

Mobility, Scarring and Job Quality in Indonesia's Labor Market

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Social Protection and Labor Global Practice Group
November 2015

Abstract

This paper investigates the occupational mobility and job quality of young people in Indonesia and relates this to the concept of “scarring.” The concept of labor market scarring in this paper is the occurrence of low or zero returns to certain types of work (for example, self-employment). Scarring is expected to occur whenever an individual spends periods working in occupations in which their human capital is either stagnant or deteriorating. Fixed effects

estimations using panel data from the Indonesian Family Life Survey reveal that a period in self-employment is associated with negative returns for youth (about 3 to 4 percent per year penalty), but not for older adults. In addition, there are clear patterns of persistence in self-employment over time with few individuals progressing from petty self-employment to businesses with permanent workers.

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Mobility, Scarring and Job Quality In Indonesia's Labor Market

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JEL Classification: J2, J3, J6

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1. Introduction

Youth around the world face a range of challenges during their first forays into the labor market. Necessarily, they must find their initial employment utilizing nascent job search skills and with the disadvantage of having little prior paid work experience. They may also be involved in jobs to which they are poorly suited early in their careers as they sample different jobs before settling on career paths that they prefer. Voluntary job changes for youth are often associated with growth in wages (Keith and McWilliams, 1995; Abbott and Beach, 1994). Some, however, may get stuck in unfavorable employment rather than using early jobs as stepping stones to better work. Even worse, some young people, particularly in developing countries, may endure long periods without formal employment, either earning a limited income in the informal sector, searching for work, or as discouraged job seekers.

More generally, the possibility of youth making mistakes because they lack experience in many areas of life has been emphasized by the 2007 World Development Report that called for more policies that provide youth with “second chance” opportunities. They may suffer over the long term from unfavorable early experiences in the labor market and may need assistance to “move up” in the labor market. However, there is much to the process of career development that has not been investigated empirically, making evidence based policy formulation difficult. Open questions include: How do different types of labor market experiences impact on the future labor market outcomes of youth, particularly wages? Are some youth in a “poor jobs trap”, where lack of human capital leads them to poor initial work experiences that prevent or retard further human capital development and in doing so limit career progress? Such questions are particularly challenging to research in developing countries where high quality labor force panel data are still scarce.

Also, in countries like Indonesia, the challenges of labor market transitions are complicated by the different types of work that youth may engage in- some of it unpaid or paid below the wage rates of the formal sector, while some youth are in petty self-employment. In Indonesia, a range of interesting issues pertaining to youth in the labor market have recently been identified such as higher unemployment rates for youth with higher education than for youth that dropped out before finishing high school (Cerdan-Infantes et al., 2010). While youth without higher education may have lower unemployment rates, this is likely to be because they cannot afford to be unemployed, and so more readily accept less desirable work than the higher educated. However, the long term impacts of working in different types of work, particularly self-employment versus employment in the private and public sectors, remains under-researched. This paper begins to fill that gap.

There is a growing body of research that investigates the long run career impacts of periods of unemployment and periods of employment in different types of jobs. It has long been established that in some countries, current unemployment of an individual may increase their chance of being unemployed in the future (Arulampalam, Gregg & Gregory, 2001). More recently, the literature has expanded to investigate scarring effects from self-

employment (Hyytinen and Rouvinen, 2008), non-permanent employment (Yu, 2012) and informal employment (Cruces, Ham and Viollaz, 2012). Theory from the scarring literature argues that human capital depreciation may occur during periods of unemployment or employment in some types of jobs. Human capital depreciation may negatively impact on individuals' long term labor market prospects. This emerging broader consideration of scarring fits into a concept that we term 'labor market scarring'. This paper defines labor market scarring as occurring when there is a negative or zero return to some form of participation in the labor market- either unemployment or a certain type of employment. This concept may be particularly applicable to youth in developing countries, where early employment may include self-employment or work in agriculture that youth engage in simply because they cannot afford to be unemployed, rather than because of career benefits or working conditions.

This paper considers job quality, mobility and labor market scarring in the particular context of Indonesia and is structured as follows: Firstly, in Section 2 we review the broad literature on scarring in labor markets. Section 3 then provides a range of descriptive statistics using data from the Indonesian Family Life Survey (IFLS) waves 1-4 (1993-2007). Specifically, the labor market context of Indonesia is introduced in section 3.1, with summary statistics presented for samples of data we use from IFLS. This is followed by consideration of different categories of employment, particularly in terms of human capital enhancing characteristics, wages and non-pecuniary benefits (Section 3.2). We focus on comparing self-employment with private sector employment and public sector employment. In section 3.3, we analyze patterns of employment in these different categories of jobs for individuals over the period 1993 to 2007, to find many striking patterns of persistent employment in certain categories of jobs. Self-employment in particular is identified as a possible candidate for causing labor market scarring. We investigate this further in section 4, which presents fixed effects estimations of the log of monthly wages for youth and older adults. In particular, we compare the implications of periods of self-employment experience and government and private sector experience for future wage outcomes, finding that self-employment may cause scarring for youth. Lastly, section 5 concludes.

2. Scarring in Labor Markets and Job Quality

2.1 Introduction

Research on the long term impacts of different forms of labor market participation on labor market outcomes is most sharply focused in the substantial literature on the "scarring effect" of unemployment (Arulampalam, Gregg & Gregory, 2001). That is, for individuals that are unemployed, it is commonly found that the likelihood of future unemployment permanently increases the longer the individual remains unemployed and (possibly) as a direct result of this unemployment. It is hypothesized that underlying the empirical relation is a mechanism driving "true state dependence" across time such as human capital depreciation (Arulampalam, Booth & Taylor, 2000). In addition, when scarred individuals do

find employment they can expect to earn less than identical individuals that have suffered shorter periods of unemployment. The evidence for this type of scarring comes mainly from developed countries and is commonly identified for youth, who have the greatest potential to suffer long term consequences from unfavorable early labor market experiences. Wage scarring from youth unemployment in the UK for example, has been identified to persist up to 20 years after an unemployment spell and be in the order of a 13-21% wage penalty (Gregg and Tominey, 2005).

More recently the scarring literature has expanded to consider scarring effects from particular types of employment, rather than just unemployment. In particular, such effects have been identified for self-employment (Hyytinen and Rouvinen, 2008), contingent (non-permanent) employment (Yu, 2012) and employment in the informal sector (Cruces, Ham and Viollaz, 2012). However, the nature and extent of scarring from the various ways people are engaged in labor markets across contexts is still unclear and further research, particularly empirical research in developing countries utilizing panel data, is needed. Section 2.2 begins by reviewing the literature on unemployment scarring. In section 2.3, this is contrasted to the more recent and limited research on scarring from different types of employment. This paper defines such scarring as labor market scarring. Section 2.4 describes the nascent literature on labor market scarring in developing countries. Section 2.5 relates scarring to occupational mobility and concludes the section.

2.2 Unemployment scarring

Since the seminal paper in 1980 by James Heckman and George Borjas: “Does Unemployment Cause Future Unemployment? Definitions, Questions and Answers from a Continuous Time Model of Heterogeneity and State Dependence”, unemployment scarring research has explored the different forms of state dependence (scarring) that Heckman and Borjas theorized, paying particular attention to the numerous associated identification issues that they highlighted. Two central questions motivate this research: is there a relationship between current and future spells of unemployment? If yes, what are its causes?

Heckman and Borjas (1980:247) identify the emergence of consensus in relation to the first question: “Recent research demonstrates that, the greater the number of previous spells of unemployment and the longer their duration, the more likely is the event that an individual will be unemployed at a point in time.”, a conclusion that is repeated twenty years later by Arulampalam, Gregg and Gregory (2001). The second question is implicitly about causality. Mechanisms underlying a causal relationship generally suggest that “past unemployment (including previous time spent in a current unemployment spell) alters preferences, prices or constraints that determine, in part, future unemployment” (Heckman and Borjas, 1980:247), possibly through human capital depreciation. If firm-specific human capital is valuable and requires a worker to continue to work at the same firm, then job termination incurs the loss of this human capital (Arulampalam, Gregg and Gregory, 2001). In addition,

an unemployed individual may lose more general skills such as the ability to effectively work in a team. Unemployment also usually implies that an individual is not gaining or developing any new productive skills. Depreciation of human capital however, is not the only mechanism that has been hypothesized. There are alternative possible mechanisms to suggest a link between present and future unemployment. In particular, issues regarding imperfect information about labor productivity (signalling, see Fernández-Blanco and Preugschat (2011)) and also, reliance by employers on social networks to overcome such imperfections (see Armegnol and Jackson (2004)).

Lastly, as argued by Heckman and Borjas (1980), it is possible that persistent unemployment may be observed even if there is no “true state dependence” or “scarring”. They suggest, for example, that it is possible that there are some individuals that have poor job search skills and that this is constant over time. As a result of these poor job search skills, finding a job takes longer and hence unemployment duration is extended compared to otherwise identical individuals. Hence what appears to be unemployment scarring (unemployment in the present *determining* future unemployment) is simply the consequence of unobserved heterogeneity. The empirical identification of a relationship between present and future unemployment is necessary but not sufficient to establish the existence of a causal “scarring” effect. Since Heckman and Borjas (1980), the literature has attempted to separate the effects of individual heterogeneity from true state dependence.

As Arulampalam, Booth and Taylor (2000) comment, research on scarring has great policy relevance as government “...policies rest on very different assumptions about the extent to which government intervention can alter the equilibrium or so called natural rate of unemployment. If there is no state dependence in unemployment incidence at the micro level, then short run policies to reduce unemployment (such as job creation schemes and wage subsidies) will have no effect on the equilibrium aggregate unemployment rate.” Conversely, if scarring does indeed exist, this may justify government action to prevent frequent or long spells of unemployment among the earliest entrants to the labor force, in order to bring down the long term structural rate of unemployment. Finally, if scarring relates specifically to human capital depreciation, governments may want to consider policies that may mitigate this, such as through special training or education provision to those searching for work.

Greatest support for the scarring hypothesis is found in the UK. Arulampalam, Booth and Taylor (2000) used data from the British Household Panel Survey BHPS 1991-1995 to find strong evidence of state dependence. They estimated that roughly 40% of the observed persistence in unemployment probability could be accounted for by state dependence for men over 25 and about 25% for men under 25. In addition to recognizing and addressing the problem of individual heterogeneity (by using panel data and random effects estimation), Arulampalam, Booth and Taylor also highlight the need to deal with the “initial conditions problem” whereby ignoring what happens to individuals upon entry into the labor market

and ignoring individual heterogeneity that exists prior to any unemployment spells, makes identification highly problematic. Arulampalam (2002) revisits the topic using the same data and again addresses the issues of initial conditions and individual heterogeneity but for different definitions of unemployment (unemployment with and without search) and finds the evidence for scarring to be robust to different definitions. Another three studies in Britain used data from the National Child Development Survey to investigate scarring- Narendranathan and Elias (1993), Gregg (2001) and Gregg and Tominey (2005). They later identify a wage scar from early unemployment in the magnitude of 13–21% at age 42. This corresponds to results for Britain from Gregory and Jukes (2001) that suggested a 10% long term wage penalty from unemployment that is long in duration (one year spells).

The evidence is less clear from the USA. Corcoran and Hill (1985), reject the scarring hypothesis using data from the Panel Study of Income Dynamics. In contrast, Jacobson, LaLonde and Sullivan (1993) found evidence of scarring using data from Pennsylvania. They identified a negative wage impact from job separation and subsequent unemployment particularly for high tenure workers. This is important because it suggests that human capital depreciation may be significant (as low tenure workers on average, should have less human capital to lose).

2.3 Scarring in labor markets from certain types of employment

We begin this discussion of labor market scarring with consideration of self-employment (as the literature is more substantial in this area than for other types of employment), before moving to consider non-permanent and informal employment. Employment probability and wage scarring from periods of self-employment may occur when the human capital implications of being in self-employment are similar to that of being unemployed. That is, firm specific capital is not accumulated and some human capital that is specific to wage employment, such as the capacity to work well under the direction of a manager, may deteriorate (Williams, 2000). Secondly, failure in self-employment may be taken as a signal by firms that a job seeker is of low productivity. Alternatively, it may be that valuable new skills are acquired during periods of self-employment such as autonomy and the capacity to manage risk. The question of self-employment scarring therefore needs to be answered empirically. However, identification of self-employment scarring is complicated by the issues of individual heterogeneity and the self-selection of the self-employed.

Using data from the National Longitudinal Survey in the US, Evans and Leighton (1989) found that relatively poorer wage workers (unemployed workers, lower-paid wage workers, and men who have changed jobs frequently) were more likely to enter self-employment or to be self-employed at a point in time, *ceteris paribus*. This does not imply scarring but is consistent with the idea that self-employment is not being chosen because of its career effects but rather simply because it is the only available income generating option for many males. Also in the US, using the Panel Study of Income Dynamics (PSID) Bruce and Schuetze (2004) examine the effects of brief self-employment experience on subsequent labor

market outcomes. They found that, relative to continued wage employment, brief spells in self-employment probably reduce average hourly earnings of subsequent wage employment. They also found that those who experience self-employment have difficulty returning to the wage sector. However, when the consequences are compared to similar experiences in unemployment, they are relatively not as large. Also, their research implies that wage differentials are mostly due to occupational change that is usually associated with self-employment, not dissimilar to changing occupations in wage work. Overall, Bruce and Schuetze (2004) did not find strong evidence of scarring.

There is also some limited evidence that suggests self-employment scarring in Europe. Kaiser, Malchow-Moller (2011) used propensity score matching with data on Danish men for the years 1990-1996 to investigate the effects of past self-employment on subsequent earnings. They identified a negative effect of self-employment caused by the sector switching with which it is commonly associated. They estimated that those returning to wage employment after a spell of self-employment earned 2.9% less than the consecutively wage-employed. However, the difference was slightly smaller when the formerly self-employed were compared with wage earners that had also changed jobs. A much broader empirical investigation has been done by Hyytinen and Rouvinen (2008) who use data from the European Community Household Panel (ECHP). While they also found evidence that those entering wage employment after a period of self-employment suffer a wage penalty, this is likely mostly due to self-selection that correlates negatively with unobserved ability and/or productivity. In addition, they also find that wage scarring from self-employment is less than wage scarring from unemployment.

Another form of employment that may cause a scarring effect is employment that is not full-time and permanent. That is, temporary, casual and part time work (henceforth non-fulltime). Again, scarring in terms of employment probability and wages resulting from periods of non-fulltime employment may occur when the human capital implications of being in non-fulltime employment are similar to that of being unemployed. The rate of human capital accumulation may vary systematically according to the type of employment contract. Firms may have a greater incentive to invest in firm specific human capital for permanent employees than for temporary workers. This is because the expected time horizon for the realization of returns to such investment should be longer for full-time workers than for temporary workers. Similarly, long term part-time workers may also receive less training and development simply because they play a less central role in the firm than the full-time workers. Indeed, Nelen and de Grip (2009) found using data from the 2007 Dutch Life-Long-Learning Survey that part-time workers have different determinants for formal training and informal learning than full-time workers. Full-time workers seem to benefit from firms' human resource practices such as performance interviews, personal development plans, and feedback while part-time workers do not.

Fourage and Muffels (2009) applied the scarring concept to part time work in Europe. They used fixed effects estimations of the impact of part-time work in the past 10 years on present wages for panel data from the UK, Germany and the Netherlands. They found evidence for scarring for women in all three countries (wage penalties of 2% to 5% per past part-time year) and scarring for men in the UK (wage penalty of 5.5% per past part-time year). Penalties in the UK were even significant for men and women who had returned to full-time employment for 5 years or more after having worked part-time strongly suggesting a true scarring effect. In Germany and the Netherlands however, there is no clear evidence of long term scarring.

Interestingly, in the context of Japan there is evidence not only for scarring from a particular type of employment –contingent employment, but evidence that this scarring is worse than scarring caused by searching or non-searching unemployment (Yu, 2012). In Japan, contingent employment is fixed term employment that may also have irregular or part-time hours. Contingent employment is of course income generating and may be preferred to unemployment. However, there is the possible long term consequence of the worker being stigmatized as less committed/ less productive, in a context where labor market segmentation is high and full-time workers are treated very differently to contingent workers. Yu (2012) uses data from the Social Stratification and Social Mobility Survey conducted in 2005 which was not a panel data study but that did collect retrospective labor market histories. His estimations of discrete-time hazard rate models for entry rates revealed that for only 2.9% of those in contingent employment, did their job lead to full-time work within the same firm. For the most part, contingent employment is clearly not a “stepping stone” into full-time employment. More generally, contingent employment periods reduced the chance of a worker gaining full-time employment in future even more so than for periods without work. To control for heterogeneity in preferences for contingent work, she used a sample that only included those that had involuntarily separated from full-time work before working in contingent employment.

2.4 Labor market scarring in developing countries

Given the expansion of scarring research to consider scarring from certain types of employment alongside unemployment scarring, this paper defines the term labor market scarring to include both unemployment scarring and scarring that occurs from specific types of employment such as informal and temporary work. This broader conception of scarring may be useful, particularly in developing countries where strict lines between unemployment (traditionally defined) and certain forms of employment such as informal work or self-employment, may be misleading. For example, it is still not clear to what extent informal work is voluntary rather than a second best option to the formal sector (Bosch and Maloney, 2010). In any case, there is almost no published research on any of the possible types of labor market scarring in developing countries though there is considerable research on some related labor market issues. For example, Tansel and Tasci (2010) consider

unemployment duration and its causes in Turkey relative to other developed and developing countries, but they do not try to estimate any possible scarring that results from greater unemployment duration.

However, there is one notable working paper by Cruces, Ham and Viollaz (2012) that studies the scarring effects of both youth unemployment and youth work in the informal sector in Argentina and Brazil. They use repeated cross sectional data from the Socio-Economic Database for Latin America and the Caribbean (SEDLAC) to track age cohorts of individuals over time, with individuals in these cohorts being born between 1965 and 1967. Their main findings are that youth unemployment and youth informal work have a scarring effect in terms of future wages and future probability of unemployment and informal work. This fits with the broadly defined phenomenon of labor market scarring.

2.5 Job quality and occupational mobility

While the informal/formal dichotomy may be a simple and useful marker of employment quality, there are many ways in which job quality can be defined. In developed countries, earnings are a common measure of labor market outcomes. However, even though reliable earnings data often available in developed countries, they are not easy to measure and compare across individuals in developing countries. Also, they are often not the most important job characteristic to workers (D’Addio, Eriksson and Frijters, 2007). Additionally, higher wages in some occupations may reflect compensating wage differentials for other job characteristics (e.g., a premium paid for risky work).

A multi-dimensional approach to defining job quality is widely recognized as being a more accurate measure than earnings. The Employment in Europe (2001) report for example, states that “in the absence of a single composite indicator, any analysis of job quality must be based on data on both objective and subjective evaluations of the worker-job match”. Following many others, D’Addio, Eriksson and Frijters (2007), suggest that self-reported job satisfaction measures are a common and appropriate approximation of job quality citing the Employment in Europe (2002) report, “in all Member States self-reported job satisfaction is strongly positively correlated with wages, job status and job related skills acquired through training”. Even very simple categories such as “non-agricultural own account workers” (Gindling and Newhouse, 2012) or “work with a formal contract” may be useful proxies for job quality.

Interestingly, while many of the characteristics associated with job satisfaction are indeed measures of private benefits (e.g. wages), there are some characteristics (e.g. job training and job security) that may have a range of public benefits such as promoting social cohesion and productivity. Ideally, in evaluating job quality, both the private and societal benefits should be considered. Failing to consider all characteristics may mean that certain shortcomings of the labor market are not identified. For example, if human capital accumulated during employment in a particular job is transferrable across firms; such

human capital may be underinvested in by firms. In such situations, the value of transferrable human capital will not be accurately reflected by the wages for a job or the marginal product of a worker in that job. However, such things as the social value of on the job training may be difficult to measure. This paper will examine the correlates of wages, job satisfaction and the provision of on the job training to identify what types of jobs are likely to be most welfare and human capital enhancing.

In conclusion, it is clear the theoretical and empirical literature on scarring has developed with a strong focus on developed countries, particularly the US, the UK and some European countries where panel surveys with a sufficiently long time series exist. The only stylized facts are that there is a negative correlation between present spells of unemployment for an individual and their future likelihood of employment and their future expected wages. Why this is the case is less clear, with the evidence for scarring being mixed, particularly for the US. This is understandable given the identification issues emphasized by the early work of Heckman and Borjas (1980). Scarring may be caused by human capital depreciation or signaling or may be just a pattern generated by individual heterogeneity. For the UK however, there is now considerable evidence of scarring effects for employment probability and wages, even for studies that use panel data to control for the individual heterogeneity and the issue of initial conditions. Clearly though, it is too soon to make any general claims about scarring in most other countries (particularly developing countries), where research is limited. Also, the findings from western countries may be driven by certain labor market characteristics that are different in developing countries (possibly because of large informal sectors). Even when scarring is driven by individual heterogeneity rather than a causal relation between spells of employment, the individual heterogeneity that matters may be different in developing countries.

Lastly, there is also evidence that certain forms of employment, particularly self-employment and non-fulltime employment, can result in wage scarring not dissimilar to that caused by unemployment. A research agenda that focuses on developing countries can build upon these two categories of research, with the added possible considerations of informality and labor market segmentation. Such research could seek to understand the ways in which involvement in certain types of employment, hinders or contributes to future labor market outcomes for individuals in developing countries. We make a contribution to this literature specifically in regards to Indonesia.

3. Job Quality and Mobility in the Indonesian Labor Market

3.1 Introduction

This section begins by introducing the context of youth in the Indonesian labor market, and the data we use, which is from the Indonesia Family Life Survey (IFLS). Section 3.2 discusses descriptive statistics for the two samples of IFLS data that will later be used in fixed effects estimations. In section 3.3, we consider how key job characteristics (such as wages,

satisfaction and training) relate to each other and also, how these characteristics relate to the employment status categories defined by the IFLS. Characteristics for each job may be either welfare enhancing, human capital enhancing or both. Unfortunately, however, data on such characteristics such as the provision of training are only recorded in the last wave of IFLS, wave 4 (2007), so these data cannot be used in fixed effects estimations in section 4. Lastly, in section 3.4 we consider mobility between employment status categories across time using data for waves 1, 3 and 4 (as these three waves have a breakdown of employment category that includes different types of self-employment).

3.2 Context and data: Youth in the Indonesian Labor Market

There are several challenges that youth face in the Indonesian labor market, including unemployment and employment in forms of work that may be less desirable (such as unpaid family work). Rudimentary analysis of employment quality for youth has been presented in the recent ILO/Unicef/World Bank report- “Understanding children’s work and youth employment outcomes in Indonesia” (Aldobrandini & Panisperna, 2012). Employment quality has also been considered in the Human Development Department report on “Education, Training and Labour Market Outcomes for Youth in Indonesia” (Cerdan-Infantes et al., 2010). Some interesting observations from these reports that are based on National Workforce Survey /Sakernas data are discussed below.

Interestingly, it has been observed that youth that have graduated from senior high school have a higher unemployment rate (26% in 2009) than youth with lower educational attainment (17% for junior high) but earn more than less educated youth when they are employed. This could be because high school graduates spend a longer period of time searching in the hope of finding a high paying job (which on average, they do). More generally, youth unemployment is about two and a half times that of the rest of the population. Indonesia is not the only developing country that has high rates of youth unemployment but it is important to remember that in developing countries, unemployed youth are not always economically worse off than employed youth.⁴ Another finding that is the characteristic of developing countries, is the stark rural urban divide with most youth with jobs in urban areas in 2010 working in salaried employment (68%) while the most common type of work for youths in rural areas is unpaid (44%). In summary, it seems that youth unemployment in Indonesia “is an urban phenomenon which mainly affects educated workers” (Cerdan-Infantes et al., 2010, p.13). This means that other types of scarring rather than unemployment scarring may be more likely to occur for rural and less educated youth. For example, this may include scarring from work in the informal sector or self-employment.

⁴ It is possible that some unemployed youth receive economic support from their parents and families that allow them to enjoy a higher level of consumption than youth that are forced to work in low quality employment because there is no social safety net or family support available to allow them the space to look for work for an extended period of time.

Compared to informal work, youth employment in the formal sector (as defined by Sakernas) is generally associated with higher wages (unconditionally 18.8% higher in 2010) and employment benefits such as pensions and healthcare. It is suggested that the informal/formal dichotomy may be the best simple proxy for job quality. Differences in wages between formal sector and informal sector jobs are even greater for older workers suggesting that there may be long-term earnings benefits accrued from experience in formal jobs. In contrast, “For most self-employed informal workers, having access to formal paid jobs would lead to much better wages and benefits than self-employment. In other words, in the Indonesian context, informality is result of necessity, not choice. Thus the type of job is a good indicator of “quality”, and salaried employees (a proxy for formality) enjoy the highest income and most benefits at any education level.” (Cerdan-Infantes et al., 2010, p.15)

In the absence of a formal contract, firms may be less likely to build human capital as they may view non-permanent workers with a short term perspective. It is possible that Indonesian youth working in petty self-employment, unpaid work and other informal employment may not be gaining work experience that is valued in the labor market. Consequently, career progression for these youth could be limited relative to youth with better quality work experience. Specifically, youth with these jobs may experience lower wage growth when transitioning between jobs and may be more likely to be persistently employed in these unfavorable jobs than youth that enter the labor market in favorable jobs. However, there is no empirical research regarding this in Indonesia. This gap in the literature is significant as if there is some type of wage scarring for youth in Indonesia, there could be several important policy implications. These include assisting youth to find better quality work whilst simultaneously promoting growth in educational attainments and growth in the supply of formal sector jobs. We will look further at the issue of the types of work that may be deemed “low quality” in section 3.3. In order to analyze the mobility, job quality and labor market scarring of youth in Indonesia we use the Indonesian Family Life Survey (IFLS).

IFLS is an on-going panel survey in Indonesia that had its first wave in 1993, initiated by RAND in collaboration with Lembaga Demografi, University of Indonesia. The IFLS sample was designed to be representative of about 83% of the Indonesian population in its first wave. It covers 13 of Indonesia’s 27 provinces and contains over 30,000 individuals. Since it began, there have been 4 waves of data collection completed with a fifth wave of data collection planned for 2014/15. IFLS2 and IFLS2+ were conducted in 1997 and 1998, respectively, with IFLS3 fielded in 2000 and IFLS4 fielded in 2007/2008. IFLS is a broad ranging survey with a considerable depth and breadth of information collected at the individual and household levels. Most importantly for the purposes of this paper, it contains panel data on education, labor market outcomes (including job characteristics), labor market history, marriage, household assets. IFLS also collects data on health, migration, village level characteristics, social relationships and other indicators of economic well-being

such as consumption. While data on labor market and other economic outcomes is extensive in IFLS, it was not collected in an entirely consistent manner across waves (IFLS website, 2014, <http://www.rand.org/labor/FLS/IFLS/study.html>).

Table A describes key employment category variables (the first 8 variables) and employment experience variables (the last 3 variables), with notes on differences across waves. We are interested in these broad definitions of employment as there may be significant differences between them for job characteristics (and in turn, implications for job quality and possible scarring effects). While there is a breakdown of different types of self-employment this was not recorded in wave 2. For this reason we only present some descriptive statistics relating to these differences and combine the categories when using all waves in wage estimations in section 4.

The labor market history data in IFLS covers a period of up to 20 years for each individual but this data has some limitations. Firstly, work history is based on an individual recalling up to 7 years prior, what their primary occupation was for that year. Their primary occupation may not have been their only occupation nor would they have necessarily worked there for the whole year. For example, someone who was working in the private sector 3 days a week for 7 months in 1989 may have reported “private worker/employee” as their main work experience for that year. This means that these variables are a somewhat noisy measure of experience. In addition, they could not be used to differentiate between the returns to part-time and full-time experience. Nevertheless, in the absence of scarring effects, there would be no reason for these variables to be negatively related to wages. Lastly, it is important to note that as there is missing data for some individuals and the work history does not always include the first job of an individual, the experience variables do not capture an individual’s complete work history. We discuss these issues further in section 4.

Table A: Employment categories and work experience categories	
Variable name	Variable description
self-employed	Self-employed with no other workers (waves 1, 3 and 4). Self-employed, all types (wave 2).
self-employed with unpaid family	Self-employed with unpaid family worker/temporary worker (waves 1, 3 and 4)
self-employed with permanent	Self-employed with permanent worker (waves 1, 3 and 4)

government worker/employee	government worker/employee
private worker/employee	private worker/employee
unpaid family worker	unpaid family worker
casual non-agriculture	casual non-agriculture (only in wave 4, in waves 1, 2 and 3 this category was combined with “private worker/employee”)
casual agriculture	casual agriculture (only in wave 4, in waves 1, 2 and 3 this category was combined with “private worker/employee”)
Years mostly self-employed	Number of years between 1988 and the year of the wave (1993, 1997, 2000 or 2007) in which the individual was mostly self-employed. <i>Note: most of the work history data are purely retrospective, except the work data at the time of the surveys. E.g. in IFLS2, the respondents recall the work history from 1987-1996. This also applies to the next two variables.</i>
Years mostly in government employment	Number of years between 1988 and the year of the wave (1993, 1997, 2000 or 2007) in which the individual was mostly a government employee. <i>See note above.</i>
Years mostly in private sector employment	Number of years between 1988 and the year of the wave (1993, 1997, 2000 or 2007) in which the individual was mostly a private sector employee. <i>See note above.</i>

In addition to employment category variables, we are interested in a range of individual characteristics that may relate to labor market outcomes. Below, in table B, we summarize statistics for two mutually exclusive samples of working individuals across waves 1, 2, 3 and 4 of IFLS. These samples are later used in estimations of earnings and only include those working 35 hours or more per week, with a non-zero income. As we are particularly interested in youth, the first sample (Youth) consists of observations when individuals are between 15 and 38. While 24 is the common upper boundary age for youth, any individuals in wave 1 of the study that were 24 would be 38 by wave 4. Setting the maximum age to lower than 38 would mean losing observations for these youth in fixed effects estimation.

The second estimation sample (Older Adults) consists of all observations for individuals over the age of 38.

The first striking difference between youth and older adults is that youth have an average of 2 years more of school level education. In terms of higher education however, the two samples are almost the same, with 91% of youth having no higher education and 92% of adults having no higher education. Secondly, in relation to employment types, a greater proportion of older adults are in self-employment and government employment, compared to youth, who have a higher presence in private sector employment. While the experience variables for youth and adults seem similar, this does not mean that they have overall experience levels that are similar, as experience prior to 1988 is not recorded. Also in relation to employment are some differences between industries where youth and older adults are employed. A higher proportion of older adults (24%) work in agriculture than youth (14%), even though these individuals are from the same areas and households (with 61% of youth being in urban areas and 58% of adults being in urban areas). While a higher proportion of youth work in manufacturing (23% in contrast to 12% for adults).

In relation to household characteristics, the youth and older adult samples are quite similar as we would expect. The only major differences are that youth are less likely to be a head of household (only 20% are compared to 68% of older adults) and that youth are less likely to be married (66% for youth versus 89% for adults). The average age for the youth observations is about 28, almost half the average age for observations of older adults (about 50). Lastly, for both the youth and older adults, most individuals do not provide a complete retrospective work history across 1988 to 2007.⁵ Overall, while the summary statistics presented in table B demonstrate significant variation for both adults and youth in terms of employment categories, work experience and household characteristics, these statistics do not reveal anything about employment quality, mobility or the possibility of scarring. In sections 3.3 and 3.4 we address employment quality and mobility, respectively, while investigating scarring in section 4.

Table B: summary statistics, IFLS

Variable	Youth 38 and under			Older Adults		
	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.
Net monthly earnings	710860.3	993540.4	11546	783345.60	1553930.00	7783
hours worked in a normal week	51.47	12.24	11546	50.07	12.80	7783
Years in primary and secondary school	9.18	3.13	11546	6.94	3.78	7783
Is a university graduate	0.05	0.23	11546	0.05	0.21	7783

⁵ More precisely, this is not because they do not provide a complete retrospective work history, but due to our limitation to only including those with full complete work history (1988-2007) i.e. the way we generate the variable years at work, so we automatically put household members who started to become adults (15 years or older) or new adult household members in the subsequent IFLS waves after wave 1 as missing in the variable of number of years work. It is important to note that the employment section was only given to adult household members who were 15 years or older at the time of the survey (we include those who were over 15 in at least waves 3 and 4, but possibly under 15 in wave 2 and/or wave1). For these reasons, the Work history data incomplete variable is 0.96 for the youth group.

Is a college graduate	0.04	0.21	11546	0.03	0.17	7783
Years mostly self-employed	1.62	3.08	11546	5.74	6.18	7783
Years mostly in government employment	0.41	1.74	11546	1.87	4.59	7783
Years mostly in private sector employment	4.16	3.79	11546	4.19	5.46	7783
Industry: Agriculture, forestry, fishing	0.14	0.34	11507	0.24	0.42	6523
Industry: Mining and quarrying	0.01	0.09	11507	0.01	0.08	6523
Industry: Manufacturing	0.23	0.42	11507	0.12	0.32	6523
Industry: Electricity, gas, water	0.00	0.07	11507	0.00	0.06	6523
Industry: Construction	0.08	0.26	11507	0.07	0.26	6523
Industry: Wholesale, retail, restaurants, hotels	0.24	0.43	11507	0.26	0.44	6523
Industry: Transport, storage, communications	0.06	0.23	11507	0.05	0.22	6523
Industry: Finance, insurance, real estate, business services	0.02	0.12	11507	0.01	0.09	6523
Industry: Social services	0.23	0.42	11507	0.24	0.43	6523
industry: other	0.00	0.00	11507	0.00	0.00	6523
Self-employed: no other workers	0.15	0.36	11546	0.26	0.44	7783
Self-employed: with family worker	0.09	0.29	11546	0.21	0.41	7783
Self-employed: with permanent	0.02	0.13	11546	0.02	0.15	7783
Government worker/employee	0.07	0.25	11546	0.15	0.35	7783
Private worker/employee	0.61	0.49	11546	0.30	0.46	7783
Age	28.19	5.79	11546	49.94	8.42	7761
In urban area	0.61	0.49	11546	0.58	0.49	7783
Status as household head: 1=yes; 0=no	0.20	0.40	9576	0.68	0.47	7480
Married: 1=yes; 0=no	0.66	0.47	11546	0.89	0.31	7765
Muslim: 1=yes; 0=no	0.90	0.30	11546	0.87	0.33	7765
House ownership: 1=owned; 0=not owned	0.76	0.43	11458	0.84	0.36	7754
Electricity in house: 1=yes; 0=no	0.96	0.19	11458	0.95	0.22	7754
Toilet in house: 1=yes; 0=no	0.62	0.49	11458	0.62	0.49	7754
Farm business: 1=hh with farm business; 0=no	0.28	0.45	11458	0.33	0.47	7753
Non-farm business: 1=hh with non-farming business; 0=no	0.49	0.50	11458	0.52	0.50	7753
Work history data incomplete	0.96	0.18	11546	0.58	0.49	7783

3.3 Job Quality in Indonesia

If good job characteristics are positively correlated with each other than jobs with these characteristics could be considered to be generally more desirable. This is important to consider when evaluating a job's short term welfare benefits versus its human capital benefits. For example, if jobs with high wages and satisfaction were not associated with the provision of training and some form of pension, then we could not assume that they would generally be preferred to lower paying jobs with training that do provide a pension. By extension, persistent employment in jobs with mixed characteristics need not necessarily be a concern to governments. Individuals may persist in their occupations purely by choice and not because of some type of 'poor/unfavorable jobs trap'. On the other hand, if certain types of work lack a range of a human capital and welfare enhancing characteristics and are lower paid, then we have good reason to believe that they are less desirable forms of employment. Persistent employment in these less desirable forms of work would not be direct evidence of an unfavorable jobs trap but would be consistent with the idea.

Table C presents a list of job characteristics that were recorded for an individual's primary occupation in wave 4. Unfortunately, these data are not available for earlier waves. Apart from wage and stress all the characteristics are binary and could be considered welfare enhancing if they are present in a job. In addition, the characteristic of training provision could be considered as a human capital enhancing characteristic. As previously mentioned, another important employment characteristic might be the presence of a formal contract, which is a signal that a job is long term and that firms may be more interested in the ongoing development of the worker.

Table C	
Variable name	Variable description
training	has ever received training from current employer. 1=yes, 0=no
meals	employer provides meals. 1=yes, 0=no
health	employer provides at least one of the following: paid for some health expenses, health insurance or access to health clinic. 1=yes, 0=no
credit	employer provides credit. 1=yes, 0=no
pension	employer provided pension. 1=yes, 0=no
severance	eligibility for severance. 1=yes, 0=no
stress	job involves a lot of stress. 1=all/most of the time, 2=most

	of the time, 3=some of the time, 4=none/almost none of the time (note that this variable is increasing in <i>lack of stress</i> , so a negative correlation between this variable and another characteristic would be equivalent to a positive correlation between stress and that other characteristic)
satisfaction_01	How satisfied the worker is with the current job. 1=satisfied/very satisfied, 0=unsatisfied/very unsatisfied.
contract1	Works with contract, no fixed time period. 1=yes, 0=no
contract2	Works with contract, fixed time period. 1=yes, 0=no
wage	hourly wage for those that are employed in private sector or the government and the hourly wage equivalent for those that earn profit from self-employment. This variable is derived using data on monthly earnings and hours worked. As this variable may suffer from measurement error, we also report the median monthly wage.

Descriptive statistics for job characteristics are presented in the following tables-

Table 1- Job characteristics correlations for youth (includes the number of observations, and significance starred at the 5% level, with youth being defined as those aged 15-24).

Table 2- Job characteristics correlations for adults (defined as those aged over 24)

Table 3- Job characteristics correlations for all ages

Table 4- Characteristics by occupation category for youth

Table 5- Characteristics by occupation category for adults

Table 1 – (number of observations reported below correlations)

	Table 1: Job characteristics correlations for youth (15-24)										
	training	meals	health	credit	pension	severance	stress	satisfaction	contract1	contract2	wage
training	1										
	1698										
meals	0.0138	1									
	1698	2118									
health	0.1460*	0.1330*	1								
	1698	2118	2118								
credit	0.0941*	0.1214*	0.2862*	1							
	1698	2118	2118	2118							
pension	0.1830*	-0.0016	0.1794*	0.2236*	1						
	1698	2118	2118	2118	2118						
severance	0.1903*	0.0724*	0.3161*	0.3068*	0.2253*	1					
	1698	2118	2118	2118	2118	2118					
stress	-0.0696*	0.0173	-0.038	-0.0337	-0.0501*	-0.0555*	1				
	1698	2118	2118	2118	2118	2118	3455				
satisfact~01	0.0741*	0.0661*	0.0736*	0.0382	0.0482*	0.0686*	0.0994*	1			
	1698	2118	2118	2118	2118	2118	3455	3455			
contract1	0.0832*	0.0006	0.0985*	0.0477*	0.1648*	0.1203*	-0.0333	0.0114	1		
	1698	2118	2118	2118	2118	2118	2118	2118	2118		
contract2	0.2099*	-0.0399	0.1503*	0.0159	0.0561*	0.1081*	-0.1119*	0.0248	-0.0991*	1	
	1698	2118	2118	2118	2118	2118	2118	2118	2118	2118	
wage	0.0418	-0.0279	0.037	0.0278	0.0948*	0.0492*	-0.0362	0.0402*	0.0338	0.0637*	1
	1643	2045	2045	2045	2045	2045	2416	2416	2045	2045	2416

Table 2 – (Number of observations reported below correlations)

	Table 2: Job characteristics correlations for adults (aged 25 & over)										
	training	meals	health	credit	pension	severance	stress	satisfaction	contract1	contract2	wage
training	1										
	5666										
meals	-0.0627*	1									
	5666	7415									
health	0.1388*	0.0473*	1								
	5666	7415	7416								
credit	0.1525*	0.0333*	0.3041*	1							
	5666	7415	7416	7416							
pension	0.3680*	-0.1213*	0.1777*	0.2841*	1						
	5666	7415	7416	7416	7416						
severance	0.1677*	0.0199	0.4228*	0.3336*	0.2107*	1					
	5666	7415	7416	7416	7416	7416					
stress	-0.0932*	0.0610*	-0.1006*	-0.0691*	-0.0674*	-0.1239*	1				
	5665	7413	7414	7414	7414	7414	16700				
satisfaction	0.0733*	-0.0039	0.0483*	0.0451*	0.1375*	0.0474*	0.0915*	1			
	5666	7415	7416	7416	7416	7416	16699	16707			
contract1	0.1652*	-0.0484*	0.0880*	0.0757*	0.2485*	0.0994*	-0.0463*	0.0595*	1		
	5666	7415	7416	7416	7416	7416	7414	7417	7417		
contract2	0.0708*	-0.0299*	0.1084*	0.0351*	-0.0133	0.0522*	-0.0741*	-0.0281*	-0.0774*	1	
	5666	7415	7416	7416	7416	7416	7414	7417	7417	7417	
wage	0.2493*	-0.0565*	0.1358*	0.1213*	0.3129*	0.1270*	-0.0332*	0.0044	0.1275*	0.0309*	1
	5517	7202	7203	7203	7203	7203	13792	13794	7203	7203	13795

Table 3 – (number of observations reported below correlations)

	Table 3: Job characteristics correlations for all ages										
	training	meals	health	credit	pension	severance	stress	satisfaction	contract1	contract2	wage
training	1										
	7365										
meals	-0.0495*	1									
	7365	9534									
health	0.1414*	0.0662*	1								
	7365	9534	9535								
credit	0.1436*	0.0485*	0.3004*	1							
	7365	9534	9535	9535							
pension	0.3409*	-0.1114*	0.1736*	0.2764*	1						
	7365	9534	9535	9535	9535						
severance	0.1750*	0.0264*	0.4013*	0.3304*	0.2154*	1					
	7365	9534	9535	9535	9535	9535					
stress	-0.0883*	0.0496*	-0.0866*	-0.0610*	-0.0612*	-0.1091*	1				
	7364	9532	9533	9533	9533	9533	20157				
satisfaction	0.0773*	0.0084	0.0548*	0.0471*	0.1295*	0.0556*	0.0942*	1			
	7365	9534	9535	9535	9535	9535	20156	20164			
contract1	0.1514*	-0.0406*	0.0902*	0.0721*	0.2384*	0.1048*	-0.0432*	0.0513*	1		
	7365	9534	9535	9535	9535	9535	9533	9536	9536		
contract2	0.1008*	-0.0238*	0.1170*	0.0234*	-0.0175	0.0584*	-0.0849*	-0.0196	-0.0844*	1	
	7365	9534	9535	9535	9535	9535	9533	9533	9533	9533	
wage	0.2051*	-0.0569*	0.1153*	0.1071*	0.2903*	0.1168*	-0.0301*	0.0042	0.1126*	0.0269*	1
	7161	9248	9249	9249	9249	9249	16209	16211	9249	9249	16212

Table 4

	Wave 4 Job Characteristics by Occupation - Youth												
Job Category	Training	Meals	Health	Credit	Pension	Severance	Stress	Satisfaction	Contract1	Contract2	Median Monthly Wage (1000's)	Mean Wage	Wage Obs
1. Self-employed	0	0	0	0	0	0	3.59 (0.59)	0.69 (0.46)	0	0	285	3862 (5930)	228
2. Self-employed with unpaid fa	0	0	0	0	0	0	3.56 (0.64)	0.74 (0.44)	0	0	245	5434 (11966.1)	130
3. Self-employed with permaner	0	0	0	0	0	0	3.57 (0.74)	0.79 (0.43)	0	0	1000	30516 (80948.56)	13
4. Government worker/employee	0.42 (0.42)	0.13 (0.49)	0.14 (0.38)	0.25 (0.43)	0.24 (0.18)	0.09 (0.36)	3.4 (0.72)	0.74 (0.43)	0.17 (0.24)	0.17 (0.37)	475	5134.19 (5339.50)	135
5. Private worker/employee	0.22 (0.42)	0.4 (0.49)	0.18 (0.38)	0.24 (0.43)	0.03 (0.18)	0.15 (0.36)	3.41 (0.72)	0.75 (0.43)	0.6 (0.24)	0.17 (0.37)	512	3747.94 (10654)	1508
6. Unpaid family worker	0	0	0	0	0	0	3.7 (0.55)	0.8 (0.40)	0	0	0	0	938
7. Casual non-agriculture	0	0.42 (0.50)	0.01 (0.10)	0.08 (0.27)	0	0	3.56 (0.71)	0.73 (0.45)	0.02 (0.14)	0	187.5	2014.65 (3228.82)	102
8. Casual agriculture	0	0.37 (0.48)	0.06 (0.24)	0.09 (0.29)	0	0.01 (0.06)	3.56 (0.66)	0.67 (0.47)	0.01 (0.10)	0.03 (0.16)	300	2936.15 (4277.91)	300

Table 5

	Wave 4 Job Characteristics by Occupation - Adults												
Job Category	Training	Meals	Health	Credit	Pension	Severance	Stress	Satisfaction	Contract1	Contract2	Median Monthly Wage (1000's)	Mean Wage	Wage Obs
1. Self-employed	0	0	0	0	0	0	3.61 (0.60)	0.82 (0.38)	0	0	295	34826 (1135819)	3088
2. Self-employed with unpaid fa	0	0	0	0	0	0	3.67 (0.56)	0.86 (0.35)	0	0	296	14557 (417420.6)	3200
3. Self-employed with permaner	0	0	0	0	0	0	3.41 (0.69)	0.85 (0.36)	0	0	1275	2887819 (50000000)	304
4. Government worker/employee	0.59 (0.49)	0.1 (0.30)	0.16 (0.36)	0.39 (0.49)	0.66 (0.47)	0.14 (0.34)	3.4 (0.70)	0.92 (0.27)	0.22 (0.42)	0.08 (0.26)	1500	11536.65 (12088.14)	1261
5. Private worker/employee	0.2 (0.40)	0.31 (0.46)	0.22 (0.41)	0.3 (0.46)	0.08 (0.27)	0.24 (0.43)	3.4 (0.72)	0.8 (0.40)	0.06 (0.25)	0.08 (0.28)	694	5548.54 (8124)	4259
6. Unpaid family worker	0	0	0	0	0	0	3.7 (0.55)	0.86 (0.34)	0	0	0	0	2213
7. Casual non-agriculture	0	0.42 (0.49)	0.01 (0.08)	0.08 (0.27)	0	0	3.7 (0.53)	0.74 (0.44)	0.01 (0.12)	0	190	1995.01 (3336.06)	629
8. Casual agriculture	0	0.37 (0.48)	0.02 (0.15)	0.1 (0.30)	0	0.01 (0.10)	3.61 (0.60)	0.74 (0.44)	0.01 (0.11)	0.01 (0.10)	445	4054.28 (12497.65)	1054

It can be seen from tables 1-3, for both youth and adults, that desirable job characteristics are generally positively correlated with each other. For example, the provision of training for adults is positively correlated with all desirable job characteristics except the lack of stress, which implies that jobs where training is provided are more stressful on average than jobs without training. Similarly, training for youth is positively correlated with all other characteristics except for wage, meals and stress. The difference in the non-significant correlation between wages and training for youth and the moderate positive correlation (24%) for the same variables for adults, is striking. However, this is not too surprising as some jobs in which youth are trained may be 'apprenticeship' type jobs where training is negatively related to wages.

The magnitude of the correlations varies greatly with the greatest being the correlation between health benefits and severance entitlement for adults (42%) with many other correlations being much smaller (less than 10%). None of the correlations are particularly surprising except for job satisfaction, which for adults, has no significant correlation to wages. Also, for youth, it is surprising that wage is not significantly correlated with most of the other job characteristics (only 4 out of 10 of the correlations with wage are significant for youth). This may imply that identifying "favorable jobs" for youth may be more difficult in that the key job characteristic of wage is not related to many other desirable job characteristics (particularly the human capital enhancing characteristic of training). Perhaps though, the most important correlation is between satisfaction and training. Satisfaction

may be the best summary measure of the short term welfare benefits of a job while training provision may be the best measure of the long term human capital accumulation that is likely to occur in the job. For youth and adults, the correlation is positive. The next question to ask is whether these characteristics are more present in certain occupational categories than others.

As can be seen in tables 4-5, for both youth and adults, the permanent private worker category and the government worker category are associated with higher proportions of jobs that have training and formal contracts. This may mean that they are the types of jobs most likely to be associated with human capital development in the long run. They also have higher hourly pay rates than for casual workers. One clear finding is that by any measure, casual work, both in agriculture and outside of agriculture, appears less preferable than full-time government or private sector work. The only positive characteristic observed for a large portion of casual workers is the provision of meals. Possibly even worse than casual work is unpaid family labor, but it is not clear to what extent this should count as employment and as we don't have data on hours worked or non-monetary benefits, it is difficult to differentiate between this category and those that are not in the labor force.

Considering the self-employment categories, while they do not have the same range of non-monetary benefits as employment in the private sector or with government, the equivalent hourly wage rates of self-employment are relatively high. As these data are based on reported profit and hours worked, there may be an upward bias in these estimates if youth in these categories under-report hours worked (for example, a youth may only report the time they spend 'selling' and not time spent organizing business activities. Considering the median youth with an unpaid family worker, we see that he/or she earns less per month, than the median youth in the private sector or the median youth working for the government. This is also true for self-employed youth that work by themselves, who earn even less than those with a family worker. For adults, there is an even greater difference in median earnings (measured in 10,000 Rupiah) between the first two self-employment categories (295 and 296, respectively) and private and public sector work (1,500 and 694 respectively). This suggests that in these later occupational categories, workers may experience greater growth in wages than in self-employment 1 and 2. In addition to lower earnings, the standard deviations associated with self-employment are very high implying that income risk in these jobs is high.

To conclude, it seems that self-employment without a permanent worker does not compare favorably to full-time employment in the private or public sectors in terms of 'overall job quality'. In addition to substantial disadvantages such as the absence of employer provided benefits and training there are lower median wages. Also, job satisfaction is lower than or about the same for these self-employed as it is for government and private sector workers. Another possible factor of relevance is the existence of contracts for some private and government workers means that these jobs on average may have greater job security than

self-employment. Thus we hypothesize that self-employment without a permanent worker may be a category of work associated with scarring and limited mobility.

In contrast to the inferiority of the first two self-employment categories, is self-employment with a permanent worker. While it may not be associated with job security or other positive characteristics any more so than the first two self-employment categories, it is associated with the highest wages for youth and the wages second only to government work for adults. For this reason we cannot make any general conclusions about this last category of self-employment except to say that it seems clearly better than self-employment without a permanent worker.

3.4 Transition matrices for occupational category

Based on the statistics above that suggest that self-employment without a permanent worker may be inferior to public and private sector work (and also inferior to self-employment with a permanent worker) we consider the following two questions about mobility:

- 1) What is the extent of medium to long term occupational mobility (over 7-14 years) for youth in Indonesia? Particularly, what is the chance of those in self-employment without permanent workers, progressing to becoming entrepreneurs (with hired permanent workers) or moving to the public or private sector?
- 2) Is there any evidence that youth are stuck in 'low quality self-employment' or that youth are persistently not employed?

Before the concept of "scarring" is considered, it is important to investigate the above two questions. Labor market scarring may occur when involvement in low quality jobs or unemployment in the present leads to a reduced chance of employment in good jobs in the future, and reduced future wages. If occupational mobility is high, this suggests that scarring, at least in terms of employment prospects, is not occurring. For example, if many youth involved in petty self-employment are later found to be working in better paid government jobs or running a business with permanent employees, then there would be no reason to suspect that petty-self-employment is scarring.

However, while low occupational mobility would be consistent with the scarring hypothesis, low mobility by itself is not evidence of scarring. Rather, individual heterogeneity in ability and human capital may be associated with self-selection of individuals into certain types of jobs and create the appearance of scarring. For example, youth that are poorly educated may start their careers in petty self-employment and remain in petty self-employment because they do not have the qualifications or motivation needed to progress to other jobs. Alternatively, if scarring is causal, youth with the same ability and education may have very different career outcomes simply because of experiences in certain types of jobs or because

of periods of being out of the labor force. We now investigate mobility by using simple transition matrices.

A variable for primary activity/occupation was constructed in this analysis using the combination of the 8 categories for jobs described earlier with categories that cover the following non-employment activities- *12.Job Search*, *13.Education*, and *19.Not in the labor force and not in education* (includes housekeeping, retirement, being sick or disabled, being on vacation and “other”). Transition matrices for occupational status are listed and described below, for various age cohorts and time periods in IFLS. The tables are presented at the end of the paper.

List and description of transition matrices for occupational change over time			
Table	Time period	Gender	Age
Table 1	1993/2007	male	15-24 in 1993
Table 2	1993/2000	male	15-24 in 1993
Table 3	2000/2007	male	15-24 in 2000
Table 4	1993/2007	male	aged 25 and over in 1993
Table 5	1993/2000	male	aged 25 and over in 1993
Table 6	2000/2007	male	aged 25 and over in 2000
Table 7	1993/2007	female	15-24 in 1993
Table 8	1993/2000	female	15-24 in 1993
Table 9	2000/2007	female	15-24 in 2000
Table 10	1993/2007	female	aged 25 and over in 1993
Table 11	1993/2000	female	aged 25 and over in 1993
Table 12	2000/2007	female	aged 25 and over in 2000

There are several interesting results that can be seen in the transition matrices. The first striking result is for transitions from self-employment. Overall, a very small percentage of individuals (both adults and youth) transition from self-employment by themselves and self-employment with a family member temp/work to being self-employed with a permanent work (Generally about 1%-2%, regardless of age, gender or the time period considered). This is reflective of the fact that in 1993, 2000, and 2007 there were only small numbers of individuals in the “self-employment with permanent worker category” (113, 140 and 226

respectively) with many more in the other two self-employment categories. Together with the low rates of transition, this suggests that for the vast majority of individuals in Indonesia, growing a successful business is an unlikely prospect, even for those who are initially self-employed.

Secondly, looking at youth transitions, we do not see high rates of transition out of the first two self-employment categories into non-casual private sector employment or public sector employment. For example, about 50% of young males in self-employment 1 in 2000 are in self-employment 1 or self-employment 2 seven years later, in 2007. This contrasts to the fact that in 2007, only about 21% of all male youth are in self-employment 1 or self-employment 2. Similarly, of the male youth in private sector jobs in 2000, 67% were in some form of private sector employment (categories 5, 7 & 8) in 2007. This contrasts to the 50% of male youth overall, that were in private sector employment in 2007. The idea that youth take many opportunities to trial different types of jobs is not consistent with the strong relationship between present and future occupation for youth.

Another interesting finding is that women have high levels of non-participation in the labor market that persists over time. While 15% of young males not in the labor force or education in 2000 are still so in 2007, 70% of young females not in the labor force or education in 2000, remain so in 2007. This is a gender issue and not an issue of age, as 70% of adult females from 2000/2007 similarly remain out of the labor force and education. Lastly, in addition to noticeable differences between genders, there are differences between time periods. Persistence in the same occupation seems to be not as strong over the years 2000/2007 (table 6) compared to 1993/2000 (table 5). This might be related to particular economic issues, namely the decentralization of government and the impact of the Asian financial crises.

This picture of mobility may be cause for concern. The persistence in self-employment categories 1 & 2 may be considered a problem, considering the characteristics typically associated with such employment. Youth that stay in this type of self-employment for long periods of time may experience little human capital development and consequently little growth in earnings, even if they move onto jobs in the formal private or public sectors. However, there is no easy way of determining an “ideal level” of mobility as to some extent, a lack of mobility may reflect preferences for certain types of work rather than limited opportunities to change jobs. Our measures of mobility cannot by themselves be evidence of labor market scarring. We address this issue with panel data estimation in the next section.

4. Labor Market Scarring in Indonesia

The results from section 3- low levels of transitions out of SE1 and SE2 to other categories indicates the possibility of a “poor jobs trap”. That is, that individuals’ human capital is not developed in these jobs (or their human capital possibly even deteriorates) and these

individuals are unable to progress to better employment (in the private or public sector) or successful entrepreneurship. However, if this is the case, then the returns to experience in these jobs should be lower than the returns to experience in full-time government and private sector jobs. So the key question we seek to answer in this section is: What are the returns to years spent mostly in self-employment for youth and for adults? In particular, how do these returns compare to the returns to private sector or government work? Consequently, the equation we are interested in estimating is:

$$W_{ij} = \gamma Z_j + \alpha E_i + \beta S_i + \delta T_i + \theta_i + \varepsilon_{ij}$$

Where W_{ij} is the log monthly earnings (either wages or profit) of individual i in job j , Z_j is a vector of job characteristics, E_i is a vector of education characteristics, S_i is a vector of labor market experience variables (that are returns to experience for each β that is positive and an indication of scarring for each β that is negative. T_i is a vector of observable time variant characteristics such as household characteristics and year fixed effects. Lastly, the structure of the data is reflected in the decomposition of the error term into two components, one of which is individual-specific and time invariant (θ_i).

Particularly, we want to know if after controlling for individual heterogeneity (education and unobservables related to productivity), a scarring effect can be identified for some types of work experience. There are three key challenges involved in this. Firstly, there is the problem of the work history data not containing information about job search and unemployment. This means that we cannot investigate the long term scarring effects of unemployment. Secondly, another major shortcoming of using IFLS to measure the returns to experience is that only a variable for the approximate number of total years in each employment category can be created. As previously mentioned, the precise amount of experience for any given employment category is not known and so the resultant experience variables are “noisy”. Unfortunately, there is nothing we can do to reduce the measurement error in this variable. This means that if the work experience variables have no significant relationship with wages, it may simply be because they are noisy. While it may not be possible to confirm when an experience variable is truly unrelated to wages, the opposite is not the case. If there is a strong relationship between an experience variable and wages, this would be *in-spite* of measurement error, and not because of it. Thus it may be possible to confirm when there are significant positive or negative returns to certain types of work experience.

Lastly, there is the challenge of controlling for unobservable heterogeneity which may be quite important in the determination of wages. Not controlling for unobservable heterogeneity could lead to biased estimates. To control for individual time invariant heterogeneity (θ_i), we can use fixed effects (FE) estimation. To control for time variant heterogeneity (e.g. motivation) the best we can do is to include variables that measure a range of observable characteristics that are closely correlated to these unobservables. Of course, even with these measures there is no guarantee that our estimates will not be

biased. In table Y we present results for four different fixed effects estimations for the youth sample from IFLS (aged 15 to 38) that are working 35 hours or more per week. Similarly, the same estimations for older adults (aged over 38) are presented in table X. We split the sample based on age as the early experiences of youth in the workforce may impact their future labor market outcomes in a qualitatively different manner to older adults. We first discuss the four estimations for youth and will then contrast these results to the estimations for adults.

The first estimation in Table Y (FE1) is for a simplified model of the log of monthly earnings as a function of past employment experience, education and controls for hours worked per week and dummy variables for year fixed effects (not reported). It excludes other job characteristics because they are not present across all 4 waves of IFLS. Unsurprisingly, in FE1, school education has positive and significant returns. A university degree is also associated with a large increase in wages, of about 28%, though there is no detectable return to a college degree.

Table Y: Monthly earnings and work experience for youth, fixed effects estimates				
VARIABLES	(FE1)	(FE2)	(FE3)	(FE4)
hours worked in a normal week	0.003* (0.001)	0.003* (0.001)	0.002 (0.002)	0.002 (0.002)
Years in primary and secondary school	0.036* (0.019)	0.035* (0.019)	0.036* (0.021)	0.036* (0.021)
Is a university graduate	0.280** (0.140)	0.255* (0.141)	0.297** (0.149)	0.296** (0.149)
Is a college graduate	0.094 (0.142)	0.083 (0.142)	0.110 (0.148)	0.110 (0.148)
Years mostly self-employed	-0.033* (0.017)	-0.033* (0.017)	-0.045** (0.018)	-0.045** (0.018)
Years mostly in government employment	0.032 (0.021)	0.031 (0.021)	0.014 (0.023)	0.014 (0.023)
Years mostly in private sector employment	-0.004 (0.016)	-0.008 (0.016)	-0.025 (0.017)	-0.026 (0.017)
Industry: Mining and quarrying		0.161 (0.212)	0.214 (0.239)	0.213 (0.239)
Industry: Manufacturing		0.157** (0.071)	0.147* (0.076)	0.147* (0.076)
Industry: Electricity, gas, water		0.088 (0.298)	-0.023 (0.338)	-0.022 (0.338)
Industry: Construction		0.186** (0.087)	0.164* (0.092)	0.164* (0.092)
Industry: Wholesale, retail, restaurants, hotels		0.030 (0.075)	0.062 (0.080)	0.061 (0.080)
Industry: Transport, storage, communications		0.128 (0.093)	0.148 (0.099)	0.145 (0.099)
Industry: Finance, insurance, real estate, business services		0.214	0.264	0.265

	(0.156)	(0.170)	(0.170)	
Industry: Social services	0.081	0.080	0.083	
	(0.074)	(0.079)	(0.079)	
government worker/employee	-0.011	-0.035	-0.034	
	(0.136)	(0.147)	(0.147)	
private worker/employee	0.087*	0.118**	0.120**	
	(0.045)	(0.048)	(0.048)	
In urban area		0.089	0.092	
		(0.063)	(0.063)	
Status as household head: 1=yes; 0=no		0.183**	0.184**	
		(0.088)	(0.088)	
Married: 1=yes; 0=no		0.087*	0.086*	
		(0.048)	(0.048)	
Muslim: 1=yes; 0=no		0.147	0.146	
		(0.207)	(0.207)	
House ownership: 1=owned; 0=not owned		-0.079	-0.079	
		(0.054)	(0.054)	
Electricity in house: 1=yes; 0=no		0.129	0.128	
		(0.113)	(0.113)	
Toilet in house: 1=yes; 0=no		-0.015	-0.014	
		(0.046)	(0.046)	
Farm business: 1=hh with farming business; 0=no		0.082	0.084	
		(0.053)	(0.053)	
Non-farm business: 1=hh with non-farming business; 0=no		-0.001	-0.002	
		(0.040)	(0.040)	
Work history data incomplete			-0.522	
			(0.438)	
Observations	11,546	11,507	9,450	9,450
R-squared	0.557	0.561	0.564	0.564
Number of individuals	9,801	9,773	7,912	7,912

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

A constant was included in all estimations but is not reported, as were time fixed effects.

Our main interest however, is in the coefficients for the experience variables. In relation to these variables it is important to note that “Years mostly self-employed” includes all types of self-employment and so we cannot separate the effects of different types of self-employment experience on wages. While self-employment with a permanent work may be very different to the other forms of self-employment, it makes up a very small proportion of observations (only 2% of youth and adults are in this type of self-employment). This means that while the coefficient for the self-employment experience variable is the weighted average of all types of self-employment, it mostly reflect the return to self-employment without permanent staff. Strikingly, an extra year spent mostly in self-employment is related to a 3.6% lower current wage for youth, compared to the baseline of years not working. This is evidence of scarring for youth. Given the measurement error issues with this variable, a “false positive” result for scarring for this variable is unlikely, unless it is related to omitted

variable bias (which we cannot rule out in this estimation). Government experience in contrast, is positive and about 3.3%, but is not significant (the p-value is 0.12). The low significance of this variable may be due to measurement error, as it seems unrealistic that there are no returns to government experience. Lastly, there are no detectable returns to private sector employment which also seems unlikely but could be due to measurement error.

The second estimation (FE2) adds variables for industry and for current job type (whether work is private sector or public sector, with self-employment being the baseline category). Clearly, there is very little change in the coefficients and as only a few observations are lost in the second estimation (only 39 out of 11546), it seems to unambiguously confirm the finding of scarring for self-employment from FE1. We can conclude that the 3.3% reduction in current wage per year of self-employment is not because self-employment experience leads youth to choose certain types of work in certain types of industries that are low paying. However, it could be the time varying individual heterogeneity causes youth to work in self-employment and subsequently earn lower wages. For example, suppose a youth grows less motivated or able to work over time for personal reasons (e.g. health or family) and spends years working in self-employment. This youth may subsequently end up in lower paying work regardless of whether or not they experienced any human capital deterioration as a result of working in self-employment. They may have ended up with lower wage growth no matter what type of work experience they accumulated.

The best we can do to control for time varying heterogeneity is to include control variables for household and personal characteristics. We do this in FE3, which includes controls for living in an urban area, being the head of household, marital status, religion, housing conditions, and any businesses associated with the house. Again, it seems that regardless of the additional variables, the coefficients for the experience variables follow a similar pattern. Government and private sector employment are not significant but self-employment is now even more statistically significant and slightly greater in magnitude, at about a 4.5% penalty per year of past experience. The strength of this result is somewhat surprising as it suggests a significant level of scarring for youth. Lastly, as a large proportion of individuals do not have a complete work history data, and this may be significant, we estimate FE4, which is identical to FE3 except for the inclusion of a dummy variable for non-complete work history. It results in no change to the experience variable. While FE3 and FE4 would seem preferable to the results in FE1 and FE2, they have fewer observations as data from waves 1 and 2 are excluded due to some of the control variables not being recorded in the earlier waves. In any case, all four estimations point to the same conclusion: that the number of years spent mostly in self-employment is associated with a wage scarring effect for those currently in full-time employment and who are aged 38 or under.

We present in table X, equivalent estimates for the four models discussed above using a sample of older adults (observations for those over the age of 38). As all of the estimation

issues applicable to the first four estimations are also applicable to FE5-FE8, we do not repeat discussion of them here. The only additional problem is that there is little variation in education attainment for adults over 38 which explains why the coefficients for the education variables are not statistically significant (unlike FE1-FE4).

The first estimation (FE5) reveals startlingly different results for the returns to all types of work experience compared to FE1. For adults, there are positive and high returns to private sector work and self-employment that are about equal (4.4% and 4.5% respectively). Government work is associated with a high and significant return of 8%. Adding more control variables for job characteristics and personal characteristics (FE7) does not lessen the statistical significance or strength of the return to any type of work experience, with government work still having the highest return. Lastly, adding a control variable for those with incomplete work history data does reduce the significance of the private sector and self-employment experience variables, though they remain positive.

Overall, the equivalent estimations for older adults reveal that self-employment scarring is clearly not generalizable across age demographics. However, why wage scarring occurs for youth and not adults is much less clear. There are several possible explanations. Firstly, it may be that human capital deteriorates for a number of years for youth that enter self-employment with a certain level of education (as they lose skills and knowledge developed in school). This human capital deterioration could be simultaneously offset by the benefits of having more work experience, so after a certain number of years, the net return to self-employment could become positive. Unfortunately there is no way to test this hypothesis as we do not have individual's complete labor market history.

Alternatively, it could be that the types of work experience captured by the self-employment experience variable are qualitatively different for adults and youth, even though this work experience is categorized as "self-employment" which we admit, is a very broad category. It could also be that the individuals that are working in self-employment later on in their lives are very different to the types of individuals working in self-employment when they are young. For example, youth may work in self-employment as a last resort when they can't find other work whereas older adults may work in self-employment out of preference. More specifically, it could be that years spent mostly self-employment for youth are also years where they spend time in unemployment. Without data on this though, no conclusion can be drawn about the exact causes of self-employment scarring. Further research needs to be done to identify the mechanisms at play underlying the scarring. Regardless of the cause however, negative returns to any type of work experience should be cause for concern among policy makers.

Table X: Wages and work experience for Adults, fixed effects estimates

VARIABLES	(FE5)	(FE6)	(FE7)	(FE8)
hours worked in a normal week	0.003* (0.002)	0.003 (0.002)	0.003 (0.002)	0.003 (0.002)

Years in primary and secondary school	-0.006 (0.016)	0.001 (0.021)	-0.001 (0.021)	-0.001 (0.021)
Is a university graduate	-0.024 (0.200)	0.010 (0.219)	0.018 (0.219)	0.022 (0.219)
Is a college graduate	0.112 (0.229)	0.124 (0.264)	0.126 (0.265)	0.128 (0.264)
Years mostly self-employed	0.045* (0.026)	0.045 (0.033)	0.056* (0.033)	0.037 (0.035)
Years mostly in government employment	0.080*** (0.027)	0.085** (0.034)	0.096*** (0.034)	0.078** (0.036)
Years mostly in private sector employment	0.044* (0.026)	0.050 (0.033)	0.060* (0.033)	0.041 (0.035)
Industry: Mining and quarrying		-0.218 (0.310)	-0.203 (0.313)	-0.210 (0.313)
Industry: Manufacturing		0.278** (0.122)	0.267** (0.124)	0.257** (0.124)
Industry: Electricity, gas, water		0.466 (0.405)	0.475 (0.406)	0.456 (0.406)
Industry: Construction		0.234* (0.134)	0.214 (0.135)	0.200 (0.135)
Industry: Wholesale, retail, restaurants, hotels		0.168 (0.116)	0.153 (0.119)	0.144 (0.119)
Industry: Transport, storage, communications		0.224 (0.147)	0.221 (0.150)	0.203 (0.150)
Industry: Finance, insurance, real estate, business services		0.267 (0.417)	0.230 (0.419)	0.214 (0.419)
Industry: Social services		0.016 (0.110)	0.006 (0.112)	0.001 (0.112)
government worker/employee		0.030 (0.160)	0.006 (0.161)	0.003 (0.161)
private worker/employee		0.047 (0.075)	0.029 (0.079)	0.034 (0.079)
In urban area			-0.032 (0.105)	-0.032 (0.105)
Status as household head: 1=yes; 0=no			0.195 (0.212)	0.197 (0.212)
Married: 1=yes; 0=no			0.027 (0.134)	0.023 (0.134)
Muslim: 1=yes; 0=no			-0.072 (0.278)	-0.086 (0.278)
House ownership: 1=owned; 0=not owned			0.010 (0.089)	0.011 (0.089)
Electricity in house: 1=yes; 0=no			0.121 (0.141)	0.117 (0.140)
Toilet in house: 1=yes; 0=no			0.129** (0.065)	0.132** (0.065)
Farm business: 1=hh with farming business; 0=no			-0.026 (0.088)	-0.028 (0.088)
Non farm business: 1=hh with farming business; 0=no			-0.052 (0.065)	-0.057 (0.065)
Work history data incomplete				-0.165 (0.101)

Observations	7,783	6,523	6,211	6,211
Number of individuals	5,989	5,384	5,085	5,085

Standard errors in parentheses, Level of significance- *** p<0.01, ** p<0.05, * p<0.1

5. Conclusion

This paper has argued that the 'scarring' literature can be made more relevant to low and middle income countries through the concept of labor market scarring- where certain types of jobs may be associated with human capital deterioration or stagnation resulting in zero or negative returns to work experience. Also, it was argued using data from IFLS, that self-employment in Indonesia may largely be low quality, as a variety of desirable work characteristics are not present. For example, self-employment is not associated with having pensions, health benefits or formal training. In particular, it seems that self-employment without a permanent worker is inferior to having a full time job in the private sector and to government work. In addition to identifying differences in job quality, this paper investigated job mobility over the period of 1993 to 2007. Strong patterns of persistence were identified for several types of work, including self-employment and government work. In particular, successful entrepreneurship appears to be rare, with very few individuals progressing from 'petty' self-employment (i.e. without a permanent employee) to self-employment with a permanent employee. This may be cause for concern as youth who start work in self-employment may fail to develop their human capital, and may experience zero or negative wage growth over the long term.

While the human capital implications of different types of work experience are not directly observable, we can observe the long run impact on wages. In section 4 of the paper we estimate the effect of self-employment experience, government employment experience and private sector experience on wages using fixed effects estimation with a broad range of control variables. In doing so, we fully control for time invariant heterogeneity (such as gender) and partly control for time variant heterogeneity (such as being the head of household). We present estimations for both youth and older adults so that any scarring effects specific to youth may be identified.

The results are largely consistent with the descriptive analysis presented in section 3 of the paper that suggested the possibility of labor market scarring from periods in self-employment. For every year spent mostly in self-employment, there is about a 3-4% penalty on current wages. In contrast, for older adults we find positive returns to all types of experience. Considering the very limited research on scarring, mobility and job quality in the labor markets of low and middle income countries, the evidence presented helps to fill a major gap in the literature.

Given the heterogeneity of working forms in most low and middle income countries, further research should be conducted to investigate scarring from a wider range of labor market experiences. In Indonesia the government is considering the value to policy making of collecting the data that will allow analysis of scarring from periods of work without a written labor contract; less-than-full time positions; as outsourced labor, and other forms of engagement. Scarring can indicate when valuable human capital may be lost, with implications for both household welfare and labor productivity in the economy. If evidence

of scarring from early periods of work in these jobs grows, it will form a strong motivation for more policy attention to be paid to how young people make the transition from school to work.

Transition matrices for occupational category

Table 1

Table 1: Transition matrix of occupational changes- young males 1993/2007												
	Occupational status 2007											
	1	2	3	4	5	6	7	8	12	13	19	Total
Occupational status 1993												
1. Self-employed	42%	33%	0%	0%	11%	3%	0%	8%	3%	0%	0%	100.0%
-Observations	15	12	0		0	4	1	0	3	1	0	36
2. Self-employed, family worker	20.7%	41.4%	10.3%	6.9%	10.3%	0.0%	0.0%	6.9%	0.0%	0.0%	3.4%	100.0%
-Observations	6	12	3	2	3	0	0	2	0	0	1	29
3. Self-employed, permanent worker	0.0%	25.0%	0.0%	0.0%	50.0%	0.0%	25.0%	0.0%	0.0%	0.0%	0.0%	100.0%
-Observations	0	1	0	0	2	0	1	0	0	0	0	4
4. Government worker	25.0%	0.0%	0.0%	50.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
-Observations	1	0	0	2	1	0	0	0	0	0	0	4
5. Private worker	17.2%	13.8%	5.7%	2.3%	37.9%	2.3%	3.4%	11.5%	1.1%	0.0%	4.6%	100.0%
-Observations	15	12	5	2	33	2	3	10	1	0	4	87
6. Unpaid family worker	16.1%	41.9%	3.2%	6.5%	9.7%	9.7%	0.0%	6.5%	0.0%	0.0%	6.5%	100.0%
-Observations	5	13	1	2	3	3	0	2	0	0	2	31
12. Job Search	20.0%	15.0%	5.0%	0.0%	35.0%	0.0%	0.0%	10.0%	5.0%	0.0%	10.0%	100.0%
-Observations	4	3	1	0	7	0	0	2	1	0	2	20
13. Education	13.8%	10.0%	1.3%	3.8%	53.8%	2.5%	1.3%	3.8%	3.8%	1.3%	5.0%	100.0%
-Observations	11	8	1	3	43	2	1	3	3	1	4	80
19. Not in labour force/edu	29.2%	16.7%	0.0%	4.2%	37.5%	0.0%	0.0%	4.2%	4.2%	0.0%	4.2%	100.0%
-Observations	7	4	0	1	9	0	0	1	1	0	1	24
Column total	64	65	11	12	101	11	6	20	9	2	14	315

Note: Occupational category 7 is “casual worker in non-agriculture”. Occupational category 8 is “casual worker in agriculture”. These categories are only present in wave 4, 2007. In 1993 and 2000, these categories would have been combined with category 5, for private workers.

Table 2

Table 2: Transition matrix of occupational changes- young males 1993/2000										
	Occupational status 2000									
	1.	2.	3.	4.	5.	6.	12.	13.	19.	Total
Occupational status 1993										
1. Self-employed	54%	16%	3%	0%	24%	3%	0%	0%	0%	100.0%
-Observations	20	6	1	0	9	1	0	0	0	37
2. Self-employed, family worker	34.5%	37.9%	0.0%	3.4%	10.3%	3.4%	0.0%	0.0%	10.3%	100.0%
-Observations	10	11	0	1	3	1	0	0	3	29
3. Self-employed, permanent worker	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
-Observations	2	1	0	0	0	0	0	0	0	3
4. Government worker	20.0%	0.0%	0.0%	40.0%	40.0%	0.0%	0.0%	0.0%	0.0%	100.0%
-Observations	1	0	0	2	2	0	0	0	0	5
5. Private worker	13.8%	9.6%	1.1%	5.3%	58.5%	3.2%	3.2%	0.0%	5.3%	100.0%
-Observations	13	9	1	5	55	3	3	0	5	94
6. Unpaid family worker	20.7%	31.0%	0.0%	0.0%	17.2%	20.7%	0.0%	0.0%	10.3%	100.0%
-Observations	6	9	0	0	5	6	0	0	3	29
12. Job Search	26.3%	5.3%	5.3%	0.0%	42.1%	0.0%	10.5%	0.0%	10.5%	100.0%
-Observations	5	1	1	0	8	0	2	0	2	19
13. Education	9.8%	2.4%	2.4%	4.9%	41.5%	7.3%	4.9%	13.4%	13.4%	100.0%
-Observations	8	2	2	4	34	6	4	11	11	82
19. Not in labour force/edu	9.5%	9.5%	4.8%	0.0%	52.4%	4.8%	0.0%	4.8%	14.3%	100.0%
-Observations	2	2	1	0	11	1	0	1	3	21
Column total	67	41	6	12	127	18	9	12	27	319

Table 3

Table 3: Transition matrix of occupational changes- young males 2000/2007												
	Occupational status 2007											
	1.	2.	3.	4.	5.	6.	7.	8.	12.	13.	19.	Total
Occupational status 2000												
1. Self-employed	36.5%	16.0%	2.6%	0.6%	22.4%	3.2%	3.8%	7.1%	1.9%	0.0%	5.8%	100.0%
-Observations	57	25	4		1	35	5	6	11	3	0	147
2. Self-employed, family worker	23.2%	23.2%	8.7%	0.0%	27.5%	4.3%	0.0%	7.2%	4.3%	0.0%	1.4%	100.0%
-Observations	16	16	6	0	19	3	0	5	3	0	1	69
3. Self-employed, permanent worker	12.5%	12.5%	25.0%	0.0%	37.5%	0.0%	0.0%	0.0%	12.5%	0.0%	0.0%	100.0%
-Observations	1	1	2	0	3	0	0	0	1	0	0	8
4. Government worker	3.2%	9.7%	0.0%	35.5%	25.8%	3.2%	0.0%	6.5%	6.5%	0.0%	9.7%	100.0%
-Observations	1	3	0	11	8	1	0	2	2	0	3	31
5. Private worker	10.5%	6.3%	1.0%	1.4%	54.6%	3.2%	2.3%	10.1%	4.0%	0.1%	6.3%	100.0%
-Observations	73	44	7	10	379	22	16	70	28	1	44	694
6. Unpaid family worker	13.5%	17.9%	0.0%	2.2%	18.8%	21.8%	6.6%	5.7%	2.6%	0.4%	10.5%	100.0%
-Observations	31	41	0	5	43	50	15	13	6	1	24	229
12. Job Search	14.6%	7.6%	1.3%	4.4%	34.8%	8.9%	3.2%	10.8%	7.6%	0.0%	7.0%	100.0%
-Observations	23	12	2	7	55	14	5	17	12	0	11	158
13. Education	6.6%	4.1%	1.1%	8.8%	47.9%	7.0%	0.8%	4.5%	5.8%	5.6%	7.8%	100.0%
-Observations	48	30	8	64	350	51	6	33	42	41	57	730
19. Not in labour force/edu	14.2%	7.2%	0.6%	3.1%	33.3%	5.7%	3.5%	8.5%	6.9%	1.9%	15.1%	100.0%
-Observations	45	23	2	10	106	18	11	27	22	6	48	318
Column total	295	195	31	107	964	194	58	173	127	52	188	2384

Table 4

Table 4: Transition matrix of occupational changes- adult males 1993/2007												
	Occupational status 2007											
	1.	2.	3.	4.	5.	6.	7.	8.	12.	13.	19.	Total
Occupational status 1993												
1. Self-employed	31%	36%	2%	1%	7%	2%	2%	4%	0%	0%	15%	100.0%
-Observations	294	335	18		10	66	19	19	35	4	139	939
2. Self-employed, family worker	15.9%	53.0%	2.6%	0.7%	4.8%	1.8%	2.7%	3.1%	0.3%	0.0%	15.1%	100.0%
-Observations	142	473	23	6	43	16	24	28	3	135	893	1786
3. Self-employed, permanent worker	14.9%	29.8%	17.0%	2.1%	12.8%	2.1%	2.1%	2.1%	2.1%	0.0%	14.9%	100.0%
-Observations	7	14	8	1	6	1	1	1	1	7	47	94
4. Government worker	4.2%	10.0%	0.8%	49.5%	7.2%	1.9%	0.6%	0.8%	0.0%	0.0%	24.8%	100.0%
-Observations	20	47	4	233	34	9	3	4	0	117	471	942
5. Private worker	15.8%	19.4%	1.1%	3.0%	25.8%	1.8%	5.0%	9.2%	1.4%	0.0%	17.6%	100.0%
-Observations	186	229	13	35	304	21	59	108	16	208	1179	2358
6. Unpaid family worker	14.7%	44.1%	2.9%	2.9%	0.0%	2.9%	5.9%	5.9%	0.0%	0.0%	20.6%	100.0%
-Observations	5	15	1	1	0	1	2	2	0	7	34	68
12. Job Search	18.9%	18.9%	0.0%	1.9%	13.2%	0.0%	5.7%	9.4%	1.9%	0.0%	30.2%	100.0%
-Observations	10	10	0	1	7	0	3	5	1	16	53	106
13. Education	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
-Observations	0	0	0	0	1	0	0	0	0	0	1	2
19. Not in labour force/edu	16.2%	21.6%	0.5%	1.5%	5.4%	2.5%	2.5%	4.9%	0.5%	0.0%	44.6%	100.0%
-Observations	33	44	1	3	11	5	5	10	1	91	204	408
Column total	697	1167	68	280	416	119	116	177	57	585	3021	6703

Table 5

Table 5: Transition matrix of occupational changes- adult males 1993/2000										
Occupational status 1993	Occupational status 2000									Total
	1.	2.	3.	4.	5.	6.	12.	13.	19.	
1. Self-employed	41%	29%	2%	1%	13%	2%	1%	0%	11%	100.0%
-Observations	474	337	28	16	152	19	6	0	134	1166
2. Self-employed, family worker	28.3%	42.4%	2.5%	0.6%	10.1%	2.7%	0.4%	0.0%	12.9%	100.0%
-Observations	325	487	29	7	116	31	5	0	148	1148
3. Self-employed, permanent worker	33.8%	26.2%	16.9%	3.1%	7.7%	0.0%	3.1%	0.0%	9.2%	100.0%
-Observations	22	17	11	2	5	0	2	0	6	65
4. Government worker	3.0%	5.9%	0.2%	66.2%	10.3%	0.4%	0.2%	0.2%	13.7%	100.0%
-Observations	17	33	1	372	58	2	1	1	77	562
5. Private worker	17.3%	12.5%	1.1%	2.9%	52.6%	1.1%	1.2%	0.0%	11.5%	100.0%
-Observations	240	173	15	40	729	15	16	0	159	1387
6. Unpaid family worker	10.0%	32.5%	7.5%	0.0%	22.5%	15.0%	2.5%	0.0%	10.0%	100.0%
-Observations	4	13	3	0	9	6	1	0	4	40
12. Job Search	21.1%	15.8%	1.8%	3.5%	35.1%	0.0%	1.8%	0.0%	21.1%	100.0%
-Observations	12	9	1	2	20	0	1	0	12	57
13. Education	0.0%	0.0%	0.0%	33.3%	66.7%	0.0%	0.0%	0.0%	0.0%	100.0%
-Observations	0	0	0	1	2	0	0	0	0	3
19. Not in labour force/edu	21.0%	13.6%	1.0%	1.5%	10.7%	2.0%	1.0%	0.0%	49.1%	100.0%
-Observations	82	53	4	6	42	8	4	0	192	391
Column total	1176	1122	92	446	1133	81	36	1	732	4819

Table 6

Table 6: Transition matrix of occupational changes- adult males 2000/2007												
Occupational status 2000	Occupational status 2007											Total
	1.	2.	3.	4.	5.	6.	7.	8.	12.	13.	19.	
1. Self-employed	34.8%	32.0%	2.4%	1.3%	9.8%	1.5%	2.8%	4.4%	0.7%	0.1%	10.3%	100.0%
-Observations	518	477	36	19	146	22	41	66	11	1	1337	
2. Self-employed, family worker	18.3%	53.2%	2.8%	1.5%	5.3%	2.2%	2.7%	2.5%	0.5%	0.1%	11.0%	100.0%
-Observations	232	674	35	19	67	28	34	32	6	1	139	1267
3. Self-employed, permanent worker	20.7%	31.0%	23.3%	0.0%	12.1%	1.7%	0.0%	0.9%	0.9%	0.0%	9.5%	100.0%
-Observations	24	36	27	0	14	2	0	1	1	0	11	116
4. Government worker	3.7%	5.6%	0.5%	66.5%	6.7%	1.2%	0.7%	0.9%	0.0%	0.0%	14.1%	100.0%
-Observations	21	32	3	377	38	7	4	5	0	0	80	567
5. Private worker	11.7%	13.0%	1.1%	4.1%	41.9%	1.6%	3.6%	10.8%	2.0%	0.1%	10.1%	100.0%
-Observations	250	278	23	88	898	34	78	231	43	2	217	2142
6. Unpaid family worker	15.6%	33.5%	1.2%	3.0%	8.4%	15.0%	4.2%	3.6%	0.6%	0.0%	15.0%	100.0%
-Observations	26	56	2	5	14	25	7	6	1	0	25	167
12. Job Search	18.9%	13.2%	0.9%	4.7%	27.4%	0.9%	3.8%	10.4%	4.7%	0.0%	15.1%	100.0%
-Observations	20	14	1	5	29	1	4	11	5	0	16	106
13. Education	11.8%	5.9%	0.0%	11.8%	70.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
-Observations	2	1	0	2	12	0	0	0	0	0	0	17
19. Not in labour force/edu	12.1%	16.7%	0.9%	2.2%	12.8%	3.1%	2.8%	4.8%	1.3%	0.0%	43.3%	100.0%
-Observations	66	91	5	12	70	17	15	26	7	0	236	545
Column total	1159	1659	132	508	1161	260	164	353	129	14	725	6264

Table 7

Table 8: Transition matrix of occupational changes- young females 1993/2000										
Occupational status 1993	Occupational status 2000									
	1.	2.	3.	4.	5.	6.	12.	13.	19.	Total
1. Self-employed	38%	8%	0%	0%	13%	10%	0%	0%	31%	100.0%
-Observations	15	3	0	0	5	4	0	0	12	39
2. Self-employed, family worker	12.5%	25.0%	0.0%	0.0%	6.3%	18.8%	0.0%	0.0%	37.5%	100.0%
-Observations	2	4	0	0	1	3	0	0	6	16
3. Self-employed, permanent worker	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
-Observations	0	0	0	0	0	0	0	0	0	0
4. Government worker	0.0%	0.0%	0.0%	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%	100.0%
-Observations	0	0	0	2	1	0	0	0	0	3
5. Private worker	0.0%	0.0%	0.0%	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%	100.0%
-Observations	4	1	0	0	34	5	0	0	30	74
6. Unpaid family worker	5.4%	1.4%	0.0%	0.0%	45.9%	6.8%	0.0%	0.0%	40.5%	100.0%
-Observations	7	6	0	0	2	14	0	0	21	50
12. Job Search	14.0%	12.0%	0.0%	0.0%	4.0%	28.0%	0.0%	0.0%	42.0%	100.0%
-Observations	1	0	1	0	1	1	0	0	4	8
13. Education	12.5%	0.0%	12.5%	0.0%	12.5%	12.5%	0.0%	0.0%	50.0%	100.0%
-Observations	5	0	0	5	25	3	5	7	30	80
19. Not in labour force/edu	6.3%	0.0%	0.0%	6.3%	31.3%	3.8%	6.3%	8.8%	37.5%	100.0%
-Observations	49	23	1	1	47	36	1	1	299	458
Column total	83	37	2	8	116	66	6	8	402	728

Table 8

Table 9: Transition matrix of occupational changes- young females 2000/2007												
Occupational status 2000	Occupational status 2007											
	1.	2.	3.	4.	5.	6.	7.	8.	12.	13.	19.	Total
1. Self-employed	15.0%	8.8%	1.3%	0.0%	8.8%	15.0%	0.0%	1.3%	0.0%	0.0%	50.0%	100.0%
-Observations	12	7	1	0	7	12	0	1	0	0	40	80
2. Self-employed, family worker	5.9%	0.0%	0.0%	0.0%	5.9%	14.7%	0.0%	2.9%	2.9%	0.0%	67.6%	100.0%
-Observations	2	0	0	0	2	5	0	1	1	0	23	34
3. Self-employed, permanent worker	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	100.0%
-Observations	1	0	0	0	0	0	0	0	0	0	1	2
4. Government worker	0.0%	0.0%	0.0%	56.3%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.8%	100.0%
-Observations	0	0	0	9	4	0	0	0	0	0	3	16
5. Private worker	4.0%	3.0%	0.2%	2.0%	36.3%	5.0%	1.2%	1.6%	0.8%	0.2%	45.6%	100.0%
-Observations	20	15	1	10	181	25	6	8	4	1	227	498
6. Unpaid family worker	5.5%	3.0%	0.0%	1.0%	6.0%	27.0%	2.0%	0.0%	0.5%	0.0%	55.0%	100.0%
-Observations	11	6	0	2	12	54	4	0	1	0	110	200
12. Job Search	0.0%	1.6%	0.0%	4.7%	28.1%	4.7%	0.0%	3.1%	3.1%	3.1%	51.6%	100.0%
-Observations	0	1	0	3	18	3	0	2	2	2	33	64
13. Education	3.0%	2.0%	0.1%	7.4%	35.5%	4.1%	0.1%	1.6%	1.2%	4.1%	40.8%	100.0%
-Observations	23	15	1	56	268	31	1	12	9	31	308	755
19. Not in labour force/edu	4.4%	2.9%	0.6%	1.0%	9.4%	8.0%	1.2%	1.7%	0.3%	0.8%	69.5%	100.0%
-Observations	56	37	8	13	119	101	15	22	4	10	879	1264
Column total	125	81	11	93	611	231	26	46	21	44	1624	2913

Table 9

Table 9: Transition matrix of occupational changes- young females 2000/2007												
	Occupational status 2007											
	1.	2.	3.	4.	5.	6.	7.	8.	12.	13.	19.	Total
Occupational status 2000												
1. Self-employed	15.0%	8.8%	1.3%	0.0%	8.8%	15.0%	0.0%	1.3%	0.0%	0.0%	50.0%	100.0%
-Observations	12	7	1	0	7	12	0	1	0	0	40	80
2. Self-employed, family worker	5.9%	0.0%	0.0%	0.0%	5.9%	14.7%	0.0%	2.9%	2.9%	0.0%	67.6%	100.0%
-Observations	2	0	0	0	2	5	0	1	1	0	23	34
3. Self-employed, permanent worker	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	100.0%
-Observations	1	0	0	0	0	0	0	0	0	0	1	2
4. Government worker	0.0%	0.0%	0.0%	56.3%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.8%	100.0%
-Observations	0	0	0	9	4	0	0	0	0	0	3	16
5. Private worker	4.0%	3.0%	0.2%	2.0%	36.3%	5.0%	1.2%	1.6%	0.8%	0.2%	45.6%	100.0%
-Observations	20	15	1	10	181	25	6	8	4	1	227	498
6. Unpaid family worker	5.5%	3.0%	0.0%	1.0%	6.0%	27.0%	2.0%	0.0%	0.5%	0.0%	55.0%	100.0%
-Observations	11	6	0	2	12	54	4	0	1	0	110	200
12. Job Search	0.0%	1.6%	0.0%	4.7%	28.1%	4.7%	0.0%	3.1%	3.1%	3.1%	51.6%	100.0%
-Observations	0	1	0	3	18	3	0	2	2	2	33	64
13. Education	3.0%	2.0%	0.1%	7.4%	35.5%	4.1%	0.1%	1.6%	1.2%	4.1%	40.8%	100.0%
-Observations	23	15	1	56	268	31	1	12	9	31	308	755
19. Not in labour force/edu	4.4%	2.9%	0.6%	1.0%	9.4%	8.0%	1.2%	1.7%	0.3%	0.8%	69.5%	100.0%
-Observations	56	37	8	13	119	101	15	22	4	10	879	1264
Column total	125	81	11	93	611	231	26	46	21	44	1624	2913

Table 10

Table 10: Transition matrix of occupational changes- adult females 1993/2007												
	Occupational status 2007											
	1.	2.	3.	4.	5.	6.	7.	8.	12.	13.	19.	Total
Occupational status 1993												
1. Self-employed	26%	15%	1%	0%	4%	8%	3%	1%	0%	1%	41%	100.0%
-Observations	153	92	8	2	21	49	19	3	0	4	248	599
2. Self-employed, family worker	16.9%	20.2%	1.0%	0.0%	1.9%	14.0%	1.2%	1.0%	0.0%	0.0%	43.8%	100.0%
-Observations	71	85	4	0	8	59	5	4	0	0	184	420
3. Self-employed, permanent worker	0.0%	5.0%	15.0%	5.0%	5.0%	5.0%	5.0%	0.0%	0.0%	0.0%	60.0%	100.0%
-Observations	0	1	3	1	1	1	1	0	0	0	12	20
4. Government worker	0.9%	0.9%	0.0%	64.8%	4.7%	2.3%	0.5%	0.0%	0.0%	0.0%	25.8%	100.0%
-Observations	2	2	0	138	10	5	1	0	0	0	55	213
5. Private worker	11.5%	6.1%	0.4%	1.5%	19.5%	7.4%	3.9%	4.6%	0.0%	0.0%	45.1%	100.0%
-Observations	53	28	2	7	90	34	18	21	0	0	208	461
6. Unpaid family worker	8.3%	14.6%	0.4%	0.0%	1.9%	33.1%	3.7%	0.9%	0.0%	0.2%	37.0%	100.0%
-Observations	47	83	2	0	11	188	21	5	0	1	210	568
12. Job Search	28.6%	0.0%	0.0%	14.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	57.1%	100.0%
-Observations	2	0	0	1	0	0	0	0	0	0	4	7
13. Education	16.7%	0.0%	0.0%	0.0%	16.7%	0.0%	0.0%	0.0%	0.0%	0.0%	66.7%	100.0%
-Observations	1	0	0	0	1	0	0	0	0	0	4	6
19. Not in labour force/edu	8.9%	8.1%	0.5%	0.5%	3.6%	10.7%	2.2%	1.6%	0.1%	0.2%	63.5%	100.0%
-Observations	212	195	11	13	87	257	53	39	2	4	1520	2393
Column total	541	486	30	162	229	593	118	72	2	9	2445	4687

Table 11

Table 11: Transition matrix of occupational changes- adult females 1993/2000										
Occupational status 1993	Occupational status 2000									Total
	1.	2.	3.	4.	5.	6.	12.	13.	19.	
1. Self-employed	39%	17%	1%	0%	6%	6%	0%	0%	29%	100.0%
-Observations	291	130	8	3	47	48	0	0	217	744
2. Self-employed, family worker	24.8%	29.1%	1.8%	0.4%	3.1%	13.2%	0.0%	0.2%	27.5%	100.0%
-Observations	126	148	9	2	16	67	0	1	140	509
3. Self-employed, permanent worker	0.0%	32.1%	10.7%	0.0%	14.3%	0.0%	0.0%	0.0%	42.9%	100.0%
-Observations	0	9	3	0	4	0	0	0	12	28
4. Government worker	0.4%	0.4%	0.0%	74.4%	11.3%	1.3%	0.0%	0.4%	11.8%	100.0%
-Observations	1	1	0	177	27	3	0	1	28	238
5. Private worker	10.8%	6.4%	0.6%	1.5%	43.5%	5.4%	0.0%	0.0%	31.8%	100.0%
-Observations	56	33	3	8	226	28	0	0	165	519
6. Unpaid family worker	12.5%	14.0%	0.8%	0.2%	3.4%	37.4%	0.0%	0.0%	31.8%	100.0%
-Observations	82	92	5	1	22	245	0	0	208	655
12. Job Search	14.3%	28.6%	0.0%	0.0%	14.3%	0.0%	0.0%	0.0%	42.9%	100.0%
-Observations	1	2	0	0	1	0	0	0	3	7
13. Education	14.3%	0.0%	0.0%	14.3%	14.3%	0.0%	0.0%	0.0%	57.1%	100.0%
-Observations	1	0	0	1	1	0	0	0	4	7
19. Not in labour force/edu	12.1%	7.7%	0.4%	0.5%	7.7%	8.0%	0.0%	0.1%	63.4%	100.0%
-Observations	367	232	12	15	233	242	1	3	1917	3022
Column total	925	647	40	207	577	633	1	5	2694	5729

Table 12

Table 12: Transition matrix of occupational changes- adult females 2000/2007												
Occupational status 2000	Occupational status 2007											Total
	1.	2.	3.	4.	5.	6.	7.	8.	12.	13.	19.	
1. Self-employed	27.6%	17.4%	0.8%	0.3%	4.0%	8.6%	1.7%	1.5%	0.0%	0.2%	37.9%	100.0%
-Observations	307	193	9	3	45	96	19	17	0	2	421	1112
2. Self-employed, family worker	17.9%	24.5%	2.0%	0.8%	2.5%	12.9%	1.4%	0.8%	0.0%	0.3%	36.9%	100.0%
-Observations	136	186	15	6	19	98	11	6	0	2	280	759
3. Self-employed, permanent worker	17.9%	20.5%	17.9%	0.0%	0.0%	15.4%	0.0%	2.6%	0.0%	0.0%	25.6%	100.0%
-Observations	7	8	7	0	0	6	0	1	0	0	10	39
4. Government worker	1.3%	1.7%	0.0%	75.0%	5.3%	1.0%	0.3%	0.0%	0.0%	0.3%	15.0%	100.0%
-Observations	4	5	0	225	16	3	1	0	0	1	45	300
5. Private worker	6.9%	4.4%	0.4%	3.8%	33.9%	4.1%	4.8%	4.4%	0.1%	0.2%	37.1%	100.0%
-Observations	73	46	4	40	357	43	51	46	1	2	391	1054
6. Unpaid family worker	6.7%	10.3%	0.6%	0.1%	2.0%	35.5%	2.8%	0.7%	0.0%	0.1%	41.1%	100.0%
-Observations	55	84	5	1	16	291	23	6	0	1	337	819
12. Job Search	4.2%	16.7%	4.2%	4.2%	25.0%	4.2%	0.0%	0.0%	0.0%	0.0%	41.7%	100.0%
-Observations	1	4	1	1	6	1	0	0	0	0	10	24
13. Education	0.0%	7.7%	0.0%	30.8%	23.1%	7.7%	0.0%	0.0%	0.0%	0.0%	30.8%	100.0%
-Observations	0	1	0	4	3	1	0	0	0	0	4	13
19. Not in labour force/edu	6.5%	6.0%	0.3%	0.4%	3.8%	9.4%	1.9%	1.5%	0.1%	0.3%	69.8%	100.0%
-Observations	221	205	11	13	130	320	63	50	2	9	2372	3396
Column total	804	732	52	293	592	859	168	126	3	17	3870	7516

References

- Abbott, M. and Charles M. B. (1994) Wage changes and job changes of Canadian women: Evidence from the 1986–1987 labour market activity survey. *Journal of Human Resources* 29, no. 2:429–60.
- Arulampalam, W. (2001) 'Is unemployment really scarring? Effects of unemployment experience on wages', *Economic Journal*, 111(475), 585-606
- Arulampalam, W., Booth, A.L and Taylor, M. P. (2000) 'Unemployment persistence', *Oxford Economic Papers*, 52, 24-50.
- Bruce, D., Schuetze, H.J., (2004) 'The labor market consequences of experience in self-employment. *Labor Economics*' 11, 575–598.
- Chamberlain, G. (1978) 'On the use of Panel Data' *Unpublished manuscript*, Harvard University
- Corcoran, M. (1985) 'Reoccurrence of Unemployment among Adult Men' *The Journal of Human Resources*, Vol. 20(2), 165-183
- Cruces, G., Ham, A. and Viollaz, M. (2012) 'Scarring effects of youth unemployment and informality, Evidence from Argentina and Brazil', *Unpublished project paper for "Mercados laborales el crecimiento inclusivo en América Latina"* supported by IDRC and carried out at CEDLAS
- Evans, D.S., Leighton, L.S., (1989) 'Some empirical aspects of entrepreneurship' *American Economic Review*, 79, 519–535.
- Flaig, G., Licht, G. and Steiner, V. (1993) 'Testing for state dependence effects in a dynamic model of male unemployment behaviour', in H. Bunzel, P. Jensen and N. Westergaard-Nielsen (eds), *Panel Data and Labour Market Dynamics*, North Holland, Amsterdam.
- Gangl, M. 2006. "Scar Effects of Unemployment: An Assessment of Institutional Complementarities." *American Sociological Review* 71: 986-1013.
- Gregg, P. (2001). 'The impact of youth unemployment on adult unemployment in the NCDS'. *Economic Journal*, 111(475), 626-53.
- Gregg, P. and E. Tominey. 2004. "The Wage Scar from Youth Unemployment." The Centre for Market and Public Organization,
- Gregory, M. and Jukes, R. (2001). 'Unemployment and subsequent earnings: estimating scarring among British Men 1984-94'. *Economic Journal*, 111 (475), 607-25.

- Heckman, J. J. and G. J. Borjas. (1980) "Does unemployment cause future unemployment? Definitions, Questions and Answers from a continuous time model of heterogeneity and state dependence." *Economica* 47: 247-283.
- Hyytinen, A. and P. Rouvinen. (2008) 'The labour market consequences of self-employment spells: European evidence' *Labour Economics* 15: 246–71.
- Jacobson, L., LaLonde, R. and Sullivan, D. (1993). 'Earnings losses of displaced workers', *American Economic Review*, 83, 685-709.
- Keith, K. and Abigail McWilliams. 1995. The wage effects of cumulative job mobility. *Industrial and Labor Relations Review* 49, no. 1:121–37.
- Malchow-Møller, N., Markusen, J.R., Skaksen, J.R., (2010) 'Labour market institutions, learning and self-employment' *Small Business Economics* 35 (1), 35–52.
- Narendranathan, W. and Elias, P. (1993). 'Influences of past history on the incidence of youth unemployment: empirical findings for the UK', *Oxford Bulletin of Economics and Statistics*, 55(2), 161-86.
- Ruhm, C. J. (1991). 'Are workers permanently scarred by job displacement?', *American Economic Review*, 81(1), 319-24.
- Williams, D., (2000) 'Consequences of Self-Employment for Women and Men in the United States' *Labour Economics* 7 (5), 665–687.
- Yu, W. (2012) 'Better Off Jobless? Scarring Effects of Contingent Employment in Japan' *Social Forces*
- World Development Report 2007 Development and the Next Generation, (2007) World Bank, Washington DC.