels.** The country has made important strides in addressing some of the most important causes of morbidity and mortality by improving physical access to health facilities and by raising the use of health care and coverage levels for major communicable diseases including immunization. However, only marginal improvements are being recorded in child and infant health and infant mortality indicators at the national level, and the regional differences pose even greater challenges. At 137 per 1,000 live births, nearly one in every seven children born in Uganda die before their 5th birthday, making Uganda's child mortality rate one of the highest in the world. Across regions, the variations are appalling (Figure 5). In West Nile and Southwest, nearly one in every five children die before their 5th birthday. Irrespective of location, more than 50 percent of children deaths occur during the first year of life. Infant mortality stands at a national average of 76 deaths per 1,000 births, but is almost double in the Southwest, North, and Central 1. Infant and child mortality rates are lowest in Kampala, Central 2, and Mideast. The nutritional status of both children and mothers are a major contributing factor to differentials in mortality. There is substantial regional variation in growth faltering, micronutrient deficiencies, and common childhood diseases. Stunting (low weight for age) is highest in the Southwest and Northeast, where more than 50 percent of the children are chronically malnourished and about half of those are severely stunted. And although for every five children under five years of age, one is underweight, the problem is more severe in East Central, Mideast, Southwest, and Northeast. More rural children are likely to be stunted and underweight than urban ones, with the problem more severe for boys. According to the Uganda Demographic and Health Survey (UDHS) 2006⁷ in Central 1, only 9.8 percent of children are underweight, which is in contrast to the 23 percent for East Central. In Northeast, more than one in three children are underweight.

Figure 5: Regional Differences in Nutrition Status and Mortality

⁶ R. Sebudde and I. Mulindwa 2011, “Human Capital for Inclusive Growth”, forthcoming

⁷ Uganda Bureau of Statistics, “Uganda Demographic and Health Survey 2006”, 2007 Kampala



Source: Compiled from the Uganda Demographic Survey, 2006/06

14. **Maternal mortality in Uganda is among the highest in the world, linked to high fertility, adolescence pregnancies, and poor maternity services compounded by inadequate emergency obstetric care.** At the national level, there was a marginal improvement from 500 mothers in 2002 to 435 mothers in 2006 dying for every 1,000 births. According to DHS 2006, although access to antenatal care seems to be well distributed across regions, less than 35 percent of deliveries are done by a skilled provider in the West Nile, West, and Southwest regions. This contrasts with the 89 percent recorded for Kampala.

15. **According to the Health Sector Strategic Investment Plan(HSSIP),⁸ a large part of the disease burden is still attributable to communicable diseases, especially malaria, tuberculosis, and HIV/AIDS.** Malaria, the No. 1 cause of morbidity, has reduced only marginally from 56 percent in 2006 to 52 percent in 2010 (Uganda Bureau of Statistics 2010). The East region, with the highest morbidity rate, also has the highest prevalence of malaria. HIV/AIDS prevalence reduced from more than 15 percent to 6 percent from 1990 to 2000. This positioned Uganda as one of the most successful countries to combat the HIV/AIDS epidemic. Nonetheless, there are growing concerns about new HIV infections. In 2009, according to the National Sero-Survey,⁹ there were about 109,000 new infection cases compared to previous annual estimates of 34,000 new cases.

16. **Inequalities in health outcomes remain a significant challenge.** The North and West regions have the worst health outcomes. But beyond the inequalities in outcomes by social status, region, and rural or urban location, the poor and vulnerable groups bear a disproportionate burden of disease.

17. **Overall, the observed variations in outcomes suggest that living standards are as unbalanced as income welfare.** The next section looks at sources of income welfare improvements—the geography of production—to determine to what extent the interaction between the two geographies can best be managed to connect people to prosperity and, hence, to promote balanced development.

⁸ The government of Uganda prepares five-year Health Sector Strategic Investment Plans (HSSIP) that guide policy interventions. The current HSSIP 2010/11–2014/15 was adopted during the 2010 Health Sector Joint Review in November 2010.

⁹ Ministry of Health, Uganda and ORC Macro, “Uganda HIV/AIDS Sero-Behavioral Survey 2004-05” 2006 Calverton,MD.

3 GEOGRAPHY OF PRODUCTION

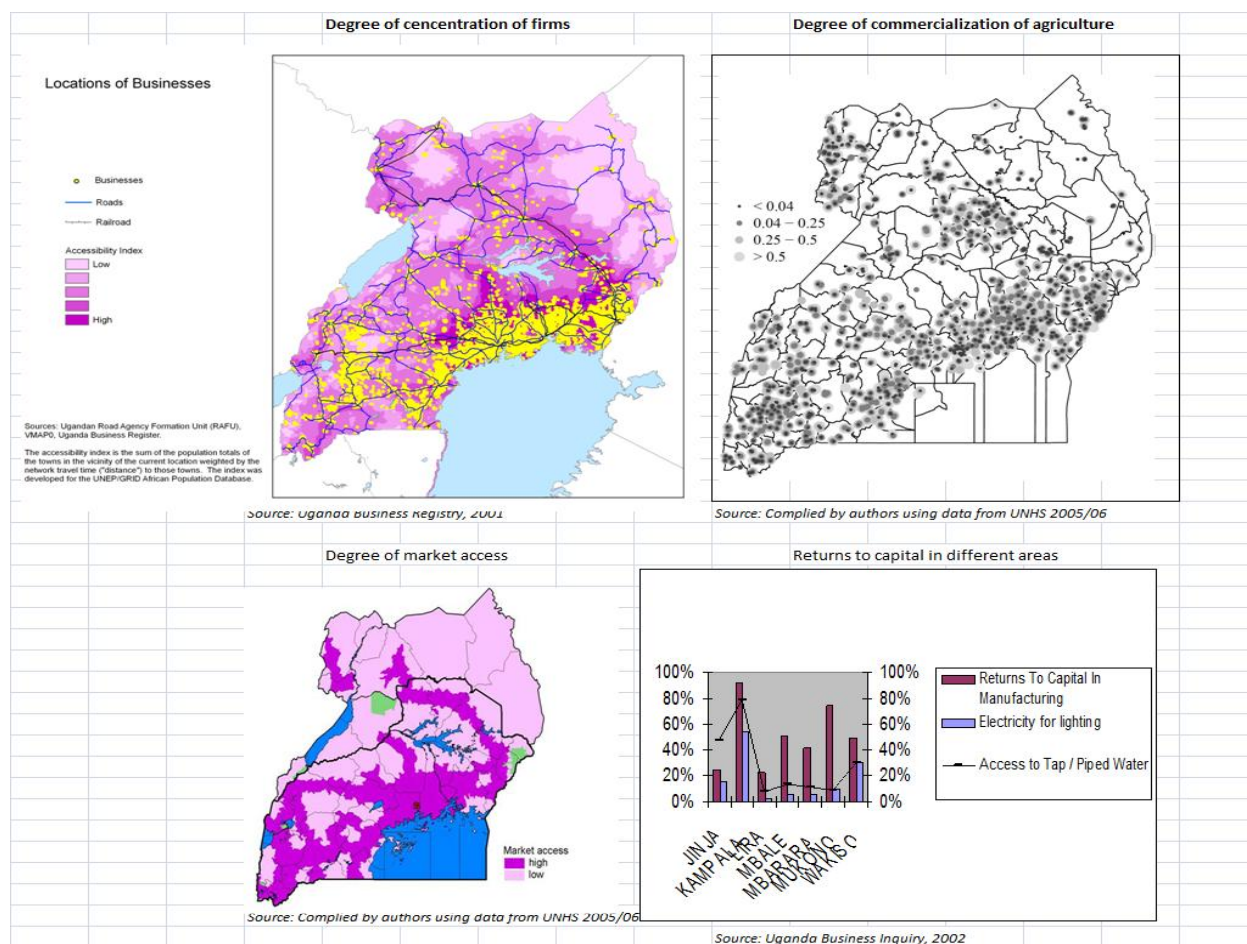
18. **Concentration of economic activity is part of the spatial transformation that comes with development.** This insight is one of the main ones from recent thinking about development from the WDR 2009. In many economies, developed or developing (such as China and Indonesia), industrial and business services value agglomeration economies—they locate near other firms in the same or related industry. Once those spots of agglomeration begin, they usually become the center of attraction for other new firms and, hence, drive the spatial transformation process of the country.

19. **This spatial concentration process is already under way in Uganda even though the original patterns of production may have been formed by history.** Primary products such as coffee, tea, and tobacco exploited the favorable agricultural areas of Lake Victoria Crescent and Highlands in the Southwest. The historical plantations were some of the attraction to concentration as they brought prosperity and attracted other businesses and people for employment. With the liberalization and structural reforms of the 1990s, Uganda started on a path of gradual structural transformation not only in terms of products, but also in getting more spatially concentrated. Data from the Census of Business Establishments in 2001¹⁰ already showed that firms of high productivity activities, including higher commercial value agricultural production, has been geographically concentrated—firms have favored locating around the same Lake Victoria Crescent, encompassing the South, Central, and West regions, and much of the industrial activity is clustered around large towns and along transport corridors. By 2001, most of the country's 12,000 manufacturing firms with five or more employees were clustered along the industrial corridor stretching between the country's major urban agglomerations—Mbarara, Masaka, Kampala, Jinja, and Mbale—closely following the distribution of infrastructure networks and markets. According to Lall, Schroeder, and Schmidt (2009), 70 percent of the manufacturing firms with five or more employees were located within 10 kilometers of a major road. And most of those firms are located in regions that are close to national markets, measured using travel times to cities of 100,000 people or more.

20. **Within agriculture, although production patterns are consistent with the natural potential, the returns realized differ as commercialization suggested more concentration.** The leading region in agricultural income generation is the West, where the farming households select most profitable crops and achieve higher yields. In the East and Central, average yields are lower than in the West, but farmers there obtain higher output prices. In the North, considered to have the highest agriculture potential, most farmers produce low-value food crops and achieve the lowest yields, causing food prices to be among the highest in the country (the rising demand for food in southern Sudan also drives food prices up in northern Uganda). Nonetheless, commercialization, considered to be the key vehicle for transformation of the sector, is also concentrated (World Bank 2011a), following an almost similar pattern to that of industrialization. This concentration suggests that as farms have become firms, economic geography and not natural geography has played a part in shaping Uganda's economic landscape.

Figure 6: Industrial Firms, Business Services and Commercialized Agriculture Are Concentrated Mainly in Areas with Market Access and High Returns

¹⁰ Uganda Bureau of Statistics: "Census of Business Establishments, 2001", 2002 Kampala



21. **The drivers of the concentration of economic activity are clear: firms prefer to set up where they are profitable, close to each other, and with access to internal and external markets.** As shown in a recent survey of industrial location decisions of developing countries, the benefits of agglomeration economies, both within their own industry and for overall diversity, market access and infrastructure endowments outweigh the costs imposed by congestion, increasing wages and prices (Deichmann and others 2008). Zeroing down on the impact on different types of industries in Uganda, Lall, Schroeder, and Schmidt (2009) find that although almost all industries value infrastructure (that is, access to electricity and market access measured by transport connectivity) and human capital, the impact of localization economies are mixed: positive for industries, such as foods and beverages, but negative for others, such as paper and printing (see Box 1). Figure 6 shows a consistent pattern of location of markets, firms, and transforming farms. But the rise in concentration has been accompanied with higher productivity and has contributed to higher growth.

Box 1: Estimation of Location Decisions of Manufacturing Firms

Using the Uganda Bureau of Statistics's Uganda Business Registry 2001, Lall, Schroeder, and Schmidt (2009) estimate a location choice model of all firms that have more than five employees and that were less than five years old at the beginning of the survey. The estimation is limited to "relatively new entrants" to address the concern that older firms may have made location decisions facing considerably different location attribute choices. Across the 56 districts (using the 2002 district definition) firms could choose to locate, the model generally performed very well (98 percent) in predicting where firms would be located. The model is estimated for all manufacturing firms and for selected sectors: food and beverages, textiles and apparel, paper and printing, chemicals and petroleum, rubber and plastics, metal products, and furniture. The box table provides the raw estimates and standard errors from the conditional logit model. The model gives the following results:

- Infrastructure:** *Access to the power grid* has a positive effect on a district's attractiveness for the location of manufacturing activity. The results are significant in all manufacturing estimates. Although the estimates are positive for each of the industry sectors, the food and beverages, garments and textiles, and furniture industries are statistically significant. Because of data constraints, power supply is measured crudely—regardless if the power grid runs through the district.
- Market access:** This factor is measured by *transport connectivity to cities of 100,000 people or more* and is important in determining industry location. Remoteness from market centers lowers industrial prospects. Pooled estimates for all manufacturing industries produce statistically significant effects. Specific industries—such as food and beverages and chemicals and petroleum products—value market access (after controlling for other variables). Estimates for other sectors are not statistically significant.
- Agglomeration:** Given the extent of clustering of firms, one would expect that the presence of own-industry concentration would directly influence location choices—a phenomenon observed when localization (measured as the number of establishments in the same industry within 20 kilometers of each other) is the only determinant of industry location. When other factors are controlled for, the localization variable has a negative effect on location decisions in models using all manufacturing establishments in the estimation. The implication is that competition and prices of fixed production factors increase with industry agglomeration—and make clustered locations more expensive. However, when estimated by sector, the effects of localization are positive and significant for the food and beverages, chemicals and petroleum, rubber and plastics, metal products, and furniture industries. However, for the paper and printing industries, localization economies have a negative effect on location choices. Given these mixed signals from localization industries, why do establishments concentrate production facilities?

The answer to this puzzle is in positive economies that establishments accrue from economic diversity. The estimates of economic diversity for all manufacturing and specific industries are positive and significant. The only exception is chemical and petroleum products in which the estimate is not statistically significant. So entrepreneurs locate establishments in areas that offer a diverse range of economic activities. Three main reasons explain the importance of economic diversity. First is information sharing and innovation. Large cities are breeding grounds for new ideas and innovations because of the concentration and diversity of knowledge sources, which facilitates product and process innovation, and therefore, new products are more likely to be developed in diversified cities (Duranton and Puga 2001). Second, establishments located in large cities have relatively better access to producer amenities, such as business services, finance, logistics, banking, advertising, and legal services, which can enhance economic performance (Abdel-Rahman 1988, Fujita 1988, Rivera-Batiz 1988). Third, on the consumption side, increasing the range of local goods enhances the welfare of households. Thus, economic diversity can yield external scale economies through the variety of consumer and producer goods.

Box Table: Raw Estimates of Location Choices From Conditional Logit Estimation

	All manufacturing	Food and Beverages	Textiles and apparel	Paper and printing	Chemicals and Petroleum	Rubber and plastics	Metal products	Furniture
Infrastructure								
Market Access	-0.0008 [0.0003]**	-0.0012 [0.0007]*	0.0016 [0.0012]	-0.0002 [0.0017]	-0.0417 [0.0193]**	0.0007 [0.0019]	0.0021 [0.0022]	-0.0011 [0.0007]
Electric grid	1.5043 [0.2846]***	2.3627 [0.7139]***	1.8944 [1.0224]*	12.7944 [386.6443]	13.4268 [1059.9987]	15.5558 [1197.6892]	13.7753 [345.9622]	0.6305 [0.3322]*
Agglomeration								
Localization	-0.0007 [0.0002]***	0.0107 [0.0025]***	-0.0001 [0.0006]	-0.0757 [0.0235]***	0.7126 [0.3422]**	0.1058 [0.0178]**	0.0043 [0.0024]*	0.0037 [0.0009]***
Diversity index	2.5932 [0.2546]***	2.9509 [0.4087]***	2.4040 [0.9135]***	3.0168 [1.1395]***	0.4531 [3.996]	4.7781 [1.1240]***	3.4196 [0.8113]***	1.2262 [0.4811]**
Human Capital								
Education	14.0667 [0.4061]***	5.5984 [1.3373]***	14.1216 [1.6408]***	26.4592 [2.8674]***	-14.6166 [14.0647]	4.9415 [2.1058]**	13.0636 [2.6103]***	3.9464 [1.9758]**
Natural Geography								
Roughness	-0.0005 [0.0002]***	-0.0004 [0.0003]	-0.0012 [0.0006]*	0.0002 [0.0005]	0.0066 [0.0026]**	-0.0008 [0.0009]	-0.0015 [0.0006]**	0.0002 [0.0002]
++++Other controls: yields of coffee, cotton and maize								
Observations	86562	28998	6642	8964	2322	4482	12150	21654

Standard errors in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Estimates were bootstrapped 1000 times to produce confidence bands.

Source: Lall, Schroeder and Schmidt, (2009)

22. **Geography of production depicts increasing concentration of economic activities, which has also improved welfare among people living there, including those who were born far away from them.** The highest consumption density is found in Kampala, Central, and West regions. More than 45 percent of people living in Central were born in other parts of the country, a percentage that rises to 74 percent for Kampala alone. The concentration in production is not unique to Uganda, but the unbalanced development needs to be addressed. To reduce the imbalance, policies that foster equality in opportunity, social services, education and health, and service delivery in all areas are paramount.

4 IDENTIFICATION OF CONSTRAINTS TO FLUIDITY

23. As shown in Sections 2 and 3, Uganda's spatial transformation in production is moving toward more concentration. Unfortunately, improvements in welfare and general living conditions are also concentrated, particularly following closely where concentration of economic activity is happening. This has left a considerable number of areas and people in deficient living conditions. Yet, even as transformation leads to uneven production, living conditions should be balanced, making development more inclusive. How can balanced development be achieved? The WDR 2009 highlights that enabling geographical mobility of labor and improving connectivity between lagging and leading areas are key ingredients for countries to gain rapid economic progress and convergence in living standards across places. Where factors are mobile, land-use changes facilitate production transformation, workers access economic opportunity, and products get traded, making land, people, and products the key drivers of transformation. Identifying the constraints that have slowed these transformations is the first step to formulating policies that will connect people to prosperity. This Policy Note discusses the two most important elements: labor mobility and land fluidity.

4.1 Labor Mobility

24. **Labor mobility is one of the key main drivers of geographical transformation because it allows workers to access economic opportunities across locations and mitigates welfare differences that often arise from economic concentration.** Yet in many countries, the common view is that movement of people from lagging to leading areas is a consequence of failed place-based policies. Hence, public policy mistakenly endeavors to curtail this movement. Furthermore, labor mobility is constrained by some natural barriers, such as language and cultural differences, and may be subject to political restriction, explicit or implicit. As is clearly elaborated by the WDR 2009, places where these natural or policy-induced barriers are nonexistent or non-effective, the movement of people is on the rise and contributing to economic development. Countries in South and East Asia are good examples, but the most sustained pattern of internal mobility within developing countries has been from lagging areas, as has been the case for migrations from western Kenya to the coastal areas and from Bihar to Delhi in India. These experiences have demonstrated that the mobility of people, if driven by economic forces, is a positive and selective process as it induces interactions between agglomeration and labor that spurs production. The policy challenge is how to keep them from moving for the wrong reasons, but not how to keep people from moving. Recent research on Sri Lanka¹¹ showed that up to 45 percent of its migrants went to the western province, which is the hub of industrial and economic activity, while another stream moved to the borders of conflict areas in the northern and eastern provinces.

25. **In Uganda, data from the 2002 census shows that people are mobile—about 25 percent of 20–49 year olds (or 6 million people) were not living in their district of birth.** This is quite high given this is a long-term measure of migration. And although the bulk of the migrants moved within their own districts of birth, those who moved out mainly flocked to the Central region. Migration is highest for Central, which by 2002 was home to 3.1 million migrants (45 percent), and closely followed by West,

¹¹ For more information, see World Bank, "Connecting People to Prosperity: Sri Lanka." Report on Sri Lanka, August 2010, Washington, DC.

which had about 1.3 million migrants (22 percent). But the movement from West to Central records the highest extra-regional flow (see Figure 7).

Figure 7: People Are Mobile - Of the 20-49 Year Olds Moving Beyond Their Regions of Birth, the Bulk Flocks to Central as per 2002 Census



26. The movement of people toward Central is consistent with the fact that area, and in particular Kampala and its vicinity, constitutes the hub of most industrial and commercial activity. Within regions, there was a movement of people toward more prosperous regions. Within the Central region, for instance, 41 percent and 36 percent of migrants from Central 1 and Central 2 moved to Kampala. Within the East region, the Mideast, with a poverty density of 100.5 percent in 2002, had 31 percent of its migrants flock to East Central, where the poverty density was much lower at 69.6 percent. Only 5.6 percent of migrants moved from East Central to Mideast. Within the West region, 28 percent of migrants moved from Southwest to Midwest, whereas 7.7 percent made the reverse trek. In the North region, movement from West Nile, with a poverty density of 62 percent, was limited. Instead, people moved from Northeast to Midnorth, partly because of conflict.

Table 2: Origin and Destination of 20–49 Year Old Migrants by 2002

	Region's welfare indicator	Percentage of migrants to the Current sub-region										
Old sub-region	Poverty Density 1/	Kampala	Central 1	Central 2	East Central	Mid-Eastern	Mid-Nothem	North-East	West-Nile	Mid-Western	South-Western	Total
Kampala	308 2/	0	48.2	18	5.5	5.8	3.8	0.3	7.1	7.3	4	100
Central 1	25.3	41.1	36.4	15.4	1.5	0.6	0.4	0	0.4	1.7	2.6	100
Central 2	26.9	36.3	24.4	21.4	7.7	1.7	1.2	0	1	5.3	1	100
East Central	69.6	14.2	5.8	19.5	51.1	5.6	1.1	0.1	1.1	1.1	0.5	100
Mid-eastern	100.5	18.3	5.5	13.8	31.4	23.4	2.7	1.1	0.5	2.4	0.9	100
Mid-Northern	32.6	16	3.2	12.3	4.1	4.2	31.5	1.3	10.9	15.2	1.3	100
North-East	20.1	10.4	3.1	5.5	5.1	11.2	35.9	4.6	3.1	19.5	1.9	100
West-Nile	61.9	16.7	4.6	9.2	3.7	1.5	4.8	1.2	26.9	30.3	1.1	100
Mid-Western	31	19.6	7.4	14.3	1.3	0.9	2.2	0	3	43.7	7.7	100
South-Western	46.9	12.5	19.2	11	0.7	0.4	0.5	0.1	0.1	28.5	27.1	100
East Africa	...	4.2	4.2	4.8	3.1	2.3	0.5	0.1	65.8	10.9	4.2	100
Other Africa	...	60.5	5.9	3.9	10.7	7.8	0	0	3.4	6.8	1	100
EU	...	68.1	4.9	6.9	4.2	3.5	3.5	0	2.1	4.9	2.1	100
Asia	...	75	2.5	2	9.6	3.7	2	0	0.6	3.7	1.1	100
North America	...	52.4	7.9	4.8	9.5	9.5	1.6	0	6.4	4.8	3.2	100
Other/Missing	...	25.7	15.7	4.7	7.7	14	14	0.7	1	9.3	7.3	100
Total		19.7	16.5	13.7	10.6	4.5	3.2	0.3	9.9	14.1	7.5	100
<i>Source: Migration flows compiled from Census of 2001 & poverty density as per UNHS 2002/03.</i>												
Notes:												
1/ Poverty density is the number of poor people per sq km												
2/ Kampala distorted due to large concentration of urban poverty, but its poverty headcount was only 4.7% compared to the national average of 39% in 2002.												

27. **More recently, migration has remained robust, even though this is the short-term measure that looks at residence of people compared to where they lived four years earlier.** In the 2010 Uganda National Household Survey (UNHS), 20 percent of respondents, who were older than 18 years of age, lived in a different location than they had lived in 4 years earlier. On one hand, although people moved away from conflict, a larger proportion sought economic opportunity in the more prosperous areas. Migration was also high in the North region, mainly because of relocation after the end of the 24-year-long civil conflict. Indeed the most important reason for moving in this part of Uganda was “to return home after dislocation.” Of the migrating respondents in the North, 56 percent moved because of that reason, while 22 percent of migrants from rural to urban areas moved mainly because of relocation from gazetted areas. Gazetted centers are mainly created during times of crisis and disasters, as was the case with internally displaced peoples (IDP) camps around Gulu during the peak of the insurgency by the Lord’s Resistance Army. Owing to the political instability in northern Uganda, internal migration is partially involuntary. Uganda had more than 446,000 internally displaced people by the end of 2009, in addition to the 408,000 who had already returned to their villages (UNCHR 2010). Involuntary migration might not be driven by economic factors, but it has implications for economic development. Large numbers of households have been forced to disrupt their activities to escape the conflict in the northern part of the country, which puts a heavy toll on their ability to engage in productive employment while residing temporarily in other areas and immediately after return. As peace returned to northern Uganda and the camps were closed, people moved back to their homes.

28. **Overall, labor mobility has been a significant part of Uganda’s transformation.** What would be the appropriate policy response? Migration decisions depend on both “pull” and “push” factors. The most important pull is the attraction to economic opportunity in places where they exist. Worldwide, people move to big cities to find employment, because these cities are the centers of economic activity. However, people can be pushed off their land by population pressure, by natural calamities that make cultivation nonviable, and by a severe decline in agriculture productivity. Droughts and conflicts are not uncommon in Uganda, where large sections of the population have historically had to relocate because of civil conflicts. This development is also evident in other parts of Sub-Saharan Africa, South Asia, and

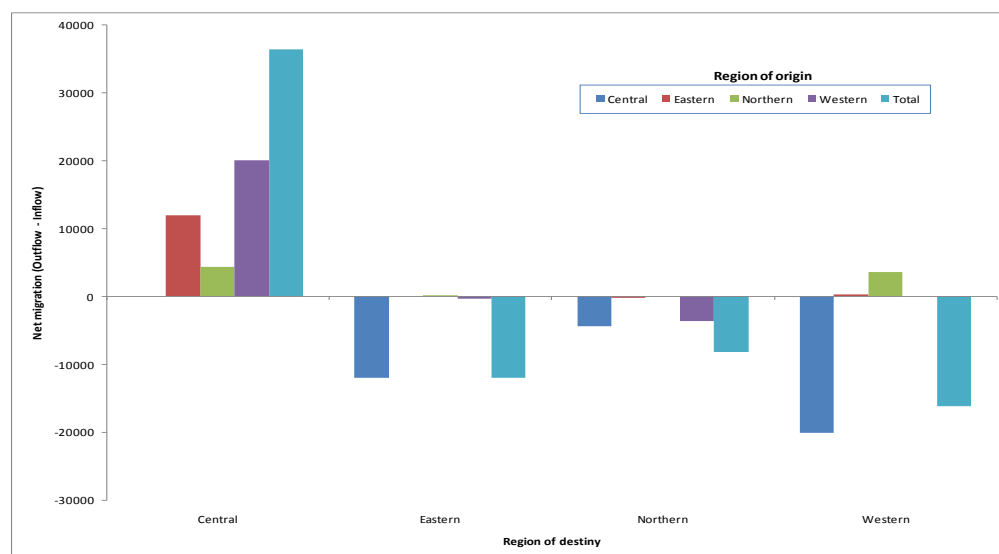
many other developing countries. Another important factor that pushes migrants is the lack of adequate social amenities in economically lagging areas. In many cases, the services are located in areas that are also economically active. In Sri Lanka, migration decisions for people with primary and secondary school education in the 1990s were influenced by district-level differences in access to well water and electricity, particularly for the less educated. In such cases, while market forces push for the concentration of economic activity, large disparities in the provision of public services persist, adding to congestion costs as opposed to contributing to agglomeration benefits.

29. Understanding the drivers behind people migration is critical for drawing a policy response to migration but, most important, for drawing the policy agenda of integrating the leading and lagging areas agenda. So the next section looks at both the pull and push factors.

4.1.1 Looking for Economic Opportunities – The Prosperity Pull

30. **Divergences in prosperity explain part of the mobility.** The Employment and Earnings Survey of 2007¹² suggests that 75 percent of those who consider themselves to be employed (interpreted as availability of opportunities) are in the Central region, irrespective of occupation type. The West region offers 15 percent of the jobs on the market, while the East and North equally share the remaining 10 percent. This concentration is largely justified by the high concentration of sectoral and business activities in the Central region. Divergences in consumption income depict large differences in prosperity across regions. The difference in economic opportunity between the Central region (in particular Kampala) and other less endowed areas was the main motivation for much of the nonconflict related migration. According to the survey, 30 percent of the respondents who migrated were looking for work and other income-related reasons, a percentage that jumps to 36 percent for the Central region alone. Another 21 percent moved to join family, probably to follow another family member who had moved to better opportunities. This information shows that people move in response to economic activities. Within each region, the intra-region movements are most important because they suggest that movements are constrained by long distances and other natural barriers such as language and cultural differences. But, as noted earlier, intra-region movements were underpinned by prosperity as people mainly moved towards more prospering areas.

Figure 8: Net Migration by Region: On Aggregate Movement Is Into Central Region



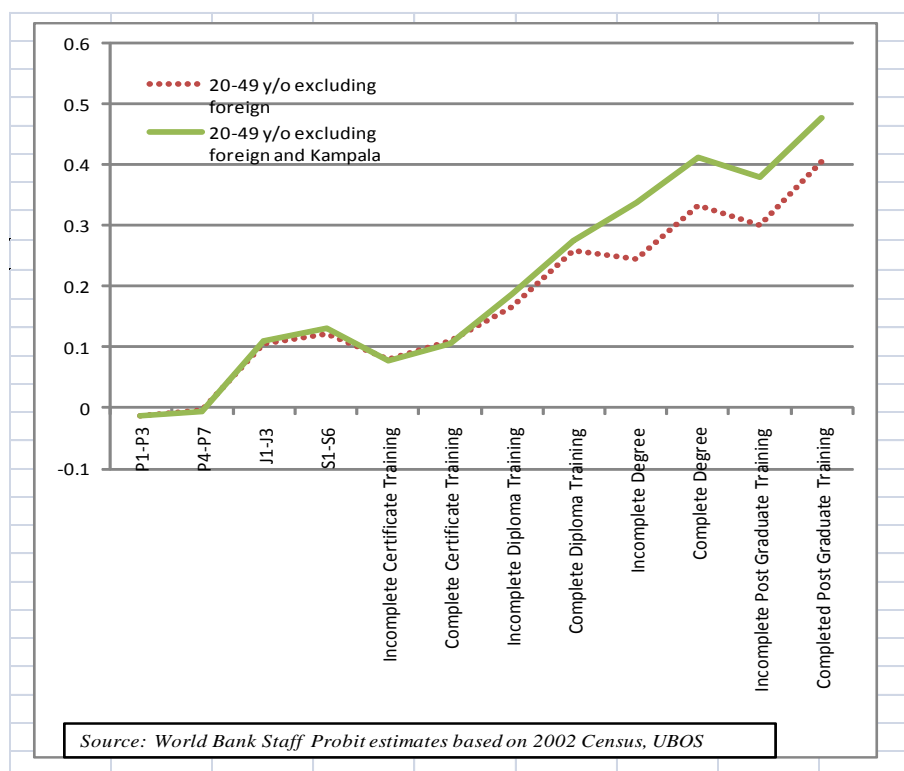
Source: World Bank Staff Calculations from 2002 Population Census, UBOS.

¹² Uganda Bureau of Statistics, "Employment and Earnings Survey 2007", 2008, Kampala

4.1.1.1 Education Is a Worthwhile Investment for Migrants: Those with Better Education Are More Likely to Migrate

31. As education was a key driver of economic and spatial transformations in many developed countries such as the United States, so it is in Uganda. In the United States, education of African Americans was a major factor behind the Great Migration from the South in the early twentieth century. A tracking study between 1968 and 1982 showed that people with more education were more likely to move geographically (See WDR 2009 for details). The same pattern is observed in other developing countries, such as India and Sri Lanka. In Uganda, the 2002 census suggests that for 20–49 year olds, the proportion of those who migrated rises rapidly above 30 percent with some secondary education or some form of certificate or diploma and is more than 60 percent for degree holders.

Figure 9: The More Educated 20-49 Year Olds Are More Likely to Migrate



32. Econometric analysis confirms the probability of migration increases with level of education for the 20-49 year olds. The probit estimation summarized in Figure 7 (see also detailed results in Annex Table ??) suggests that the probability of migration is negative with primary level education. That situation reverses as soon as one enters secondary-level education and quickly increases with more education. According to a regression analysis from data from UNHS 2010, schooling, particularly secondary-level education, was an important determinant of migration decisions for more recent economic migrants. This is consistent with one of the key points of the WDR 2009 that indicates that education is a portable investment and, hence, encourages people to move to better returns.

4.1.1.2 Higher Pay Offs in Economically Concentrated Areas Pull Workers

33. **Education attainment is one of the most important factors that explain income welfare differences between the Central and other regions.** A decomposition analysis using survey data from UNHS 2005/06 shows how differences in household existing endowments (education attainment of the head of household, location, rural or urban, and a series of other social and economic infrastructure variables) and the returns to those endowments contribute to welfare differences between leading and lagging regions¹³. This analysis follows Lall, (2009) using a stepwise process to decompose welfare differences as in Oaxaca (1973) and Blinder (1973).¹⁴ Because the mean rather than the inequality effects largely explain the differences in regional poverty, the decompositions are important because they address the differences in poverty between regions.

34. **The Central region is more endowed, with better infrastructure and better education, particularly as attainment increases.** The results of the analysis also confirm that if the other regions had Central's endowment of infrastructure and household characteristics, they would have average welfare levels between 20 to 25 percent higher than their actual levels. Of this, 10–11 percent would be because of better education endowments and higher rates of urbanization in Central, and 10–14 percent would be because of better infrastructure. These regional differences are important, but the differences in endowments are small when compared to differences in returns on those endowments.

35. **Returns to education are higher in the Central region, especially at secondary and post-secondary levels.** Overall, the weighted average returns in Central were 44 percent higher than those in the North, which portrays the least. However, this margin is highest for post-secondary attainment, while it is only about 10 percent for primary attainment.

36. **The returns to health infrastructure are anomalous, being negative in the Central and North regions.** These negative coefficient estimates could be because of due to collinearity problems, but health infrastructure benefits children more than others, so the returns to this infrastructure, such as schools, will come mostly in the future. But unlike schooling, there is no contemporaneous variable to measure the impact of previous health investments for today's adults. Returns to physical infrastructure are also higher in the Central region.

37. **The differences in returns on household characteristics (of which education is the main element) contribute the bulk to the differences in welfare in the Central and other regions,** as summarized in Table 3. Looking at the North, the most lagging region, differences in return on household characteristics contribute 33 percent of the regional difference, while infrastructure is negative. Of the explained factors responsible for differences in welfare between the Central and other regions, the return differential are more important the more divergent the welfare of the two regions being compared. For instance, the difference in household characteristics contributed 42 percent to the interregional difference in welfare between Central and East, 25 percent between Central and North, and 69 percent between Central and West, while the returns differentials contributed 58 percent, 75 percent, and 31 percent for East, North, and West, respectively.

¹³ See background paper by the Economic Research Centre at Makerere University, "Making Growth More Inclusive: Integrating Lagging and Leading Areas", May 2011, Kampala

¹⁴ In the two-step process, household per capita expenditure is estimated as a function of household characteristics, such as age, education, and community social and economic infrastructure, including whether it is urban, the presence of a health facilities in the community, all-season roads, tarmac roads, factories within 10 kilometers, telephone service, agriculture input markets, agriculture output markets, and electricity. Then the gap between the Central and other regions is decomposed into contribution from endowments and that from payoff or returns. The Datt-Ravallion decompositions also show that the mean difference effects are significantly more important to the poverty differences between regions than are the inequality effects.

38. **That returns to education explain a much larger part of the differences in welfare than the endowments in education, could suggest that there is no perfect mobility of labor.** Differences in returns to education across regions suggest that either people have not moved fast enough to reduce the payoff differences between regions or there is a fast increase in payoffs per returns in leading areas as a result of concentration and agglomeration. Uganda seems to have a bit of both as shown in Figure 8, even though estimation of returns on education could have some bias because education captures a number of other unmeasured individual characteristics, such as ambition, risk taking, and management skills. People with those characteristics tend to migrate while those without do not.

Table 3: Accounting for Welfare Differences between Central Region and Other Regions

	Eastern	Northern	Western
<i>Return Effects</i>			
Due to differences in returns on household characteristics	14	33	5
Due to differences in returns on infrastructure variables	-9	-10	-17
Total for returns:	6	23	-12
<i>Endowment effects</i>			
Due to differences in endowments of household characteristics	10	11	11
Due to differences in Endowments of infrastructure variables	10	14	11
Total for endowments:	20	25	22
Unexplained	43	78	36
Total difference in welfare	69	126	47
<i>Source: World Bank Estimates using UNHS 2005/06</i>			
Notes:			
"Unexplained" is the difference between the constant coefficient in Central region minus the listed region			
The return effects show the change in the listed region's average welfare if it had Central region's regression coefficients (returns to assets)			
The endowment effects show the change in the listed region's average welfare if that region had Central region's endowments			
Reported values are averages of the estimated effects using Central region and the listed region as the reference region			
Total differences in welfare are for the regression samples only			

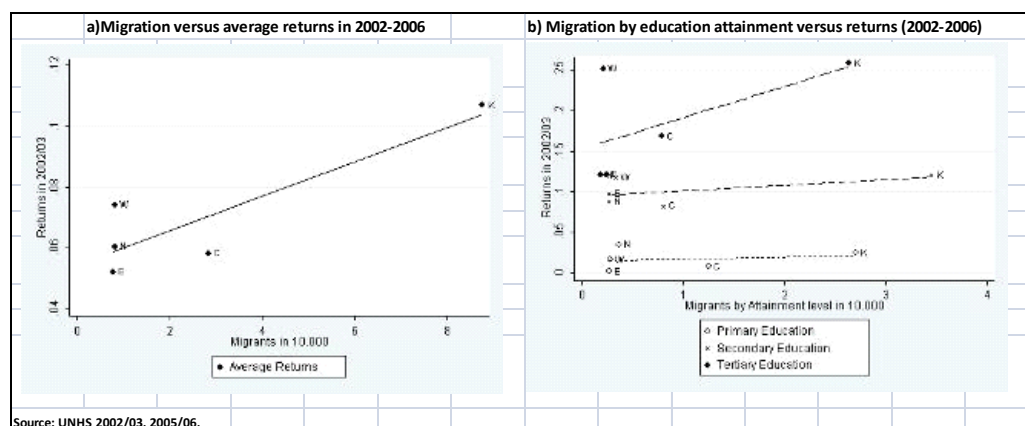
39. **In many parts of the world, labor mobility plays a particularly important role as a force underlying the equalization of returns to education across subnational regions and between rural and urban areas.** Higher returns of education in those areas that are dense with economic activity and, hence, with high demand for skills serve as a price-signal that attracts educated individuals from lagging areas. In turn, when migration takes place and a positive shock in the supply of educated individuals is realized in the host region, returns to educations are expected to decline. Empirical evidence to support that fact has been provided by Kochar (2004) in the case of India. Differences in returns to schooling may as well affect schooling investments from households in lagging areas because prospects in the nonagricultural leading areas (which on average require higher levels of formal educational) improve.

40. **In Uganda, differences in return on wage jobs have been heavily correlated with migration.** Analysis based on UNHS 2002/03–2005/06 suggests strong correlation between regional differences in returns to education before migration and the migration flow that took place in the following five years, both on a regional level and by attainment level. Migration was on average responsive to differences in returns to schooling, mostly because the returns to education in Kampala, which is the host region for most internal migrants, were highest (see Figure 8). When migration and returns to education by educational attainment are differentiated (see panel [b]), migration appears more responsive to return differentials the higher the educational attainment from 2002–2006.

41. **Beyond 2006, whether returns are increasing much faster within the denser areas remains an empirical question.** Analysis based on the UNHS 2010 suggests that overall returns to education are increasing, but the data do not allow robust estimates of the returns on a regional basis. Hence, the result that suggests that returns are increasing fast in Kampala and becoming more divergent between Kampala

and other areas has been treated with caution. Assume that the results are reflecting what is actually happening, then for 2005/06–2009/10, there was an increase in returns to schooling, mainly concentrated in the Central region and Kampala. According to the results, returns tended to diverge further between rural and urban areas. This phenomenon would be consistent if concentration of activity is increasing and migration from lagging to leading areas has not been high enough to induce the self-mechanism of reducing the return differentials during those years. Could there be a fast increase in returns to education? This would be an area of future research when information eventually becomes available to understand labor movements over the past decade.

Figure 10: Role of Returns on Education in Internal Migration, 2002-2006



4.1.2 Looking for social services - the neglected push

42. **In many countries, lack of access to basic social services, such as water, electricity, and health, has influenced migration decisions.** Neglecting these services would overstate the willingness of people to move in response to wage differentials and in search of prosperity. In Sri Lanka, a 1 percentage point difference in the share of water coverage between regions increased the likelihood of individuals with secondary or less education to move by 0.5 percent. In Brazil, differences in access to better services were critical for migrants' decisions, especially for the poor (WDR 2009, Chapter 5). For Uganda, evidence from the household surveys suggests that a significant proportion of the people who changed location were influenced by the deficiencies in access to basic social services. Further evidence is derived from the gravity model estimated using the 2002 Census data (Sebudde and Nkengne, 2011). As summarized in Table 4, this analysis confirms the strong likelihood for migrants to move away from districts with less access to services and infrastructure (lagging areas) to those with more (leading areas), a higher likelihood of moving into those areas with services like mobile phones, a high neighborhood effects and some push due to population pressure. On the contrary, in all the specifications, migrants were not likely to move to districts that were lagging in terms of access to services.

4.1.3 Connective Infrastructure Easing Movement

43. **Distance is an important determinant of migration flows.** Some researchers have attributed the acceleration in migration to increased access to transport and information through increased use of mobile telephony (Nyende 2010). The analysis shows that transport infrastructure is an important motivator of migrants: migration is more likely if the source district has a higher share of people with access to trunk roads. Better roads have enabled people to move, while allowing them to maintain contact with their extended families and former places of residence—a phenomenon quite important in the African social setting. Furthermore, distances to social services, such as education, health facilities, and water, were very important. As the distance traveled by households to the nearest hospital, school, or water source,

increase, individuals are likely to migrate in search of and to be close to those services. Similarly, Sebudde and Nkengne 2011 also show that the longer distances between origin and destination, which also measure the moving cost, discouraged migration.

Table 4: Determinants of Migration by 2002

	Leading/Lagging defined from a factorial analysis of services access					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Log origin population	0.4438***	0.4537***	0.4194***	0.4379***	0.4292***	0.5337***
Log destination population	0.5885***	0.5993***	0.1741***	0.2399***	0.1575***	0.2188***
Log distance	-1.2048***	-1.0940***	-0.8343***	-0.8210***	-0.8288***	-1.1216***
Contiguity dummy		0.2871	0.7722***	0.7871***	0.7803***	
Kampala origin			-0.1451	-0.0522	-0.1427	
Kampala destination			1.7262***	1.9250***	1.7458***	
Wakiso origin			-1.4132***	-1.3390***	-1.4101***	
Wakiso destination			0.7769***	0.9982***	0.7847***	
Mpigi origin			0.2114	0.2840*	0.2170	
Mpigi destination			-1.0414***	-0.7918***	-1.0360***	
Masaka origin			0.8562***	0.9116***	0.8432***	
Masaka destination			-0.0554	0.1544	-0.0400	
Kabale origin			1.8003***	1.8088***	1.8048***	
Kabale destination			-1.4190***	-1.1726***	-1.4243***	
Leading district origin			0.0777		0.1167	
Leading district destination			0.6552***		0.5494***	
Lagging district origin				0.1020	0.1697	
Lagging district destination				-0.6323***	-0.3897**	
Poverty rate origin						-0.0023
Poverty rate destination						-0.0156***
Mobile phone possession rate origin						-1.7912***
Mobile phone possession rate destination						2.3243***
Constant	-2.7761*	-3.6987**	0.2067	-0.5552	0.3277	0.7710
Observations	2,424	2,424	2,424	2,424	2,424	2,424
Pseudo R-squared	0.49	0.49	0.67	0.66	0.67	0.59
Log Lik	-155488	-154625	-100383	-102843	-99301	-124277

Note: *** p<0.01, ** p<0.05, * p<0.1

Source: Sebudde and Nkengne, 2011

4.1.4 Counting the Benefits for the Lagging Areas

44. **Pursuing efficient integration would require improving living standards of those left in lagging areas.** If people are moving, the benefits to lagging areas would come in two major channels. One would be from the stream of transfers from leading areas, which can help reduce the income differentials. The second would be through the increase in wage levels, or payoffs within the lagging areas, brought about by movement of lower skill labor from one area to another.

45. **In an African social setting, where there is a strong tendency for migrants to maintain strong links with their home communities and to continue supporting them, the role of remittances in lifting living standards is quite eminent.** Ugandan households depend significantly on remittances, an experience shared with other developing countries in Asia. Much attention is accorded to foreign remittances—incoming remittances in Uganda amounted to US\$773 million in 2010 (about 5–6 percent of gross domestic product) and were higher than the net foreign direct investment flows in 2009 and slightly less than half of the incoming aid budget in 2008 (World Bank 2011b). Internal remittances, though not very much hyped, are similarly important. For Sri Lanka, domestic remittances contribute as much to per capita income as remittances coming from abroad, and they tend to be more evenly distributed. In Uganda, about 60 percent of the households in the North report receiving remittances, but this increases to 72 percent of the poor in the Central region (see Table 4). Real per capita incomes for households receiving domestic remittances is up to 5 percentage points higher than households that do not

receive such remittances. However, among those households that have at least one migrant, more than 60 percent send remittances, which suggests a strong flow of resources as remittances from those people who have migrated.

46. **As agriculture modernizes and raises productivity, people migrate off the land.** Note that migration from lagging to leading areas, and indeed from rural to urban areas, and urbanization are indeed determinants of agricultural incomes over the long term and should be promoted through all means to induce structural transformation. The limited integration of agricultural labor into the rest of the economy, as suggested in a recent study on integrating the North region with the rest of Uganda (Dorosh and Thurlow 2009), boils down to the limited movement of labor from the lagging areas.

47. **As labor migrates, wages tend to converge.** For the lagging areas that had the lower wages, the upward pressure on wages would be beneficial to welfare.

Table 5: Proportion of Households Receiving Domestic Remittances, by Region and Household Type

Poverty Status	Central		Eastern		Northern		Western	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
<i>All household types</i>								
Non-poor	47.3	34.4	41.1	37.5	51.8	51.0	26.2	36.3
Poor	46.1	72.1	37.0	32.8	61.6	65.4	25.3	10.3
<i>Female headed households</i>								
Non-poor	70.3	71.4	59.4	45.3	68.5	73.9	41.7	50.1
Poor	62.5	100.0	59.9	43.1	71.6	81.1	36.8	9.5
<i>Male headed households</i>								
Non-poor	39.6	20.6	36.8	34.4	46.3	44.2	22.7	33.1
Poor	39.1	57.5	31.6	29.9	57.8	56.4	21.7	10.5
<i>Household has no recent economic migrant</i>								
Non-poor	48.7	33.5	39.9	40.5	52.4	51.8	25.8	33.7
Poor	45.8	75.0	35.6	33.1	62.2	65.2	25.0	10.0
<i>Household has a recent economic migrant</i>								
Non-poor	39.3	37.2	60.3	24.1	43.5	45.7	30.2	47.0
Poor	51.8	35.4	67.3	30.9	48.5	70.2	37.3	13.9
<i>Source: UNHS 2005/06</i>								

4.2 Land: The ‘Mega’ Asset to Support Integration

48. **Making land, a physically immobile asset, more fluid, is important for spatial efficiency of production, but is also critical for integration.** When there are more rewarding opportunities for off-farm activities, including employment, land rental markets can facilitate farmers to migrate from agriculture to nonagriculture as farmers can lease out land (especially if tenure is secure) and get it back when they migrate back from nonagricultural activities. This also happened in Thailand during the boom-bust period of 1997–99. The land sales market play a similar role, though not as prominently, as farmers can sell their land to migrate out of agriculture and buy similar agricultural land when they return from nonagriculture. The growth in land markets depends on a whole host of factors, with registration of land rights and an efficient and open land registry ranking high. However, marketability of land would support the mobility of people as they would generally convert this immobile asset to support their migration decisions.

49. **International experience confirms the direct link between migration and fluidity of land markets.** During the 1980s and 1990s, hundreds of millions of people migrated from agricultural to nonagricultural areas in China, Peru, Thailand, and Vietnam associated with the transformation of the nonfarm economies. While the movement of people was in all cases driven by economic opportunities outside agriculture, there is enough empirical evidence that the movement was facilitated by the emergence or strengthening of land rental and sales markets, underpinned by institutional strengthening of land rights. In rural China, when land tenure security was strengthened through the elimination of administrative reallocation of agricultural land and the introduction of land-use certificates, existing landowners rented their land to others and migrated to the booming coastal areas and cities where they found more attractive wages. This change increased the share of migrants in the labor force from 5 percent in 1988 to 17 percent or a total of 124.6 million in 2000, with an expected increase to 200 million in 2020 (Hertel and Zhai 2004; Deininger and Jin 2007). Gains in productivity of land use through land rental were estimated at 60 percent (Deininger and Jin 2007).

50. **In several countries, increased activity in the land market and accelerated migration has been associated with the strengthening of land tenure security.** Following a better land tenure system adopted in Vietnam in the early 1990s, the share of land held under long-term use rights increased from 25 percent in 1993 to 88 percent in 1998, participation in rental markets quadrupled from 3.8 percent to 15.8 percent, and the incidence of migration by households rose from 29 percent to 64 percent (Deininger and Jin 2003). In Thailand, close to 3 million people left agriculture to join the booming urban sector from 1988 to 1996 (Coxhead and Plangpraphan 1998), but the rural-urban migration was partially reversed by the 1997 financial crisis, which shrunk the urban population by 1.2 million by 2001 (Thadaniti undated). The large back and forth rural-urban movement was facilitated by improved land tenure security and increased land market activity that were facilitated by Thailand's successful 20-year land titling program (Pagiola 1999; Brits, Grant, and Burns 2002). In Peru, documentation of full legal ownership of land was estimated to increase supply of labor to the market by about 50 percent (Deininger 2003).

51. **In Uganda, although land is a treasured asset within lending and lagging areas, its fluidity is hampered by insecurity characterized by unclear property right, disputes, and conflicts.** At least 60 percent of households own land, while only 39 percent of rural land that was individually owned was purchased. Central has the largest market with 59 percent, West with 47 percent, and East with 39 percent, while in the North, only 9 percent of land is purchased. Nonetheless, because of a lack of rights on the land, a large proportion of land remains outside the market. Furthermore, for those who tried to sell, 37 percent of the land could not be sold, 34 percent could not be rented, and 44 percent could not be used as security for a loan (Uganda Bureau of Statistics 2010). This problem is partly attributed to the predominance of the *mailo* land tenure system, which is beset by overlapping land rights between those who are registered owners and the lawful occupants as per the Uganda Land Act of 1998. However, in the West, East, and North regions, customary land tenure systems restrict the sale of land to community outsiders.

52. **Movement of labor can also support the developments of land markets.** Historically, some of the migration in Uganda was from land-poor areas to land-rich areas, and it was the driver of rural land markets. A good example is the migration of people from the land-poor areas of Kigezi to the land-rich Central and West regions to support the development of coffee, tea, and sugar plantations, among other activities. This movement raised efficiency in both Kigezi and Central and West regions as they have all done relatively well in terms of poverty reduction compared to the North and East regions perhaps because of remittances from migrants and increases in productivity associated with land rental and sales markets in the land-poor areas. However, migration into northern Uganda, primarily Acholi and Lango, which are land-rich, has remained marginal because rural land markets have been nearly absent because land is communally owned, with serious restrictions on selling agricultural land to outsiders.

53. **The state of land markets and existing institutions to support them need to be addressed if fluidity of land will support the territorial integration process.** The reforms needed to make land more fluid are discussed in the parallel note prepared for this project, “Uganda: Planning for Urbanization.”

5 POLICIES FOR INTEGRATING LAGGING AND LEADING AREAS: HOW TO CONNET PEOPLE TO PROSPERITY

54. **The gradual transformation of Uganda, both in terms of what it is producing and where it is producing, is driving more economic concentration.** But living standards are also unbalanced. The framework of territorial integration for the WDR 2009 views the challenge of economically integrating places as that of reducing distances between people: one common characteristic of lagging areas is that they are economically distant from those that are prospering. But how is distance reduced? The WDR 2009 advocates for a careful choice of public investments to generate the highest payoff for economic efficiency and spatial equity. In particular, territorial integration policies aimed at connecting people ought to emphasize less of providing economic opportunities in lagging to more on strengthening interactions between the areas. The policies adopted need to be tailored to specific challenges. For example, in China, where lagging areas are sparsely populated, the policy response would be different from what is needed in Brazil, where the poor are also located in the leading areas. Uganda’s challenge for integration somewhat spans across both aspects among the lagging areas, a number of them are sparsely populated, like the North East, but there are also some very poor, but densely populated areas like Mid-Eastern, Mid-Western, and East-Central. Poverty density is highest not only in the less prosperous East region, but also in Kampala. This Policy Note outlines the most appropriate policies calibrated to meet the severest of challenges for specific areas, while preserving economic efficiency.

5.1 Prioritizing Between Social and Physical Infrastructure Investments

55. **Similar to many countries, Uganda considers infrastructure to be an integral part of territorial development.** Boosting physical infrastructure is one of the four pillars of the National Development Plan (NDP) 2010/11–2014/15, consistent with the CEM 2007 (World Bank 2007), which identified infrastructure as the main binding constraint to growth. The NDP identified the key infrastructure gaps, including (a) improving road transport, which caters to 90 percent of transport requirements of the country, but where only 4 percent of roads are paved; (b) raising power generation capacity and access, which given that only 11 percent of the population has access to grid electricity, consumption stands at 60 kilowatts per hour per capita per year and cost is double that in Kenya and Tanzania; (c) rehabilitating the railways in information and communication technology, for which coverage is still too low and the cost too high for businesses; and (d) improving access to water for production, where consumption stands at 21 cubic meters per capita, compared to the world average of 599, partly reflecting low access to irrigation. Pronouncements on increasing spatial equity in all infrastructure is appealing, but even if they were affordable, they are not likely to generate a win-win situation for economic efficiency and spatial equity. How to achieve this win-win situation requires differentiating the roles different types of infrastructure—social infrastructure and physical infrastructure—could play.

56. **Spatial prioritization of investments in infrastructure can be complicated if the tradeoffs between economic efficiency and short-term welfare gains is taken into account.** Spatial priorities for investing in physical- or place-specific economic infrastructure, such as roads, should follow economic returns. However, allocating public investments to social infrastructure, such as schools, health facilities, and connective infrastructure, is guided by the impact of such investments on household returns to welfare. Spatially connective policies, such as transport and communication infrastructure, support growth and also link leading and lagging areas. Details on priorities for place-specific economic

infrastructure are elaborated in “Uganda: Planning for Urbanization.” The choice of the policies that would be more effective in reducing interregional differences in living standards would also be judged on the relative return to the investment.

57. **Improving welfare of households is best achieved by investing in social infrastructure, such as education and health (portable investments).** This is the main result from the analysis of returns on households estimated from a spatial production function regression¹⁵ estimated to guide prioritization of resource allocation between social services and physical infrastructure investments. As summarized in Table 6, after taking into account private capital, labor (human capital), and other exogenous variables such as weather and type of land tenure system in the region, road investments in lagging areas such as the North and East, do not seem to be as effective in raising welfare as they produce a negative return on income per worker. In contrast, the income per worker return on portable investments is highest and most significant in the lagging areas. This underscores the policy recommendation in WDR 2009 of ensuring equity of social services for successful territorial integration. Improving education and health does not only improve productivity in places where people live, but also helps people when they decide to seek opportunities in other places. Place-specific infrastructure investments not only produce lower returns to workers’ income per capita, but also create tradeoffs with aggregate economic performance.

58. **There are some positive returns on public infrastructure investment in water provision in the lagging areas, which can stimulate household productivity.** The return on water infrastructure investments is highest in the East region, indicating that faster growth in incomes per worker can be realized by allocating more to water infrastructure to the East region, followed by the Central region.

59. **In terms of the welfare impact, education attainment would still be the most significant contributor to household welfare, irrespective of location.** The welfare regressions as used in section 2 and summarized in Annex Table 7 suggest that although the impact of infrastructure is positive, it is not as large as education and is smallest for the lagging East. The multicollinearity problem does not allow us to confidently interpret the coefficients individually: however, there is positive and relatively higher effects of the all-season feeder roads and agricultural markets in the North compared to the negative recorded for Kampala. This suggests the need to be very selective in the type of infrastructure that can be used effectively to improve welfare in the lagging regions.

60. **The Uganda government has achieved a lot in terms of promoting equity of social services, yet genuine access is varied because of distances traveled to get to those services.** People in the Central and West regions travel shorter distances to access social services compared to counterparts in the North and East regions, although significant variations exist within regions. And although bad weather, insecurity, and poor maintenance affect usability of roads, the impact is gravest for lagging areas such as the North. The government, therefore, needs to invest in connective infrastructure that can support real access to available services.

Table 6: Economic Returns on Investments Vary by Region

Variables	North	Central	East	West
Private capital	0.415*** (0.0711)	0.399*** (0.0213)	0.344*** (0.0367)	0.0715** (0.0223)
Labour	0.362*** (0.0779)	0.0819* (0.039)	0.435*** (0.0329)	0.495*** (0.0237)
Road infrastructure	-0.712***	0.132*	-0.618***	-0.225***

¹⁵ Please see the background paper from Economic Policy Research Centre “Making Growth More Inclusive: Spatially Prioritizing Public Investments on Infrastructure” 2010, Kampala.

	(0.174)	(0.0617)	(0.0551)	(0.040)
Water infrastructure	0.0566	0.412***	0.499***	0.122***
	(0.076)	(0.117)	(0.0649)	(0.0177)
Social infrastructure	1.333***	-0.0292	0.774***	-0.452***
	(0.211)	(0.0962)	(0.148)	(0.0526)
Land ownership:				
Leasehold	-2.043***		0.408	2.741***
	(0.193)		(0.264)	(0.247)
<i>Mailo</i>	-0.882***	0.581*	0.506*	0.813***
	(0.11)	(0.269)	(0.232)	(0.103)
Customary	4.409***	2.284***	-2.080***	2.010***
	(0.246)	(0.311)	(0.37)	(0.164)
Rainfall	0.240***	0.289***	-0.157***	0.185***
	(0.0319)	(0.0352)	(0.0289)	(0.0297)
Constant	-13.61***	1.752	-10.48***	10.36***
	(0.0913)	(1.106)	(0.0889)	(0.073)
N	531	794	1605	1547

Notes: Standard errors in parenthesis. * = significant at the 1 percent level, ** = significant at the 5 percent level, *** = significant at the 10 percent level.

Source: Economic Policy Research Centre “Making Growth More Inclusive: Spatially Prioritizing Public Investments on Infrastructure” 2010, Kampala.

5.2 Broadening Coverage, Quality and Accessibility of Social Services

61. **The two most important social services to facility integration are education and health.** These services form the bedrock of policies aimed at integrating leading and lagging areas. First, availability of education and health services ensures that people do not change locations in search of those services, allowing authorities to understand the key factors underlying people movement. Second, education and health improves the caliber of people moving and raises their chance of securing economic opportunities. As argued in WDR 2009, labor movements that allow concentration of skills and talent contributes more to agglomeration benefits than to congestion of places where the labor has moved. As discussed next, the Uganda government ought to promote equity in provision of the services.

5.2.1 Education Access and Quality

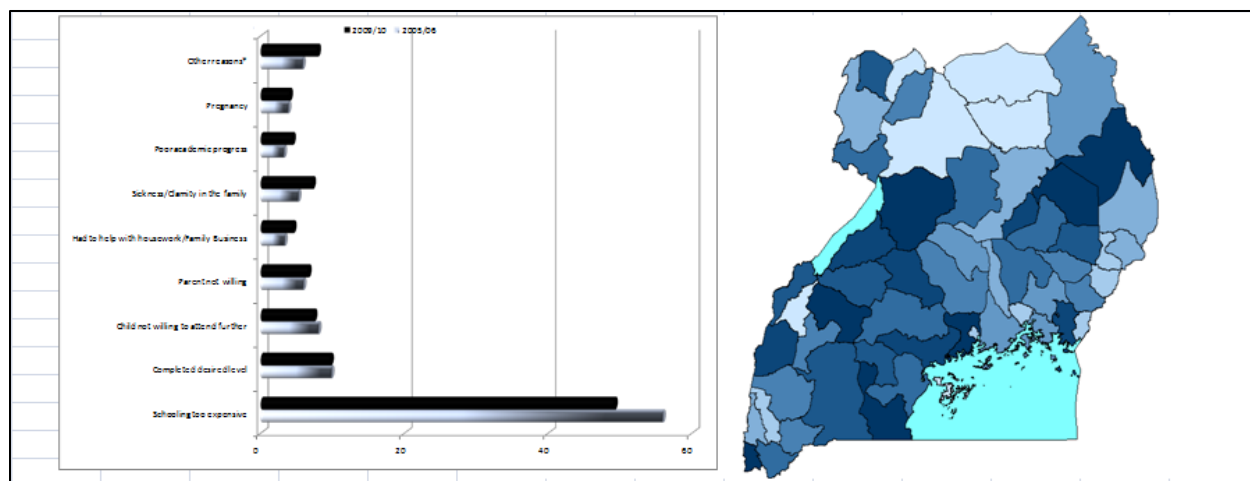
62. **Education reform programs have raised enrollment in both primary and secondary schools and increased the average years of schooling of the working labor force.** Two ongoing mass education reforms (UPE, which started in 1997, and post-primary education and training, which started in 2007), have seen access to primary education increase from about 5.2 million in 1995 to about 7.8 million by 2009; hence, the net enrollment ratio for primary education in Uganda is more than 92 percent, with parity between boys and girls at the national level. Access, measured as the number of communities reporting having a school in their region, is becoming increasingly balanced. The challenge that remains is to improve quality of education for better outcomes and development of skills for a transforming economy.

63. **A private public network of schools provides education services.** According to survey data from UNHS 2009/10, children in lagging sub-regions were more likely to attend public primary schools. This pattern is also true for secondary schools. Kampala, with the highest economic density, has the least percent of children attending public schools. The most plausible explanations are the limited access to public schools as discussed earlier and the quality of education offered in the schools. Use of public schools by children from poor households was higher than the national average. Noteworthy is the relatively higher proportion of children from poor households attending private schools in Midnorth and West Nile. The observed improvement in household incomes (Ssewanyana 2010) partly explains the increasing demand for private schools. Another observation is a higher use of the other schools (including the mission or church) among the poor households in West Nile and Central 1.

64. **Overall, there has been improvement in access to government primary schools even among poor households.** However, there is limited access in some subregions, even those with higher economic density, such as Central 1 and Midwest, and subregions with low economic density, such as Midnorth. Access in the Midnorth is partly influenced by the government resettlement program, as discussed earlier. Also, households have more access to primary than secondary schools, and public health centers are farther away than schools. For example, 53.3 percent of households were less than 3 kilometers from the nearest government primary school, whereas 69.1 percent were more than 3 kilometers from the public secondary school. All in all, poor households are more likely to live in communities with less access to public health centers and secondary schools—with the exception of those residing in Northeast. There are no marked differences with poor households' average access relative to the subregional averages. Similar to income poverty reduction, there is uneven progress in accessing these public services and a persistence of spatial disparities over time.

65. **The learning environment differs across regions.** Compared to the average class size of 40 pupils in Central, the North averages 76 students. Similarly, a teacher instructs an average of 96 pupils per call in the North, while the same teacher would teach 39 in Kampala. Teacher shortage is gravest for graduate teachers in the West (85 percent), which has the largest shortage. Nonetheless, for the lower grade teachers, the North has the largest shortage. Except for Kampala, infrastructure at schools, such as safe water, toilets, and libraries, are miserable in the East and North. Dropout rates are highest in the North, but only for the lower primary levels: P1, P2, and P3. In the upper primary levels, dropout rates are highest in the East (see Annex Table 4).

Figure 11: Cost of Schooling and Distances Traveled Affecting Education Outcomes

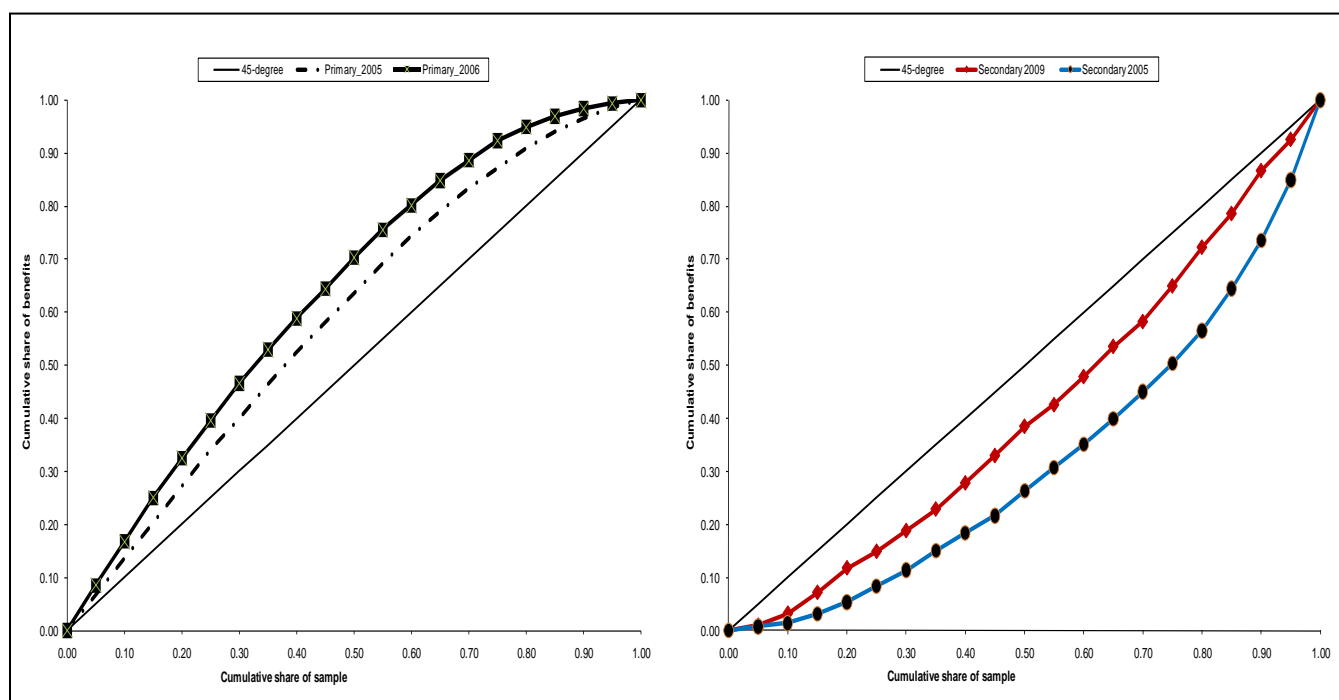


Source: World Bank staff calculations using UNHS 2005/06 and UNHS 2009/10

66. **To improve education quality, resource reallocation choices need to be made. The Uganda government has increased spending on education during the recent years to support the primary and secondary universal access program. Nonetheless, with the spatial inequities just highlighted, and the increasing population exerting pressure on education, the government needs to rethink its strategy of providing higher education at the expense of quality at the foundation levels of primary and secondary schooling, and it needs to reduce the inefficiencies that exist within the sector (World Bank, 2007).**

67. **Interestingly, public spending on both primary and secondary schooling is increasingly benefiting the poor and those in the lagging areas.** A benefit-incidence analysis summarized in Figure 10 suggests that the benefit to the poor increased between 2006 and 2010. On a regional basis, the lagging areas of East and North benefit more from public primary and secondary education spending compared to other regions (see Annex Table 5). Nonetheless, if concerns about the quality of public primary education are taken into account (Ssewanyana and others 2008), the trends suggests that the poor benefit more from primary education that is of poor quality than those who are more well off. Indeed, the analysis suggests that children from poorer households are also increasingly benefiting from private primary education—the shares for the bottom two quintiles increased from 22 percent to 29 percent during 2005/6–2009/10.

Figure 12: Benefit Incidence of Spending on Primary and Secondary Schooling



Source: World Bank Staff Calculations using UNHS 2005/06

5.2.2 Health Services Coverage and Quality

68. **Uganda has a National Health Policy (2010/11–2019/20) and a Health Sector Strategic and HSSIP 2010/11–2014/15, which aim to provide a package of essential preventive and curative services under a sectorwide approach.** These guide implementation of priority programs: child health, HIV/AIDS, malaria, tuberculosis (TB), reproductive health, immunization, and sanitation. In spite of elaborate policies and strategic plans, progress has been mixed. Apart from malaria, use and coverage of

most health services stagnated or even declined: population residing under 5 kilometers radius, outpatient use, facility deliveries, immunization coverage, and availability of qualified health workers (HSSIP). By 2010, only 33 percent of deliveries took place in health facilities and 54 percent of households were using bed nets—and all these with huge regional variances. Immunization coverage fell below 80 percent in 2010, after recording positive gains in the previous years.

69. **The key challenge is how to overcome a focus on improving availability of critical health sector inputs, such as human resources for health, medicines, and supplies.** In addition, the institutions and implementation capacity particularly at the district level need to be strengthened, particularly in view of the increasing number of districts. The cost of providing health services is rising rapidly, mainly driven by the fast population growth, but also by the need to adopt newer and more effective health technologies, which are costlier. A significant part of the government budget (10.7 percent in 2010) is allocated to the health sector, but the bulk of donor funding remains off budget, which constrains the development of sustainable institutional arrangements for health budget management.

70. **The health sector faces enormous challenges in terms of inefficiencies and waste, such as absenteeism of medical personnel and persistent drug stockouts (partly because of waste and poor logistics management).** The new impetus on addressing these bottlenecks to service delivery within the budget support framework need to be emphasized, as should the new sector investment plans to scale up critical cost-effective interventions, to improve efficiency and effectiveness of service delivery, and to deepen health stewardship, with priority given to strengthening human resources for health, to improving functionality of the existing health infrastructure, and to increasing the availability of medicines and supplies. The recent Public Expenditure Review on Health¹⁶ highlights the need to strengthen the management of health human resources, drugs procurement, and logistics management.

71. **Although a national nutrition policy and a strategy are in place, their implementation is limited.** Beyond the micronutrient programs (iodine, vitamin A, and iron), programs for broader malnutrition remain weak. Severe malnutrition is a focal problem, mainly in Northeast, in particular Karamoja, and among some sections of the population, especially the previously displaced populations in the North. The Ministry of Agriculture is responsible for coordinating the Food and Nutrition Council; however, there are few qualified nutritionists in the country, and poor coordination of nutrition activities undermines progress.

72. **On HIV/AIDS, the focus on preventive measures and sensitization need to be widened and strengthened given the trend of new infections.** Preventing mother-to-child transmission of HIV, the other main driver of the epidemic, deserves more attention. The government and development partners' commitments and support have made services, such as voluntary counseling and testing, prevention of mother-to-child transmission, and condom distribution, more easily accessible and available to most health facilities. Also, HIV treatment opportunistic infections (OIs) and antiretrovirals provision has exponentially increased. Further strengthening of the links with communities and nongovernmental organizations (NGOs) in the HIV/AIDS prevention and mitigation measures will be valuable.

73. **Uganda continues to make steady progress on the control of communicable diseases.** Over the recent years, there has been 100 percent district coverage of directly observed treatment of TB; expanded integrated management of childhood illness, insecticide-treated bed nets, intermittent dysentery treatment (IPT), immunization programs, home-based management of fever for malaria, and taking advantage of increased resources from Global Health Initiatives. In 2010, more than 90 percent of households in targeted districts received indoor residual spraying (IRS) for malaria, while the TB cure rate was 75 percent. The National Malaria Control Program is receiving substantial technical and financial assistance from the U.S. President's Malaria Initiative (PMI). Fifty-four percent of households have insecticide treated bed nets, compared to 34 percent in fiscal year 2006. Prompt treatment for

¹⁶ World Bank, "Fiscal Space for Health in Uganda", Working Paper 186, 2008 World Bank. Washington DC.

malaria has remarkably increased in the recent past, and the treatment policy was changed to Artemisinin-based Combination Therapy (ACT) in 2008. A strategy on IRS was developed and is being rolled out. Because of these actions, Uganda is registering a decline in total outpatient malaria cases, which dropped by almost one-third between 2006 and 2009. This would have to affect the morbidity rate more strongly as it was declining only modestly from 56 percent to 52 percent during the same period.

74. **A benefit incidence analysis for health, based on per capita expenditure quintiles, shows that public spending on health centers is per capita progressive.** In particular, the bottom two quintiles account for at least 51 percent of the public spending on health centers. However, public spending on hospitals mainly benefits the richest households. Indeed, compared to the poor, the richest households benefit more from public hospitals and private clinics. NGO health centers mainly benefit the poorest households, while NGO hospitals benefit the richest households. With regard to geographical subregions, the lagging areas of Midnorth (Acholi and Lango) and Northeast (Karamoja) account for a disproportionate share of public health centers, and over time, the shares of benefits has dramatically increased—driven primarily by the Northeast subregion.

75. **On water services, notably piped water, bore holes and other publicly provided water facilities (protected springs and gravity flow schemes), the benefits of piped water appear to benefit the richer.** For bore holes and other water facilities, the largest beneficiaries are the poorest households, which account for a larger share of the public services. Kampala accounts for an increasing share of piped water users—35 percent in 2009/10 up from 21 percent in 2005/6, while the West has registered a systematic decline in overall share of piped water benefits. Similar changes in regional shares are observed for bore holes—with the share for East Central and Midnorth declining while the bore holes benefiting the Northeast (Karamoja) increased dramatically between 2005/06 and 2009/10. Indeed, in 2009/10, the Northeast had a disproportionately large share of bore holes. The changes in the Midnorth—from bore holes to other water facilities—can be partly explained by the resettlement of former IDPs back to their communities. In the IDP camps, bore holes were the predominant source of water (Ssewanyana and others 2006).

5.3 Targeted Intervention for Northern Uganda

76. **Uganda is ethnically and religiously heterogeneous, with tribes in the northern part of the country barely able to communicate to southerners if they were to use their own home languages.** Such barriers partly explain why people tend to move only within their regions in northern and central Uganda. Worse still, the North has just emerged from a protracted civil conflict. Although it is difficult to estimate the causal impact of the conflict in the North on output, analysis¹⁷ suggested that displacement has had an impact on a number of important variables. Compared to those never displaced in the North, former IDPs have (a) 34 percent less assets than the rest of the country; (b) 1.5 less years of schooling, with only 17 percent of primary graduates transitioning to secondary; (c) equal access to health facilities but longer distances to access health services and very deviate outcomes, particularly for infant and mortality rates; and (d) poor access to trade and markets. The analysis also shows that the displacement impact was significant and varied on households' assets, years of schooling, and occupation choice of individuals. For example, household assets of the Langi in relation to Acholi (the control group) reduced more severely than that of the West Nile region (see Table 7). Similar results are obtained on the impact of conflict on human capital development and occupational choice. But the delivery of social services was much lower, and remains low, compared to other regions.

¹⁷ See N. Fiala, 2010, "Development After Conflict," background paper prepared for the Inclusive Growth Project. The analysis estimates the production loss associated with the difference in human capital and investment between the North and the rest of Uganda because of the conflict using a Cobb-Douglas production function. Data from the different regions are used to calibrate the model and to present the potential impact of the conflict.

Table 7: Negative Impact of Displacement More Severe on Household Assets of the Langi Than West Nile.

	Full Sample	Acholi and West Nile Sample	Acholi and Langi Sample
Did the head of household reside in an IDP camp in 2004?	-0.342*** [3.71]	-0.152 [0.87]	-0.350*** [3.12]
Observations	3515	1347	961
R-squared	0.22	0.25	0.28

Source: Fiala 2010

Notes: T statistics in brackets. * = significant at the 10 percent level; ** = significant at the 5 percent level; *** = significant at the 1 percent level. Controls used include a dummy for whether the household was in an urban or rural area in 2008, sex and age of head of the household, size of household in 2008, the lagged value of each variable of interest from 2004, and region dummies.

77. **Raising education levels stands to be the most beneficial to raising growth in the North, followed by infrastructure.** Whereas northern Uganda significantly lags behind the rest of the country in output, public investment, services, human and physical capital, the analysis also shows that raising education levels in the region to match the national average would grow the region by more than 23 percent compared to similarly calibrated growth rates of 7 and 21 percent for services and infrastructure developments, respectively, assuming overall productivity stays constant. This again emphasizes the importance of social services and associated connective infrastructure in raising the plight of this lagging area. However, targeted interventions will need to complement social service provision and production in this part of the country. A deliberate effort to equalize access to social services and connective infrastructure cross-regions would already lead to a massive investment in the North, which is lagging in several areas. Unique challenges even in the delivery of social services include the need to attract teachers to the region, to replace school facilities lost because of the war, and to change the culture and mindset about education.

78. **Beyond education, special interventions need to focus on the identified comparative advantage in the area.** The end of conflict in Sudan opened up a new era of market access for the North region. From a situation of limited market access and long distances to carry produce to Kampala, the North is both a supplier and an access route for many goods that are being transported between the Democratic Republic of the Congo, Sudan, and Uganda. Building a connective infrastructure and a market infrastructure would be crucial to nurturing this aspect of development of the North.

79. **The country also needs to tap the agricultural potential in the North as identified by several studies.** Agriculture is the No. 1 source of revenue for people in the North, which will also ensure quick return to normalcy. While the interest in animal husbandry is strong, most of the products consumed today still come from Kampala, as the revival of the industry is encumbered with lack of access to capital, animal husbandry skills and knowledge, and advisory services. Furthermore, as mentioned earlier, land is a big constraint to developing agriculture in the North because lack of fluidity constrains investors, large-scale farmers, and migration of labor from land to other nonagriculture enterprises to leave way for productivity improvements.

80. **Lastly, with respect to industrialization, Uganda needs to carefully choose industries that have a comparative advantage to locate in the North than in already existing agglomerations and density in the corridor, because this change will shift resources away from where they are best productive.** Moreover, if all effort is put on intervention, then division will increase between the North and South.

6 SUMMARY OF POLICY PRIORITIES

81. **Uganda's growth process is being accompanied with a fundamental spatial transformation, which is increasingly becoming more concentrated and uneven.** This is not unique to Uganda, as similar transformations have been observed by different countries, such as China, Indonesia, Japan, and the United States, and many other parts of the world that are prospering. Making development more inclusive involves connecting people to prosperity—a principle behind the WDR 2009 territorial development framework. This makes countries benefit from the uneven growth and get inclusive development.

82. **By identifying the constraints to mobility, this Policy Note highlights policies that will enable Uganda to integrate faster, making development more inclusive while transformation accelerates economic growth.**

83. **First, prioritize equity and quality social services.** Equity in access to social services is the bedrock of economic progress and connects people in lagging areas to economic opportunity in leading areas. Because these empower people to seek economic opportunity while leveling geography of basic living conditions, these are the sharpest instruments for integrating leading and lagging areas. Access to some of the services, such as education, is nearing equitable access, but access to others, such as health, is not. The challenge that remains is to ensure effective services through quality enhancement, particularly in the lagging areas. In education, rather than expand universal tertiary education, it is worth investing in the quality of primary education, to address causes of dropouts, including the long distance to school to promote a more meaning full primary education system. For areas that are remote, it may be worth considering consolidating places where enrollments are low and using the savings to improve the teaching environment in lagging areas. In health, access is improving, but the sector is characterized by a multitude of problems that range from inefficiencies to waste. By recognizing that public spending on hospitals mainly benefits the richest households, a resource reallocation could be made within the sector to support staffing of lower health facilities, particularly in the remote lagging areas, while also working with NGO health centers.

84. **Second, use infrastructure selectively depending on what it can achieve.** Whereas physical infrastructure ought to be prioritized based on its economic returns, connective infrastructure in remote areas would promote better access to social services, while connecting people from these areas to more prosperous ones. Improvements in road infrastructure in the Central region have a higher likelihood of raising national income than all the other areas. Connective infrastructure may enhance national economic growth by investing more in the Central region because it is efficiently used by household in generating household incomes, which is fundamental to overall development. The negative returns on road investment in the three regions of the North, East, and West implies that road investment allocation in Uganda is done more on an equity basis rather than on efficiency grounds to promote regional balanced development.

85. **Third, land reforms will be instrumental in supporting the much needed transformation and mobility of people.** The areas to reform are elaborated in the Policy Note on urbanization.

86. **Fourth, special interventions will be needed for the North region in particular for education.** Given the impact of conflict, special interventions, particularly in accelerating education and health services, are needed to allow the region to overcome the deep shock suffered on account of the conflict. Specific interventions to make land more fluid will be particularly important given the land tenure system in the North as it is also one of the key drivers for agricultural development in the region.

87. **To be most effective in connecting people to prosperity, these policies need to be tailored to specific challenges in the different locations depending on the density of the population and the distances between the leading and lagging areas.** As mentioned earlier, in China, whose lagging areas are sparsely populated, the policy response would be different from what is needed in Brazil, where the poor are also located in the leading areas. Uganda has to carefully choose its policies as it has some of both types of lagging areas. In the sparsely populated lagging North East, provision of quality social services (education and health) may be the best option for integrating this part of the country. The Eastern and Mid-Western parts of Uganda that are densely populated, but also lagging are characterized by misplaced densities that need to have social services, but also infrastructure connecting them to leading regions, in particular to the leading Central region. Lastly, while the Mid-North and West Nile are sparsely populated, these regions are also separated from the more prosperous South due to natural barriers like languages and have in the past been left behind partly on account of the protracted civil war. These factors justify special interventions that have been started through the Northern Uganda Recovery and Reconstruction Program and the NUSAF, to accelerate the pace of recovery in production, and also for it to catch up with regard to social services. Table 5 summarizes these policies.

Table 8: An Instrument per Dimension: Priorities for Integrating Leading and Lagging Areas

Location/sub region	North East	East Central, Mid Eastern, Mid-Western	West Nile, Mid North
Challenges	Sparsely populated lagging areas	Densely populated lagging area (economic distances and misplaced population densities)	Sparsely populated lagging areas with internal division (economic distance and internal divisions)
Policies should facilitate integration	Labour & capital mobility	Labour & capital mobility	Labour & capital mobility
Policy priorities			
Spatially blind institutions:	Improve health and education outcomes, safe water supply and sanitation	Improve health and education outcomes, safe water supply and sanitation	Improve health and education outcomes, safe water supply and sanitation
	Improve fluidity of land market	Improve fluidity of land market	Improve fluidity of land market
Spatially connective infrastructure		Improve communication (transport, information flow) infrastructure for connectivity with the leading areas, in particular, Kampala metropolitan area	Improve communication (transport, information flow) infrastructure for connectivity with the leading areas, in particular, Kampala metropolitan area
Spatially targeted interventions			Incentives to agriculture and agro-based industry, e.g irrigation support, workforce training, local transport infrastructure. Amplify market linkages
<i>Source: World Bank Staff; Using the WDR 2009 Territorial Integration Framework</i>			

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Annex

Annex Table 1: Children's School Attendance by Ownership

percent

Subregion	Primary schools			Secondary schools		
	Public	Private	Other	Public	Private	Other
Kampala	31.4	65.6	3.0	29.1	66.9	4.0
Central 1	50.0	47.2	2.8	29.4	67.6	3.0
Central 2	57.9	37.3	4.8	42.0	55.6	2.4
East Central	73.2	23.3	3.5	60.5	37.9	1.5
Mideast	91.8	6.0	2.2	75.8	23.5	0.7
Midnorth	95.9	1.9	2.2	72.2	22.8	4.9
Northeast	98.5	0.2	1.3	92.2	5.8	1.9
West Nile	94.6	4.2	1.2	36.9	40.2	22.8
Midwest	81.1	16.4	2.5	70.6	24.1	5.3
Southwest	79.6	17.1	3.3	58.1	41.9	0.0
All	78.4	18.9	2.8	54.2	42.1	3.7
(i) Poor						
Kampala	62.5	31.2	6.3	100.0	0.0	0.0
Central 1	61.3	38.1	0.6	64.4	16.0	19.6
Central 2	76.9	17.2	5.9	91.5	0.0	8.5
East Central	84.3	14.2	1.5	71.7	28.3	0.0
Mideast	96.4	2.1	1.5	85.0	10.9	4.1
Midnorth	97.4	0.7	2.0	57.6	42.4	0.0
North East	98.4	0.3	1.3	96.5	0.0	3.5
West Nile	95.5	3.5	1.1	31.2	39.3	29.6
Midwest	89.3	9.0	1.7	79.6	20.4	0.0
Southwest	86.7	10.6	2.6	78.5	21.5	0.0
All	90.6	7.5	1.9	69.6	22.7	7.7

Annex Table 2: Access and Take Up by Region for School (aged 6–12 and 13–18, respectively) [[AQ: Need to provide measurement information?]]

	Public Primary School			Private Primary School			All primary		
	Access	Take-Up	Has/Use	Access	Take-Up	Has/Use	Access	Take-Up	Has/Use
National	0.9579	0.7992	0.7656	0.7268	0.4437	0.3225	0.9994	0.9520	0.9514
Rural	0.9753	0.8216	0.8013	0.7045	0.4012	0.2826	1.0000	0.9512	0.9512
Urban	0.8286	0.6040	0.5005	0.8917	0.6926	0.6176	0.9951	0.9578	0.9531
Region									
Central	0.8445	0.6164	0.5205	0.9394	0.6467	0.6075	0.9975	0.9480	0.9456
East	0.9846	0.8583	0.8451	0.7143	0.3849	0.2749	1.0000	0.9738	0.9738
North	1.0000	0.9033	0.9033	0.4267	0.2415	0.1030	1.0000	0.9374	0.9374
West	0.9971	0.7812	0.7789	0.8035	0.3741	0.3006	1.0000	0.9401	0.9401
Region									
Kampala	0.6169	0.5692	0.3511	0.9446	0.7982	0.7540	0.9938	0.9589	0.9530
Central 1	0.8749	0.5984	0.5235	0.9561	0.6751	0.6455	1.0000	0.9490	0.9490
Central 2	0.8945	0.6469	0.5787	0.9199	0.5593	0.5145	0.9962	0.9430	0.9394
East Central	0.9666	0.7861	0.7598	0.9202	0.4430	0.4076	1.0000	0.9697	0.9697
Mideast	0.9988	0.9132	0.9121	0.5529	0.3090	0.1708	1.0000	0.9770	0.9770
Midnorth	1.0000	0.9313	0.9313	0.4284	0.2634	0.1128	1.0000	0.9594	0.9594
Northeast	1.0000	0.7980	0.7980	0.3383	0.1428	0.0483	1.0000	0.8204	0.8204
West Nile	1.0000	0.9131	0.9131	0.4687	0.2467	0.1156	1.0000	0.9624	0.9624
Midwest	0.9941	0.8034	0.7987	0.8097	0.3400	0.2753	1.0000	0.9295	0.9295
Southwest	1.0000	0.7598	0.7598	0.7974	0.4076	0.3250	1.0000	0.9503	0.9503

Source: Authors using UNHS 2009/10.

Note: Training inputs also vary across regions. While the primary pupil to teacher ratio is 27 to 1 in Kampala, it is 67 to 1 in the North. Teachers also invest more hours in the Central region compared to other regions.

Annex Table 3: Quality and Constraint Indicators by Region

	Descriptive Statistics				
	Kampala	Central	East	North	West
Classroom situation					
Pupils/classroom ratio, primary	27	40	58	67	40
Pupils/classroom ratio, secondary	41	35	37	36	32
Pupils/teacher ratio, primary	39	56	85	97	52
Pupils/teacher ratio, secondary	19	18	20	21	19
Teachers by skill					
Graduate	9.9%	4.7%	3.1%	1.7%	3.3%
Grade V	30.8%	26.4%	28.0%	20.9%	24.2%
Grade III	59.0%	61.6%	66.3%	67.7%	69.5%
Untrained	0.4%	8.0%	3.5%	9.8%	4.0%
Teacher Shortage (actual/needed)^a					
Graduate	17.8%	50.4%	62.1%	70.6%	85.5%
Grade V	21.3%	45.2%	39.8%	49.4%	52.5%
Grade III	11.3%	19.9%	19.6%	28.3%	16.7%
Infrastructure of Schools^a					
Piped water	42.5%	12.7%	6.4%	3.7%	8.7%
Water bore hole inside	—	11.7%	20.5%	26.9%	6.5%
Water bore hole outside	3.3%	14.3%	21.6%	22.9%	4.5%
Library	42.4%	19.7%	4.4%	16.1%	15.8%
Separate toilets for teachers	98.3%	68.6%	51.6%	59.1%	75.1%
First Aid facilities	81.4%	41.9%	27.0%	20.3%	23.2%
Non attendance (6–12 year olds)^a					
Never attended school	16.0%	14.6%	11.6%	20.3%	19.4%
Drop-outs (6–24 year olds)^a					
Drop-out after P1	2.2%	3.0%	1.4%	7.3%	3.5%
Drop-out after P2	2.9%	6.2%	4.8%	8.0%	7.7%
Drop-out after P3	7.2%	8.5%	7.4%	10.5%	12.1%
Drop-out after P4	14.4%	10.2%	13.2%	16.2%	15.6%
Drop-out after P5	15.8%	17.2%	24.6%	20.7%	18.2%
Drop-out after P6	15.8%	23.0%	28.1%	19.6%	18.3%
Drop-out after P7	41.7%	31.9%	20.4%	17.6%	24.5%

Mean hourly wages of teachers (U Sh)^b					
Teaching professionals	2,629.0	1,720.1	2,117.2	1,702.4	1,807.5
Teaching associates	1,252.1	986.1	970.5	912.4	817.4
Experienced nonprofessionals	440.6	993.6	625.9	857.2	733.9
All	1,612.3	1,097.7	1,084.1	1,053.6	1,042.6
<i>Sources:</i> Uganda National Service Delivery Survey 2008, UNHS various years. a. b. UNHS 2005/06					

[[AQ: Need note explaining asterisk and —.]]

Annex Table 4: Shares of Benefits from Public and Private Education Spending

	Expenditures		Education							
			2005/06				2009/10			
			Public		Private		Public		Private	
Quintiles	2005/06	2009/10	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary
Quintile 1	0.06	0.08	0.23	0.06	0.08	0.03	0.33	0.15	0.11	0.07
Quintile 2	0.09	0.12	0.23	0.13	0.14	0.09	0.27	0.21	0.18	0.12
Quintile 3	0.13	0.15	0.21	0.16	0.17	0.14	0.21	0.23	0.21	0.17
Quintile 4	0.19	0.21	0.19	0.22	0.23	0.20	0.14	0.23	0.23	0.27
Quintile 5	0.53	0.44	0.13	0.45	0.38	0.53	0.05	0.18	0.26	0.37
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Subregions										
Kampala	0.06	0.06	0.01	0.07	0.09	0.10	0.02	0.13	0.12	0.18
Central 1	0.12	0.12	0.08	0.14	0.21	0.19	0.05	0.12	0.19	0.16
Central 2	0.12	0.12	0.09	0.15	0.24	0.17	0.07	0.11	0.18	0.14
East Central	0.13	0.13	0.14	0.15	0.13	0.14	0.12	0.13	0.18	0.13
Mideast	0.12	0.12	0.17	0.14	0.05	0.09	0.15	0.10	0.05	0.07
Midnorth	0.13	0.13	0.16	0.06	0.03	0.04	0.16	0.10	0.03	0.07
Northeast	0.01	0.01	0.01	0.01	0.01	0.02	0.10	0.04	0.01	0.02
West Nile	0.05	0.05	0.08	0.05	0.04	0.05	0.13	0.07	0.03	0.07
Midwest	0.10	0.10	0.09	0.07	0.07	0.06	0.11	0.10	0.09	0.07
Southwest	0.16	0.16	0.16	0.16	0.14	0.13	0.10	0.10	0.11	0.09
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Annex Table 5: Shares of Benefits from Water Services, 2005/06 and 2009/10

	Expenditures		2005/06			2009/10		
	2005/06	2009/10	Piped Water	Bore Hole	Other	Piped Water	Bore Hole	Other
Quintiles								
Quintile 1	0.06	0.08	0.072	0.27	0.17	0.07	0.31	0.21
Quintile 2	0.09	0.12	0.081	0.22	0.22	0.09	0.24	0.28
Quintile 3	0.13	0.15	0.128	0.19	0.19	0.13	0.22	0.24
Quintile 4	0.19	0.21	0.195	0.17	0.23	0.22	0.17	0.18
Quintile 5	0.53	0.44	0.525	0.14	0.19	0.48	0.07	0.09
Total	1.00	1.00	1.000	1.00	1.00	1.00	1.00	1.00
Subregion								
Kampala	0.06	0.06	0.21	0.00	0.04	0.35	0.00	0.06
Central 1	0.12	0.12	0.15	0.04	0.12	0.16	0.03	0.07
Central 2	0.12	0.12	0.06	0.12	0.10	0.08	0.09	0.05
East Central	0.13	0.13	0.10	0.28	0.04	0.07	0.19	0.06
Mideast	0.12	0.12	0.07	0.14	0.24	0.04	0.16	0.16
Midnorth	0.13	0.13	0.10	0.21	0.08	0.04	0.13	0.13
Northeast	0.01	0.01	0.00	0.04	0.00	0.02	0.20	0.00
West Nile	0.05	0.05	0.02	0.09	0.09	0.05	0.12	0.11
Midwest	0.10	0.10	0.11	0.06	0.11	0.06	0.07	0.16
Southwest	0.16	0.16	0.17	0.03	0.19	0.13	0.02	0.19
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Annex Table 6: Shares of Benefits from Health Services Spending, 2005/06 and 2009/10

Quintiles	Expenditures		Health facility									
			2005/06					2009/10				
			Public		Private			Public		NGO		
	2005/06	2009/10	Health Center	Hospital	Clinic	NGO Health Unit	NGO Hospital	Health Center	Hospital	Clinic	Health Unit	Hospital
Quintile 1	0.06	0.08	0.27	0.17	0.11	0.32	0.12	0.31	0.18	0.13	0.18	0.13
Quintile 2	0.09	0.12	0.24	0.15	0.17	0.18	0.17	0.23	0.19	0.20	0.27	0.16
Quintile 3	0.13	0.15	0.18	0.17	0.22	0.17	0.15	0.22	0.19	0.23	0.23	0.18
Quintile 4	0.19	0.21	0.19	0.23	0.24	0.17	0.21	0.16	0.26	0.23	0.17	0.19
Quintile 5	0.53	0.44	0.12	0.27	0.26	0.16	0.36	0.08	0.19	0.20	0.15	0.33
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Subregion												
Kampala	0.06	0.06	0.01	0.04	0.04	0.00	0.04	0.01	0.08	0.08	0.02	0.08
Central 1	0.12	0.12	0.06	0.07	0.14	0.08	0.14	0.07	0.05	0.13	0.11	0.08
Central 2	0.12	0.12	0.09	0.12	0.15	0.09	0.10	0.06	0.06	0.13	0.05	0.04
East Central	0.13	0.13	0.13	0.12	0.16	0.13	0.09	0.10	0.19	0.17	0.04	0.07
Mideast	0.12	0.12	0.16	0.15	0.14	0.14	0.09	0.13	0.14	0.15	0.11	0.06
Midnorth	0.13	0.13	0.21	0.14	0.10	0.32	0.26	0.15	0.07	0.08	0.10	0.11
Northeast	0.01	0.01	0.04	0.04	0.00	0.02	0.02	0.19	0.06	0.02	0.20	0.22
West Nile	0.05	0.05	0.10	0.05	0.03	0.07	0.03	0.16	0.08	0.04	0.14	0.10
Midwest	0.10	0.10	0.07	0.10	0.10	0.06	0.09	0.05	0.17	0.09	0.14	0.09
Southwest	0.16	0.16	0.13	0.18	0.14	0.10	0.14	0.09	0.10	0.10	0.09	0.14
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Annex Table 7: Welfare Regressions by Region

Variable	All Uganda	Central	Eastern	Northern	Western
HH head's educ attainment					
< primary	0.101 [4.90]	0.065 [0.91]	0.116 [2.62]	0.115 [2.44]	0.131 [2.57]
primary	0.309 [13.78]	0.310 [4.31]	0.315 [8.12]	0.277 [6.11]	0.296 [6.34]
O-level	0.462 [13.03]	0.497 [6.42]	0.446 [6.66]	0.543 [6.12]	0.566 [6.39]
A-level	0.861 [24.08]	0.930 [9.92]	0.807 [11.61]	0.729 [8.37]	0.703 [8.12]
post -secondary	1.319 [20.29]	1.287 [10.73]	1.376 [8.85]	1.253 [7.26]	1.078 [10.25]
HH head's age	0.001 [2.80]	-0.001 [0.63]	0.002 [1.80]	0.002 [1.61]	0.005 [4.45]
Urban	0.219 [10.14]	0.188 [3.21]	0.235 [3.08]	0.223 [4.14]	0.193 [2.71]
Infrastructure in LC1					
health centre	0.019 [0.73]	-0.068 [1.23]	0.001 [0.01]	-0.089 [1.35]	0.138 [2.64]
all season feeder road	-0.027 [1.64]	-0.042 [0.72]	-0.074 [2.58]	0.116 [2.57]	0.045 [1.39]
tarmac trunk road	0.119 [5.21]	0.031 [0.48]	0.145 [2.38]	0.083 [1.47]	0.145 [1.20]
factory w/ > 10 people	0.018 [0.65]	0.151 [3.03]	-0.080 [0.64]	0.171 [1.89]	-0.007 [0.05]
telephone service	0.059 [3.38]	0.063 [1.29]	0.140 [3.87]	0.066 [1.27]	0.031 [0.76]
agric input market	0.011 [0.69]	0.057 [1.67]	-0.047 [1.36]	-0.042 [0.89]	0.022 [0.62]
agric output market	-0.004 [0.27]	-0.067 [1.57]	0.029 [0.84]	0.111 [2.38]	-0.016 [0.36]
electricity	0.198 [8.58]	0.251 [3.91]	0.086 [1.49]	0.052 [1.01]	0.162 [1.57]
Eastern region	-0.309 [15.80]				
Northern region	-0.577 [26.41]				
Western region	-0.081 [4.07]				
Constant	10.220 [282.28]	10.240 [134.87]	9.807 [114.32]	9.461 [153.55]	9.873 [145.13]
Observations	7122	2052	1841	1546	1683
R-squared	0.37	0.38	0.22	0.22	0.18
F for all infrastructure:	28.1	9.7	3.4	3.7	3.7

Source: Author's calculations based on UNHS 2006.