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The Philippine Review of Economics

Social mobility in the Philippine labor market

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In this paper, we focus on the measurement and characterization of social mobility in the Philippine labor market using standard methodologies. First, we ascertain the degree to which intergenerational wage mobility can be measured using available survey data. Second, using a simple regression-based approach, we determine the extent to which wages are persistent on the part of sons and daughters relative to fathers' wage outcomes. Third, we highlight the role of parental education and measure how the labor market rewards or penalizes labor market participants. Fourth, we examine the statistical importance of parental educational achievements relative to their children using the ordered probability model.

The paper finds wage persistence. Transition probabilities show that persistence is observed at the lowest and highest quintiles of the wage distribution. The transition probabilities show that persistence is not uniformly observed throughout the reference distribution.

Returns to education among the well-educated sons and daughters remain high, and parental education continues to determine the relative magnitudes of wage gains and penalties. Children of highly educated fathers expectedly reap wage gains while those whose fathers have finished no more than high school education suffer from wage penalties.

Parental education profiles determine a child's educational achievements. Results indicate that children with college educated parents tend to graduate from college with high likelihood of success. In terms of resources, non-labor income will only boost the probability of being a college graduate, with the rest of the education outcomes registering negative effects. Finally, consistent with the literature, children from non-poor households have higher likelihood to graduate from high school and college compared with their counterparts from poor households.

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1. Introduction

For a developing country like the Philippines, the challenge of enabling intergenerational transmission of economic and social status that mitigate poverty and promote equality of opportunities remains a daunting task, given existing labor market conditions such as market segmentation, persistent in – work poverty, and earnings inequality. Intergenerational links between parents' human capital and offspring's labor market performance do matter, and addressing social mobility concerns necessitates discarding short-term and incoherent strategies or interventions.

Limited intergenerational wage mobility may be the result of a confluence of factors. Facing credit constraints and without benefiting from interventions, poor households may only be able to make inferior investments in human capital and plausibly provide suboptimal parental inputs, thereby limiting the economic opportunities of children in the labor market. If heritability of traits is high in such households and credit constraints bind, the effects of parental social status may be persistent, thereby limiting mobility. On the other hand, through higher investments in a child's human capital, family networks, and provision of optimal parental inputs, richer households can enhance the persistence of educational outcomes, which translate into better labor market outcomes.

In this paper, we focus on the characterization of social mobility in the Philippine labor market using s tandard methodologies. First, we ascertain the degree to which intergenerational wage mobility can be measured using available survey data. Unlike the European Union (EU), India, Brazil, the United States, and Canada, the Philippines does not have a nationally representative survey data especially designed for undertaking intergenerational mobility studies.[1] Thus, we need to determine whether there is informational value that can be extracted from available datasets. Of interest is the constitution of parent-offspring data pairs. While biases are expected, one of the objectives is to empirically characterize sensitivity of estimates to sample selection rules. We take cue from the recent literature's emphasis on sample selection rules, which largely determine the magnitude of elasticity estimates. Second, using a simple regression-based approach, we

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[1] Sources of secondary mobility data in the United States include, among others, the Panel Study on Income Dynamics (PSID) and the National Longitudinal Survey on the Youth (NLSY). For Brazil, the Pesquisa Nacional por Amostra de Domicílio (PNAD) with mobility supplement remains a relevant source. The European Union's Statistics on Income and Living Conditions (EU-SILC) household database and the European Social Survey have figured prominently in mobility studies. For India, a useful source that accounts for the role of co-habitation is the India Human Development Survey. Finally, as one of the leading countries in which mobility studies have prospered, Canada has its General Social Survey (GSS), Longitudinal Immigration Database (IMDB), and Intergenerational Income Database (IID). For the Philippines, there are longitudinal surveys, but they are not deemed nationally representative. Despite this, they are exceptionally useful for measuring intergenerational mobility. An interesting study by Bevis and Barrett [2013] employed the Bukidnon Panel Study to decompose the intergenerational earnings elasticity using various channels.

determine the extent to which wages are persistent on the part of sons and daughters relative to fathers' wage outcomes. Third, using a simple econometric approach, we highlight the role of parental education and measure how the labor market rewards or penalizes labor market participants based on educational attainment of fathers. Fourth, because of the importance of education and the prevalence of measurement issues associated with wages, we examine the statistical importance of parental educational achievements relative to their children using the ordered probability model. Finally, we interpret our results to assess what the direction of policies should be to increase mobility in the labor market.

Examining whether wage persistence is present among Filipino workers remains an important first step in partly assessing trends in the labor market. As far as we know, robust evidence for the Philippines has been offered on how family background (proxied by parents' education) affects wage outcomes and enhances mobility.[2] In this paper, two levels of analysis will be provided. First, using a series of cross sections from the Labor Force Survey (LFS), we provide estimates showing the empirical relationship between child's wage outcomes and father's socio-economic status. In the literature, it is widely known that biases are present. However, because of missing wage data for mothers, we decided to focus on paternal wage influence. We will also calculate wage-based persistence measures to understand how the labor market rewards or penalizes wage earners relative to a reference category. This is to verify the extent to which daughters, after controlling for paternal education, suffer from wage penalty. Second, we utilize the 2006 and 2009 waves of the Family Income and Expenditure Survey (FIES) merged with the LFS. This allows us to specify a nonlinear probability model to estimate a measure associated with intergenerational education persistence, another indicator of social mobility.

The paper finds wage persistence. Returns to education among the well-educated remain high, but parental education continues to determine the relative magnitudes of wage gains and losses. Children of highly educated fathers expectedly reap wage gains, while those whose fathers have finished no more than high school education suffer from wage losses.

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[2] There is an immense literature documenting how parental achievements affect mobility among offspring and how estimates differ by gender. Examining labor market outcomes involving parents' human capital has received sustained academic interest in the Philippines. Bevis and Barrett [2013] identified the pathways through which parental human and physical capital and health status affect offspring using the Bukidnon Panel Study. Using data from schooling districts, Yamauchi and Tiongco [2013] analyzed the impact of parental education on child schooling outcomes and explained why women are progressive in schooling. They contend that women are more educationally progressive because of parental views on labor market discrimination. Lanzona's excellent study [1998] focused on the intergenerational education elasticity, which was operationalized through the estimation of linear models using children-parent pairs derived from a Bicol dataset.

Aside from examining intergenerational wage elasticity and wage persistence, the paper also estimates the degree of educational persistence, which measures the correlation between parental and children's educational achievements. Mothers' educational achievements now enter as part of the explanatory variables, consistent with recent approaches (Azomahou and Yitbarek [2016]; Dacuycuy and Dacuycuy [2018]; Azam and Bhatt [2012]). Modeled using a nonlinear probability model, the study finds varying degrees of persistence between the respective educational achievements of children and parental education. Parental education profiles determine a child's educational achievements. Results indicate that children with college educated parents tend to graduate from college with high likelihood of success. Again, parental education effects on daughters' chances are better than sons, a robust finding in the literature. In terms of resources, non-labor income will only boost the probability of being a college graduate, with the rest of the education outcomes registering negative effects. Finally, consistent with the literature, children from non-poor households have higher likelihood to graduate from high school and college compared with their counterparts from poor households.

The paper is organized as follows. Section 2 reviews the literature on social mobility. Section 3 details the econometric methodology, highlighting standard measures of persistence and mobility, and discusses sources of econometric concerns. Section 4 provides stylized facts for the Philippine labor market, presents some mobility estimates, and interprets results. Section 5 discusses prominent issues in mobility *vis-à-vis* labor market developments and recent labor market studies by the World Bank. The last section presents conclusions.

2. Literature review

2.1. Introduction

Underscoring the challenges faced by societies in promoting mobility and fostering equality of opportunities across generations, the literature on intergenerational earnings mobility—or "the rise and fall of families", as Becker and Tomes [1986]—have aptly labelled it, is vast and expanding. The expansion is moving along theoretical and empirical lines, inspired by the search for comparable and reliable estimates and robust theoretical frameworks, both of which are expected to lead to sound public policy debates and prescriptions which are needed particularly in developing countries where mobility is impaired and earnings or wage inequality is highly persistent.

2.2. Theoretical foundations

For research on intergenerational earnings mobility, the theoretical foundations were laid down by Becker and Tomes [1979] and updated in Becker and Tomes [1986], both of which continue to provide the framework and empirical map for a significant number of studies. Operating within a neoclassical optimization setting, the theory postulates that households endeavor to improve the welfare of future generations by investing in human capital. The model is tractable, as it discusses complex human processes. For instance, the degree to which heritability of traits or endowments of capital, ability, and genetics is achieved determines the labor market status of future generations.[3] In its simplest form, the model relies on a combination of investment decisions and a model of intergenerational ability transfer to produce a model of intergenerational ability [Grawe and Mulligan 2002]. In this model, there is no role for family characteristics, only child ability that is supposed to be randomly assigned. However, in a more encompassing model structure, it can incorporate intrahousehold influences, which are already proven to exert considerable effect on a child's development. Because of the considerable influence of credit constraints on a household's ability to invest in human capital, researchers have been keen to identify patterns associated with credit constraints-mobility relationships across household subpopulations (Grawe and Mulligan [2002]; Becker and Tomes [1986]).

A theoretical enhancement was made by Solon [2004] by allowing the model to explain temporal and locational variation in intergenerational earnings mobility. As Corak [2013] noted, Solon's [2004] interpretation of education returns can be considered indicative of the extent to which labor market inequality impacts intergenerational mobility. Solon's [2004:8] model also shows that steady state cross-sectional inequality responds positively to the presence of stronger heritability, more productive human capital investment, higher returns to human capital, and less progressive public investment in human capital.

As noted in several studies, the United States exhibits a case of stagnant mobility but increasing cross-sectional inequality due to labor market developments. This is indeed a stylized fact worth establishing theoretically. In terms of new theoretical developments, a model that can explain limited mobility in the top and bottom parts of the earnings distribution in the presence of sustained cross-sectional inequality was developed by Becker et al. [2015]. Offering far richer empirical implications, the model makes key connections between labor market outcomes and intergenerational mobility. It provides a formal theoretical

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[3] The definition of children's attributes as quoted by Corak [2013] and Solon [2004] from Becker and Tomes [1979:1158] is "children's endowments are determined by the reputations and connections of the families, the constitutions of their families, and the learning, skills, goals, and other family commodities acquired through belonging to a particular family culture. Obviously, endowments depend on many characteristics of parents, grandparents, and other family members and may also be culturally influenced by other families".

explanation why the United States experiences low mobility given significant increases in cross-sectional inequality.

As an innovation, the paper of Becker et al. [2015] embeds complementarities between parental investments and human capital in the production function of a child's human capital, thereby enabling the theory to explain nonlinearities in the production function. This assumption turns out to be instrumental in explaining the American experience, supporting the observation that immobility is experienced in the top and bottom parts of the distribution and mobility is more likely to be experienced in the middle. By introducing complementarity, richer households tend to invest more in their children's human capital even under perfect capital markets. The consequence of persistence characterizing the human capital investments of rich households and credit constrained households results in the enhanced ability of earnings to predict the economic status of children. The same assumption can also be used to explain why increases in returns to education, may result in no improvements in intergenerational mobility.

2.3. On empirics

An empirical offshoot of Becker and Tomes [1979] is a simple way to measure the degree of correlation between incomes of parents and their children.[4] Usually implemented using a regression model, the key parameter of interest, known as intergenerational earnings elasticity, captures the degree of responsiveness (average percent change in children's earnings given a one percent change in parental income) of a child's earnings to his/her father's earnings.The magnitude and degree of significance of the parameter estimate is of utmost empirical value. Upward mobility is associated with a lower correlation, while persistent transmission of labor market status is associated with a higher correlation.

With all empirical innovations addressing sources of bias, it is not surprising that many studies dealing with intergenerational earnings mobility are observed in countries that put emphasis on the continued collection of longitudinal data. Because one measures the degree of mobility by relating the earnings of one generation of workers against their fathers', dynamics should be tracked carefully by using panel data. Solid empirics depends on matching families that belong to dynasties.[5]

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[4] In 1992, Zimmerman noted that the intergenerational earnings elasticity should be interpreted as a structural parameter considering that it can be derived from an underlying economic model. This was rationalized by Solon [2004] who showed that the linear model is a reduced form derived from an underlying economic structural model. The said reduced form is evaluated at the steady state. Becker, Kominers, Murphy, and Spenkuch [2015] have shown that the relationship may no longer be linear with the assumption that parental investment and human capital are complementary inputs in the production of a child's human capital.

[5] Another alternative which relaxes this requirement significantly has been developed by Bjorklund and Jantti [1997]. In the absence of earnings data for fathers, what they did was to estimate a Mincerian model using another sample that comes from the same super population as the current one. The estimates are then used to predict the earnings of fathers and regress their sons' earnings accordingly. This method is known as a two-sample, two-stage model.

The depth of previous reviews of studies done by Solon [2002], Lee and Solon [2006], Black and Devereux [2010], Corak [2013], and D'Addio [2007] do confirm that the United States and Europe have advanced the understanding of mobility.[6]

While panel data contain dynamic information, some empirical decisions need to be made. We know that earnings are perturbed by economic shocks occurring at some points in the worker's work history, which deviate from permanent income. Transitory earnings changes may be reflected by the data used in measuring mobility but may no longer be replicable in other periods. This leads to biased estimates. Its remedies include using datasets with longer work histories and accurate income reporting such as those found in administrative and tax data, and one needs to resort data averaging to reduce the bias (Mazumder [200]); Zimmerman [1992]; Ueda [2013]). Life cycle bias refers to the wedge between current and lifetime earnings. This points to the importance of timing of measurement since earnings of workers observed during their early careers will yield low mobility estimates.

One advantage of dealing with parametric models is ease of interpretation, which naturally gives rise to clear policy implications. The sheer frequency of studies that estimated the intergenerational earnings elasticity left something that researchers in other countries desire: a verifiable set of metadata on elasticity estimates. This has led to revisions, and one can now say with a high degree of confidence that the United States is believed to be less mobile compared to Nordic countries at 0.40. Differences in estimates depend on the period studied and sample selection rules. However, even after controlling the dataset, divergent estimates remain not because of methodologies, which are quite uniform, but mainly because of how efficiently datasets were used. Lee and Solon [2006] argue that divergence in mobility estimates may be primarily attributed to imprecise estimation stemming from the inefficient use of panel data. In their paper, they show that downward biased estimates will be generated when the sample becomes limited to target cohorts.

In an empirical paper, Ueda [2013] used nonparametric regression analysis to show that limiting analysis to a global estimate may miss shifts in mobility estimates which are better represented by functionals to deal with nonlinearities. Moreover, he used simulation-based methods to minimize the effects of measurement error, a common problem in estimating mobility measures. Without assuming a linear specification for the conditional mean and regressing the logarithm of son's earnings to the predicted log earnings of fathers, he finds that economic opportunities faced by sons from low-income households are like their counterparts from middle-income households.

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[6] D'Addio [2007] focused on the Organisation for Economic Co-operation and Development.

While the international norm highlights the critical role of data and measurement using panel data, it does not mean that one cannot estimate mobility measures without panel data. There is a literature strand that focuses on the estimation feasibility of using one-time cross- sectional data [Ng, Xhen, and Ho 2009]. These employ selection rules that attempt to match the structure of panel data in the United States for a single year. Other data features that such methodology has accounted for are the lack of independent reporting of parental incomes, data based on intervals, and limited sample size.

2.4. International comparisons

While intra-country estimates remain informative, the insights generated would be incomplete without referring to other country estimates. In the literature, comparative studies on intergenerational mobility exists and, often, the comparison is made relative to the United States and European country experiences. As noted in Solon [2002], intercountry comparisons impart valuable lessons as to how unique institutional arrangements and economic environments in the respective countries influence mobility outcomes.

Comparative analyses generally yield contrasting results. Azevedo and Bouillon [2010] analyze and compare the Latin American experience with the United States and other European countries and find that Latin American countries are characteristically and generally immobile. European countries, on the other hand, continue to offer a glimpse of how their economic systems contribute to relatively better mobility profiles compared with the United States. Azevedo and Bouillon [2010] point to the importance of earnings distributional dynamics as one way to understand earnings mobility. They show that relative to Nordic countries and even the United States and the United Kingdom, countries like Chile, Brazil, and Peru registered higher intergenerational income elasticity estimates, indicating relative immobility.

Concerned with the connection between social mobility and cross-sectional inequality, Bjorklund and Jantti [1997] contrasted Sweden's degree of mobility with the United States and found that Sweden enjoys a higher degree of mobility.

In comparing Germany and the United States, Couch and Dunn [1995] found that earnings correlations between children and their fathers are somewhat similar or identical despite different societal structures and labor market experience. On the other hand, the earnings correlations between children and their mothers appear to be much weaker in Germany than in the United States.

It is not always that case that the United States is peerless when it comes to its record of relative immobility. Claiming that due to the similarities in economic structures and policy environment, Ng, Xhen, and Ho [2009] showed that Singapore replicates the United States degree of immobility. They argued that Singapore shares some of the United States characteristics when it comes to educational, labor, and welfare systems which work together to promote

competitiveness. However, less emphasis on more progressive policies is observed. In a report by the Organisation for Economic Co-operation and Development, the United States, Italy, France and United Kingdom showed high intergenerational earnings elasticity. The report also showed that the earnings ability of individual workers is strongly associated with fathers who achieved tertiary education. Intergenerational wage persistence is observed for some southern European states.

2.5. Some evidence from the Philippines

Dacuycuy and Dacuycuy [2018] provide a roadmap for undertaking social mobility analyses. As indicated in the said review, there is already a robust number of studies that have investigated intergenerational outcomes using special databases with emphasis on labor market ourcomes. Bevis and Barett decomposed the intergenerational earnings elasticity into 5 pathways that are related to the intergenerational transmission of health, education, spouse human capital, land, and productivity. They find that maternal education is important in explaining intergenerational transmissions of parental human capital. Yamauchi and Tiongco [2013] find that females achieve higher education relative to males, because parents do compensate for the wage penalty incurred by females in the labor market.

3. Methodology

3.1. Measuring intergenerational wage mobility

Our methodologies of choice reflect well-established techniques for estimating the effects of parental backgrounds on children's labor market outcomes. Whether linear or not, the anatomy of estimation strategies reveals a structure that uniformly follows a typical Markov process, thereby comparing present generation's outcomes against their immediate past counterparts. While the availability of true panel data is usually seen as a vital requisite for addressing econometric concerns, there are also other ways through which plausible measures of intergenerational wage mobility can be estimated. However, one necessary requisite is that a dataset on child-father pairs should be available.[7]

We begin by specifying the equation of interest. Using data on child-parent pairs, the equation shows the variation of the deviation of a child's income from his mean income relative to that of the parent. The parameter β represents a population measure of persistence (or correlation) in the effects of parent's permanent income.

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[7] One can argue that we can also generate estimates involving daughter-mother pairs. Without controls for identifying the selection probability, we face several forms of bias, such as sample selection bias, attenuation bias, and life-cycle bias. Thus, results need to be interpreted with caution.

$$y_{i,h}^c - \overline{y}^c = \beta \left(y_{j,h}^p - \overline{y}^p \right) + \epsilon_{i,h}^c \tag{1}$$

where index h refers to the household both child i and parent j belong to.

Following Ng, Xhen, and Ho [2009], Azevedo and Bouillon [2010], the above equation can be rewritten in the following standard form:

$$y_i^c = \gamma_0 + \beta y_i^p + \epsilon_i^c \tag{2}$$

where $\gamma_0 = \overline{y}^c - \beta \overline{y}^p$. The above model assumes that y_i^c and y_i^p should be observed, and the mean of ϵ_i^c conditional on the parent's permanent income is zero.

Equation 2 is the fundamental equation for measuring persistence. However, there are a lot of empirical issues. For measuring persistence, the relevant variables should pertain to permanent incomes, something that is difficult to measure in practice. As noted in Ng, Xhen, and Ho [2009] and Bjorklund and Jantti [1997], observed parental incomes include both permanent and transitory components. Persistent transitory shocks can only be accounted for by using panel data. When used, a mismeasured father's permanent income will result in downward biased estimates (or attenuation bias), which may mislead people into believing that there is ample evidence of mobility. Understandably, mismeasurement of the dependent variable does not have the same effect. As explained in econometric texts, a mismeasured dependent variable does not bias the estimate if father's permanent income is not measured with error.

Attenuation bias can somewhat be cured by data averaging, which also takes care of persistent transitory shocks. While estimates are downward biased in the presence of limited data, the opposite happens when one resorts to Instrumental Variables (IV) estimation. Using education and occupation as plausible instruments for father's permanent income, Bjorklund and Jantti [1997] showed that the resultant estimate would be upward biased given that parental education has a positive effect on son's or daughter's income. As noted in Bjorklund and Jantti, this way of instrumenting for parental income represents a legitimate upper bound on the true intergenerational correlation.

Another IV based method that is used in instances where earnings data on fathers are missing is the two sample instrumental variables estimator implemented by Bjorklund and Jantti [1997] and Ferreira and Veloso [2006] for Sweden and Brazil, respectively. A superpopulation of male workers is first constituted, and using the structural estimates, earnings or wages of fathers in the main dataset are predicted. The predicted data are then used to determine the degree of persistence.

Aside from measurement-related biases which point to the use of IV estimation as a preferred methodology, accounting for the differential timing in the measurement of earnings for young and old generations matter. In most

surveys, sons' wages or earnings are measured much earlier in their careers than their fathers. Haider and Solon [2006] showed that the correlation between current and lifetime earnings is low when men are in their 20s and close to 1 when they are in their 30s. The result reminds us of attenuation bias if a relatively young sample is used. As also noted in Ng, Xhen, and Ho [2009], parental age also affects elasticity estimates, with estimates expected to become lower for relatively old parents.

3.2. Cross-sectional wage persistence

The above framework is critical in measuring the empirical link between parental and child labor market outcomes. Because of the difficulty in measuring permanent income based on status, Causa, Dantan, and Johansson [2009] use educational achievements of fathers as a proxy for permanent income. It qualifies as a proxy because of the relative stability of estimates and due to the high degree of correlation between education achievement and wages.

Causa et al.'s framework relies on child-parent data pairs and uses the Mincerian model platform to quantify a simple measure for persistence. Closely resembling the general framework for assessing intergenerational mobility, the framework can work with cross-sectional data to generate a measure of wage persistence which relies on how the educational achievement of the father, relative to a base reference achievement, affects the child's wage. It is a legitimate measure because the proxy for permanent income can have permanent effects.

Consider the Mincerian model for the child's wage $lnwage_{i,h}^{c}$.

$$lnwage_{i,h}^{c} = \alpha_0 + f\left(Educ_{i,h}^{c};\delta^{c}\right) + g\left(Educ_{j,h}^{p};\delta^{p}\right) + Z_{i,h}{}'\varphi + \omega_{i}^{c} \qquad (3)$$

In the model, the child's wage is affected by his level of educational attainment along with other attributes. ω_{i}^{c} is orthogonal to included covariates and is assumed to be a random stochastic process. $f\left(Educ_{i,h}^{c};\delta^{c}\right)$ and $g\left(Educ_{j,h}^{p};\delta^{p}\right)$ are functional components that may or may not be linear.

For all households h, we relate a child's educational achievement to his parent and his or her other attributes or characteristics through the following equation:

$$Educ_{i,h}^{c} = m\left(Educ_{j,h}^{p};\delta^{p};Z\right) + \epsilon_{i}^{c} \qquad (4)$$

$m\left(Educ_{j,h}^{p};\delta^{p};Z\right)$ is a function that is separable in its arguments and may or may not be linear in $Educ_{j,h}^{p}$. It should be worth mentioning that the above equation does not explicitly account for the role of ability as may be measured appropriately by the child's IQ. Based on Becker et al. [2015], such a reduced form equation may generate upward biased estimates because the ability of the child may be highly correlated with parental human capital. This means that when substituted as done in Causa et al., we would generate biased estimates.

Combining two equations, the outcome is a Mincerian wage function that contains parent's educational achievements.

$$lnwage^c_{i,h} = \alpha_0 + f\left(m\left(Educ^p_{j,h};\delta^p;Z\right)+\epsilon^c_i;\delta^c\right)+g\left(Educ^p_{j,h};\delta^p\right)+Z_{i,h}\,'\varphi+\omega^c_i \quad (5)$$

At this point, the specification of generic functional forms does not yield clear parametric combinations. However, the variation in the wage of the child now becomes dependent on the educational achievement of the parent, with the effects dictated by the true parameter values of δ^p and δ^c. The new error structure will now be considered composite, incorporating unknown covariates that directly affect schooling achievement and unknown covariates that directly affect wages.

There are two measures—wage premium and penalty—both of which are attributable to family background. As defined in Causa et al., "the wage premium is interpreted as the percentage increase in the child's wage of having a father with tertiary education relative to one whose father had upper-secondary education". On the other hand, the "wage penalty is the percentage decrease in the child's wage of having a father with less than upper secondary education related to the one whose father had upper secondary education".

3.3. Educational achievement and parental education: intergenerational estimates

In view of the shortcomings of wage data to yield unbiased estimates, we employ a methodology that uses both parental and children's educational attainment. Absent the transitory effects experienced when wage or earnings data are used, using parental education can also allow us to determine the extent to which educational outcomes are partly determined by the transmission of inheritable traits that translate into better labor market outcomes. More importantly, the methodology provides measures (in probabilistic terms) for intergenerational education persistence.

The methodology used is ordered probit which is suitable for analyzing ordered categorical data such as educational attainment. The framework is maximum likelihood based. This deviates from Lanzona [1998] and Behrman, Gaviria, and Szekely [2001] for the simple reason that education gets measured as a categorical variable. The advantage of this is obvious. When linear regression model is used, we are assuming that the marginal effect of the years of schooling of either parents is constant throughout the support.

Inducing numerical transformation may, to a certain degree, be less empirically tenable since no information is provided in terms of the actual start of schooling age, and some categories such as high school undergraduate and college undergraduate may not be informative as to the true value of schooling years. When used as independent variable, this may have introduced incurable biases given the dominant correlation between education and the usual regressors that enter the educational attainment regressions.

Like Causa et al. and Lanzona [1998], we use ordered probit model to analyze the impact of parental education on child education outcomes to infer the degree of mobility. We assume that observed educational outcomes are generated by an underlying latent process that may be associated with children's propensity to achieve in education. Let this process $e_i^* = x'\beta + \epsilon$ be an underlying linear stochastic process. Following Greene, we now map all the possible values of a child's education on e_i^*.

$$
\begin{aligned}
e_i \quad &= \quad \textit{No grade completed } e_i^* \leq 0 \\
&= \quad \textit{Elementary undergraduate } 0 < e_i^* \leq v_1 \\
&= \quad \textit{Elementary graduate } v_1 < e_i^* \leq v_2 \\
&= \quad \textit{High school undergraduate } v_2 < e_i^* \leq v_3 \\
&= \quad \textit{High school graduate } v_3 < e_i^* \leq v_4 \\
&= \quad \textit{College undergraduate } v_4 < e_i^* \leq v_5 \\
&= \quad \textit{College graduate } v_5 < e_i^* \leq v_6
\end{aligned}
$$

where the v_k represent the cut-off points.

Following Lanzona [1998], we include both father and mother education since it has been shown that in the Philippines, maternal education can have a significant impact on the educational outcome of daughters. Aside from parental education, we control for other variables that may affect the child's educational outcomes. These pertain to the regional residence of the household, urbanity, interaction terms created by interacting regional residence with urbanity, a measure of non-labor income that includes other sources of income including domestic and foreign remittances, household gifts, and earnings from financial instruments or investments.

4. Results

4.1. Stylized facts

To set the tone for our discussion of mobility, we also appeal to stylized facts based on full samples derived from various Labor Force Survey rounds. The Bureau of Labor and Employment Statistics' labor market reports for the years 2003 to 2009 reveal features of the labor market. The primary driver of employment has been the service sector, with the subsector real estate, renting, and business services registering robust growth. From 2002 to 2009, the number of employed persons in this sector almost doubled, from 544,000 in 2002 to 1.066 million in 2009. For the same period, the subsectors hotels and restaurants, transport, and financial intermediaries grew by 45 percent, 23.9 percent, and 18.6 percent, respectively. In contrast, the respective employment growth rates between 2002 and 2009 in agriculture and industry were 8.28 percent and 8.4 percent.

Underemployment remains a significant problem. Based on computed statistics, the average underemployment rate for 2003-2009 reached 18 percent. The underemployment rates for 2008 and 2009 stood at more than 19.1 and 19.3, respectively, implying that 1 in every 5 employed workers yearn for additional working hours to augment daily income. Based on Labor Force Surveys, there are two problematic sectors that generate high rates of underemployment for both male and female workers, namely, the agricultural and retail trade sectors. Male agricultural workers account for almost 40 percent of underemployed workers. Workers categorized as farmers and unskilled workers account for a staggering 98 percent of all underemployed male workers in the agricultural sector. Other sectors like construction and transportation also registered high underemployment rates given the nature of jobs in the two sectors. For females, private households and retail trade yield high rates of underemployment.

The unemployment rate between 2008 and 2009 remained relatively unchanged at 7.4. and 7.5, respectively. Youth unemployment remains persistent. Those from the 15 to 24 age group continued to experience high unemployment rates. The probability of males being unemployed is higher than females. Education plays a key role in securing employment, as majority of the unemployed have finished no more than high school. As expected, college graduates tend to have lower unemployment rates, confirming once again that it is important to invest in education.

Over a period of 7 years, labor force participation rates of male and female workers have diverged sharply with the latter's participation rate falling below 40 percent. Disparities between male and female workers are evident. For the 15-24 age group, the proportion of females considered not a part of the labor force is about 65 percent, more than 20 percentage points higher than male workers. For the 25-54 age group, the results are even more staggering. Women who don't participate in the labor market are 8 times higher than men. While we observe that the proportion of men not participating in the labor force start to climb past the age of 54, they are still more than 20 percentage points lower than women.

We now relate the education profile of labor force participants. First, women have relatively lower unemployment rates than men. This is also true across regional residence. Second, the proportion of women who do not participate in the labor force alarmingly exceeds those of men and even the national average. This is also robust across regional residence. Third, women who finish college do not tend to participate in the labor force, registering a modest proportion for those employed. Fourth, those with lower levels of schooling tend to participate actively in the labor force.

4.2. Parent-offspring pairs

To understand some labor market trends, we provide simple labor market statistics that, in a way, characterize outcomes for children relative to their parents. The objective is to at least detect some patterns attributable to differences in household composition. Relying on the urban-rural divide, key outcomes include educational achievements and occupational choices.

Occupational categories are aggregated based on two-digit Philippine Standard Occupational Classification (PSOC). The category on farmers is used to collectively denote farmers and fishery and forestry workers. High grade professionals (HGP) include government and private sector workers who are involved in the planning, formulation, and implementation of intra-organizational policies. Lower grade professionals (LGP) include workers who assist or implement technical work. Non-manual workers include clerical and service workers. Workers in occupations which require knowledge of industrial processes are classified as manual skilled. Manual semi-skilled (NMC) include workers who are considered adept at operating power tools but who may not be entirely familiar with industrial processes. The last category, low skilled workers, include those who are in elementary occupations. This category includes unskilled laborers and agricultural workers distinct from farmers.

The educational categories are: No grade completed (NGC); Elementary Undergraduate (EU); Elementary Graduate (EG); High School Undergraduate (HSUG); High School Graduate (HSG); College Undergraduate (CUG) and; College Graduate (CG).

4.2.1. Fathers' occupation and education

Statistical results do confirm that educational attainment is correlated with occupational choices. Spanning 2003-2009, it is apparent in Tables 1 to 3 that a considerable proportion of fathers who have not attended college are categorized as agricultural, fishery, and forestry workers. As the educational profile of fathers improves, an increasing proportion of fathers categorized as high professionals, lower professional, and non-manual workers can be observed. Manual workers of varying levels of skill tend to be more associated with workers who have achieved no more than high school.

TABLE 1. Educational achievement and occupation of fathers: both urban and rural (in percent)

Education	HGP	LGP	NMC	Skilled	Farmers	Semi–skilled	Low–skilled
NGC	1.72	0.37	0.24	0.68	83.68	1.65	11.66
EU	3.79	0.43	1.72	3.84	64.83	6.54	18.86
EG	5.76	0.71	2.74	7.75	53.63	10.74	18.66
HSUG	8.30	1.63	4.28	12.13	41.46	15.28	16.92
HSG	12.62	2.92	7.73	15.28	31.05	15.71	14.68
CUG	19.76	7.51	14.27	14.16	23.51	12.08	8.71
CG	46.00	19.57	13.22	3.22	12.14	3.46	2.40

Note: Figures pertain to proportions, averaged over a period of 7 years (2003 – 2009). All estimates are computed using October rounds of the Labor Force Survey (LFS); High grade professionals (HGP); Lower grade professionals (LGP); Non-manual workers or Clerical (NMC).

Because of the significance of the agricultural jobs in rural areas, it is important to provide a contrast between rural and urban-based households. The contrast is immediately evident. In rural areas, a considerable number of fathers whose educational achievement is below high school are classified as agricultural workers. To highlight how significant it is, 85 percent of all rural households are headed by uneducated fathers employed in the agricultural sector. Aside from this, fathers with low educational attainment are more likely engaged in manual occupations that offer very low compensation, which may also be associated with higher incidence of in-work poverty. For those who have finished college, more than a quarter still hold farm-related jobs, and more than a third are classified as professionals. These results are still observed 7 years after, consistent with the World Bank [2016] report which highlights the lack of opportunities in rural areas. With strong intergenerational transmission of outcomes, poverty may be difficult to alleviate unless productivity and wages rise in agricultural areas.

TABLE 2. Educational achievement and occupation of fathers: rural (in percent)

Education	HGP	LGP	NMC	Skilled	Farmers	Semi–skilled	Low–skilled
NGC	1.40	0.36	0.17	0.60	86.44	1.17	9.87
EU	2.76	0.30	1.06	2.52	71.34	4.50	17.52
EG	4.34	0.60	1.72	4.77	64.38	7.11	17.08
HSUG	5.89	0.99	2.55	7.64	56.41	10.28	16.23
HSG	8.54	1.86	4.84	10.00	49.30	11.54	13.92
CUG	13.75	4.79	11.15	10.04	43.38	8.55	8.35
CG	37.59	12.49	12.15	2.08	27.93	4.10	3.66

Note: figures pertain to proportions, averaged over a period of 7 years (2003 – 2009).
All estimates are computed using October rounds of the Labor Force Survey (LFS); High grade professionals (HGP); Lower grade professionals (LGP); Non-manual workers or Clerical (NMC).

Geographical differences do accentuate job heterogeneity. It is evident in Table 3 that agricultural jobs in urban areas decline as fathers' education improves. Manual jobs become dominant for workers who have only attended at most and graduated from high school, and it is more likely for college graduates to have professional jobs or non-manual jobs. Of those who have finished college, more than 50 percent have high professional jobs, with less than a quarter holding lower professional jobs.

TABLE 3. Educational achievements and occupation of fathers: urban (in percent)

Education	HGP	LGP	NMC	Skilled	Farmers	Semi–skilled	Low–skilled
NGC	4.34	0.39	1.19	1.24	60.22	5.73	26.88
EU	7.53	0.90	4.06	8.61	41.13	14.01	23.76
EG	8.98	0.98	5.07	14.63	29.06	19.04	22.24
HSUG	12.07	2.63	7.03	19.21	17.88	23.17	18.00
HSG	16.43	3.92	10.45	20.23	14.01	19.59	15.36
CUG	23.67	9.28	16.30	16.88	10.53	14.41	8.93
CG	49.36	22.51	13.70	3.68	5.61	3.23	1.90

Note: Figures pertain to proportions, averaged over a period of 7 years (2003 – 2009).
All estimates are computed using October rounds of the Labor Force Survey (LFS); High grade professionals (HGP); Lower grade professionals (LGP); Non-manual workers or Clerical (NMC).

4.2.2. Father's and son's educational achievements

Do we observe a high degree of association between father and son's educational achievements? The empirical literature shows the importance of this link especially in measuring and explaining educational mobility.

As shown in Tables 4, 5, and 6, a father's education is moderately associated with son's educational profile. The proportion is moderately high, with more than 60 percent of sons obtaining college degrees. Significant proportions of sons achieving no higher than high school diploma can still be observed, though, especially for fathers who have failed to complete high school.

TABLE 4. Father and son's educational achievements:
both urban and rural (in percent)

	Son's education						
Education	NGC	EU	EG	HSUG	HSG	CUG	CG
NGC	15.08	41.22	16.69	13.35	9.10	3.47	1.09
EU	1.34	32.69	18.30	20.87	18.79	5.61	2.40
EG	0.69	11.30	20.82	23.80	29.59	9.33	4.48
HSUG	0.49	9.94	11.75	27.36	30.22	13.69	6.56
HSG	0.54	3.19	5.96	16.77	40.12	20.73	12.69
CUG	0.28	1.98	2.95	11.97	24.49	32.16	26.17
CG	0.28	0.48	0.97	4.15	10.84	24.42	58.87

Note: Figures pertain to proportions, averaged over a period of 7 years (2003 – 2009).
All estimates are computed using October rounds of the Labor Force Survey (LFS); No grade completed (NGC); Elementary Undergraduate (EU); Elementary Graduate (EG); High School Undergraduate (HSUG); High School Graduate (HSG); College Undergraduate (CUG) and; College Graduate (CG).

Disparities between rural and urban based fathers are quite significant. In rural areas, fathers whose highest educational achievements are at most high school are associated with relatively low proportion of sons who have at least attended college. As expected, 54 percent of sons being able to attend college come from households with college educated fathers.

TABLE 5. Father's and son's educational achievements: rural areas (in percent)

	Son's education						
Education	NGC	EU	EG	HSUG	HSG	CUG	CG
NGC	15.52	42.10	16.47	13.69	8.38	3.14	0.71
EU	1.47	34.96	19.51	20.51	17.22	4.52	1.81
EG	0.69	12.41	22.29	24.77	28.26	7.96	3.63
HSUG	0.55	11.67	13.92	28.68	29.41	11.02	4.76
HSG	0.59	4.29	7.24	19.86	40.63	17.73	9.67
CUG	0.48	3.38	3.84	16.38	28.90	26.56	20.46
CG	0.21	0.90	1.77	7.11	14.19	25.06	50.75

Note: Figures pertain to proportions, averaged over a period of 7 years (2003 – 2009). All estimates are computed using October rounds of the Labor Force Survey (LFS); No grade completed (NGC); Elementary Undergraduate (EU); Elementary Graduate (EG); High School Undergraduate (HSUG); High School Graduate (HSG); College Undergraduate (CUG) and; College Graduate (CG).

In urban areas, the proportion of fathers with high school diplomas whose sons have attended college is just 16 percent. For fathers who are college undergraduates, the proportion rises to 30 percent, and among college graduates it's 65 percent, which is more than 10 percentage points higher than their rural counterparts.

TABLE 6. Father's and son's educational achievements in urban areas (in percent)

	Son's education						
Education	NGC	EU	EG	HSUG	HSG	CUG	CG
NGC	11.50	33.19	18.80	11.08	15.90	5.35	4.18
EU	0.87	25.02	14.23	22.16	24.08	9.25	4.39
EG	0.70	8.95	17.65	21.76	32.44	12.23	6.28
HSUG	0.40	7.38	8.52	25.41	31.41	17.71	9.17
HSG	0.50	2.27	4.85	14.10	39.68	23.33	15.27
CUG	0.15	1.17	2.44	9.44	21.91	35.39	29.49
CG	0.31	0.32	0.67	3.01	9.51	24.14	62.04

Note: Figures pertain to proportions, averaged over a period of 7 years (2003 – 2009). All estimates are computed using October rounds of the Labor Force Survey (LFS); No grade completed (NGC); Elementary Undergraduate (EU); Elementary Graduate (EG); High School Undergraduate (HSUG); High School Graduate (HSG); College Undergraduate (CUG) and; College Graduate (CG).

4.2.3. Father's and daughter's educational achievement

Daughters appear to maintain a high chance of graduating from college given that their fathers have done so. On average, 77 percent of college educated fathers have daughters who finished college. This is consistent with observed evidence on the superiority of female educational outcomes relative to sons. For fathers who have at least attended college, more than 50 percent of their daughters have finished college. Fathers in urban areas appear to have relatively higher success rates in helping their daughters finish college compared with their rural-based counterparts.

**TABLE 7. Father's and daughter's educational achievements:
both urban and rural (in percent)**

Education	NGC	EU	EG	HSUG	HSG	CUG	CG
NGC	11.83	26.92	18.78	15.55	16.58	6.19	4.15
EU	0.98	12.68	12.46	19.99	31.71	11.91	10.27
EG	0.48	3.62	8.51	15.62	38.51	16.55	16.72
HSUG	0.37	2.91	4.45	16.62	32.36	22.07	21.22
HSG	0.44	0.95	1.84	7.46	33.83	24.57	30.91
CUG	0.20	0.55	0.53	4.93	16.76	25.43	51.60
CG	0.30	0.32	0.19	1.90	5.78	15.37	76.13

Note: Figures pertain to proportions, averaged over a period of 7 years (2003 – 2009).
All estimates are computed using October rounds of the Labor Force Survey (LFS); No grade completed (NGC); Elementary Undergraduate (EU); Elementary Graduate (EG); High School Undergraduate (HSUG); High School Graduate (HSG); College Undergraduate (CUG) and; College Graduate (CG).

TABLE 8. Father's and daughter's educational achievements: urban (in percent)

Education	NGC	EU	EG	HSUG	HSG	CUG	CG
NGC	1.94	16.10	18.88	14.97	33.19	7.36	7.55
EU	0.77	7.59	7.17	15.63	39.21	15.91	13.72
EG	0.12	2.64	6.89	11.48	39.83	18.54	20.51
HSUG	0.36	2.20	2.68	15.06	32.77	23.83	23.10
HSG	0.31	0.70	1.28	5.75	33.66	24.90	33.40
CUG	0.25	0.32	0.38	3.41	15.74	26.17	53.72
CG	0.31	0.36	0.17	1.61	5.16	14.11	78.28

Note: Figures pertain to proportions, averaged over a period of 7 years (2003 – 2009).
All estimates are computed using October rounds of the Labor Force Survey (LFS); No grade completed (NGC); Elementary Undergraduate (EU); Elementary Graduate (EG); High School Undergraduate (HSUG); High School Graduate (HSG); College Undergraduate (CUG) and; College Graduate (CG).

TABLE 9. Father's and daughter's educational achievements: rural (in percent)

Education	NGC	EU	EG	HSUG	HSG	CUG	CG
NGC	13.37	28.56	18.90	15.67	14.28	5.82	3.39
EU	1.06	14.64	14.50	21.67	28.84	10.34	8.95
EG	0.71	4.23	9.51	18.16	37.70	15.29	14.41
HSUG	0.41	3.52	6.16	18.14	31.90	20.53	19.33
HSG	0.64	1.35	2.71	10.15	34.05	24.07	27.02
CUG	0.08	1.06	0.86	8.33	19.14	23.71	46.82
CG	0.28	0.21	0.29	2.76	7.62	19.18	69.65

Note: Figures pertain to proportions, averaged over a period of 7 years (2003 – 2009).
All estimates are computed using October rounds of the Labor Force Survey (LFS); No grade completed (NGC); Elementary Undergraduate (EU); Elementary Graduate (EG); High School Undergraduate (HSUG); High School Graduate (HSG); College Undergraduate (CUG) and; College Graduate (CG).

4.2.4. Father's and son's occupation

As shown in Tables 10 to 12, there appears to be low indication that the son's occupation will be highly correlated with the father's occupation , except for low and semi– skilled jobs. For instance, only 16 percent of fathers considered as high grade professionals have children classified under such. The match is quite high, though, for manual jobs, with low skilled jobs match topping 70 percent.

TABLE 10. Father's and son's occupation: both urban and rural areas (in percent)

Education	HGP	LGP	NMC	Skilled	Farmers	Semi–skilled	Low–skilled
HGP	14.48	6.23	27.29	10.56	4.88	7.76	28.79
LGP	13.29	17.36	25.71	9.63	4.59	6.68	22.73
NMC	7.30	5.46	33.09	10.12	4.82	7.13	32.08
Skilled	3.46	3.64	20.21	23.59	4.41	8.26	36.43
Farmers	1.69	0.69	4.85	4.52	11.99	2.81	73.44
Semi - Skilled	2.62	2.29	15.66	8.35	5.57	23.63	41.88
Low-skilled	1.56	0.84	9.54	4.67	4.22	4.78	74.40

Note: Figures pertain to proportions, averaged over a period of 7 years (2003 – 2009). All estimates are computed using October rounds of the Labor Force Survey (LFS); High grade professionals (HGP); Lower grade professionals (LGP); Non-manual workers or Clerical (NMC).

When we consider the national average, it seems that even when fathers are classified as high grade professionals, sons have diverse occupational profiles. Close to 50 percent are classified as manual workers. In urban areas, the respective proportions associated with fathers whose occupations are the same as their sons are higher than their rural based counterparts. Those whose fathers are lower professionals have better profiles for sons. The proportion of those holding manual jobs is lower than their high professional counterparts.

Results based on rural households indicate inferior occupational outcomes of sons relative to their fathers. It may also reflect the lack of skills and opportunities in rural areas, where the dominant industry is agriculture.

TABLE 11. Father's and son's occupation: urban areas (in percent)

Education	HGP	LGP	NMC	Skilled	Farmers	Semi–skilled	Low–skilled
HGP	17.41	9.12	32.00	10.00	2.10	8.68	20.68
LGP	15.73	22.08	26.08	8.49	1.97	7.24	18.43
NMC	8.54	7.15	35.77	9.62	2.47	8.31	28.13
Skilled	4.49	4.69	23.91	23.91	2.62	9.69	30.69
Farmers	3.33	1.61	8.49	7.25	13.36	4.96	61.01
Semi - Skilled	3.01	3.33	19.81	9.92	2.42	25.94	35.57
Low-skilled	2.47	1.68	15.44	5.98	2.79	7.53	64.12

Note: Figures pertain to proportions, averaged over a period of 7 years (2003 – 2009).
All estimates are computed using October rounds of the Labor Force Survey (LFS); High grade professionals (HGP); Lower grade professionals (LGP); Non-manual workers or Clerical (NMC).

TABLE 12. Father's and son's occupation: rural areas (in percent)

Education	HGP	LGP	NMC	Skilled	Farmers	Semi–skilled	Low–skilled
HGP	10.08	1.86	20.15	11.38	9.10	6.40	41.03
LGP	7.67	6.74	24.90	12.38	10.69	5.34	32.27
NMC	5.33	2.76	28.67	10.99	8.68	5.22	38.36
Skilled	2.00	2.22	15.23	23.13	6.86	6.32	44.25
Farmers	1.40	0.53	4.21	4.05	11.75	2.44	75.62
Semi - Skilled	2.15	1.07	10.84	6.68	9.18	21.09	48.99
Low-skilled	1.10	0.41	6.54	4.01	4.94	3.38	79.61

Note: Figures pertain to proportions, averaged over a period of 7 years (2003 – 2009).
All estimates are computed using October rounds of the Labor Force Survey (LFS); High grade professionals (HGP); Lower grade professionals (LGP); Non-manual workers or Clerical (NMC).

4.2.5. Father's and daughter's occupation

In sharp contrast, the relationship between father and daughter in terms of occupation indicates a better matched profile (See Tables 13 to 15). For instance, fathers who are high professionals have daughters who are classified as belonging to high professionals, lower professionals, and non-manual workers. Less than 20 percent of daughters are in manual occupations.

It is also noteworthy that regardless of fathers' occupation, daughters tend to become non-manual workers, which is traditionally associated with female workers.

TABLE 13. Father's and daughter's occupation: both urban and rural areas (in percent)

Education	HGP	LGP	NMC	Skilled	Farmers	Semi–skilled	Low–skilled
HGP	23.62	9.71	46.53	3.42	0.29	2.69	13.74
LGP	24.79	17.80	42.25	3.13	0.50	1.63	9.91
NMC	16.33	8.56	48.25	5.57	0.60	3.51	17.19
Skilled	12.80	6.30	52.37	6.63	0.43	3.77	17.71
Farmers	9.29	2.23	24.10	2.33	2.80	3.32	55.93
Semi - Skilled	10.71	6.25	44.97	6.31	0.93	7.80	23.03
Low-skilled	6.58	2.52	37.51	3.08	1.04	4.17	45.09

Note: Figures pertain to proportions, averaged over a period of 7 years (2003 – 2009).
All estimates are computed using October rounds of the Labor Force Survey (LFS); High grade professionals (HGP); Lower grade professionals (LGP); Non-manual workers or Clerical (NMC).

TABLE 14. Father's and daughter's occupation: urban areas (in percent)

Education	HGP	LGP	NMC	Skilled	Farmers	Semi–skilled	Low–skilled
HGP	24.13	12.14	47.10	3.91	0.00	2.72	10.00
LGP	24.27	18.42	42.69	3.59	0.00	2.11	8.91
NMC	16.14	10.13	50.33	6.78	0.29	3.29	13.03
Skilled	11.69	7.65	52.64	8.21	0.15	4.67	14.99
Farmers	13.22	4.84	33.07	6.48	1.68	5.27	35.43
Semi - Skilled	10.35	7.75	48.00	7.52	0.19	7.74	18.45
Low-skilled	7.82	3.89	44.84	4.92	0.33	4.92	33.27

Note: Figures pertain to proportions, averaged over a period of 7 years (2003 – 2009).
All estimates are computed using October rounds of the Labor Force Survey (LFS).

TABLE 15. Father's and daughter's occupation: rural areas (in percent)

Education	HGP	LGP	NMC	Skilled	Farmers	Semi–skilled	Low–skilled
HGP	22.67	4.50	45.22	2.41	0.95	2.58	21.66
LGP	26.33	15.32	40.54	1.55	2.03	0.00	14.24
NMC	16.93	4.82	43.90	2.69	1.25	3.97	26.45
Skilled	15.04	3.68	51.74	3.47	1.07	1.86	23.15
Farmers	8.42	1.65	22.12	1.40	3.05	2.88	60.48
Semi - Skilled	11.44	3.70	39.42	4.27	2.21	7.93	31.03
Low-skilled	5.44	1.38	31.44	1.53	1.62	3.53	55.06

Note: Figures pertain to proportions, averaged over a period of 7 years (2003 – 2009).
All estimates are computed using October rounds of the Labor Force Survey (LFS); High grade professionals (HGP); Lower grade professionals (LGP); Non-manual workers or Clerical (NMC).

4.3. Wage penalties and premia: the effects of parental education

Following Causa et al. [2009], regressions are carried out separately for men and women. Wage regressions are specified the usual way. Control variables include age, age squared, permanent job status, regional residence, marital status, urbanity, industrial affiliation, and occupation.[8]

Using a series of cross-sections spanning 2003 to 2009, we first estimate measures of mobility and focus on wage persistence using father-son and then father-daughter pairs.

4.3.1. Son-father pairs: OLS

In regression models where only father's education is presumed to matter (denoted by S1), wage gains are significantly higher for sons with college educated fathers. For instance, in 2005, the wage gains of sons shot up to more than 43 percent relative to the reference group. In sharp contrast, sons with low educated fathers incurred wage penalties to 10 percent in the same year. In 2008, wage gains have dipped, but wage losses continued to be quite significant. It is also noteworthy that the wage effects of one's own schooling is robustly positive. Except for 2004, it can be observed that returns are at least 5 percent higher than those in the reference category.

TABLE 16. Wage gains and losses of sons

	S1: Penalty	S1: Gain	S2: Penalty	S2: Gain	S2: Returns (low)	S2: Returns (high)
2003	-0.02	0.43	0.00	0.24	-0.04	0.39
2004	-0.12	0.25	-0.08	0.08	-0.08	0.36
2005	-0.08	0.40	-0.04	0.25	-0.10	0.38
2006	-0.06	0.25	-0.03	0.13	-0.11	0.35
2007	-0.07	0.29	-0.04	0.14	-0.09	0.38
2008	-0.11	0.06	-0.05	0.06	-0.14	0.42
2009	-0.06	0.15	0.00	0.15	-0.11	0.41

Note: S1 pertains to specifications that admit father's schooling achievements relative to a high school graduate. S2 includes the son's schooling achievements. Returns are those associated with the son's schooling achievements. Source: Author's calculations.

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[8] While it is observed that some workers report zero earnings, estimates are entirely based on respondents who report wages. This may introduce downward bias. Again, this results in significant reductions in sample size given that informal sector workers are more likely not to report earnings relative to those employed in the corporate and public sectors.

4.3.2. Daughter-father pairs: OLS

High education pays well for employed daughters. Without controlling for their own education, daughters with highly educated fathers tend to have high wage gains relative to moderately educated fathers.

TABLE 17. Wage gains and losses of daughters

	S1: Penalty	S1: Gain	S2: Penalty	S2: Gain	S2: Returns (low)	S2: Returns(high)
2003	-0.23	0.35	-0.13	0.24	-0.20	0.50
2004	-0.21	0.13	-0.10	0.00	-0.24	0.57
2005	-0.20	0.22	-0.13	0.15	-0.26	0.49
2006	-0.25	0.31	-0.14	0.17	-0.14	0.70
2007	-0.15	0.51	-0.13	0.34	-0.17	0.44
2008	-0.26	0.32	-0.14	0.32	-0.30	0.50
2009	-0.15	0.17	-0.10	0.17	-0.14	0.60

Note: S1 pertains to specifications that admit father's schooling achievements relative to high school graduate. S2 includes the son's schooling achievements. Returns are those associated with the son's schooling achievements. Source: Author's calculations.

Their gains are as high as 51% in 2008. Wage losses of daughters with less educated fathers are also quite significant. There are three main findings: First, the wage gains for sons and daughters with highly educated fathers are higher compared with low educated counterparts. This may be reflective of schooling – based wage differentials, showing that indeed children of highly educated parents may realize higher wages. Second, returns to education for daughters are relatively lower than sons. The latter implies that the wage gap between less and better educated daughters will be persistent. Third, relative to male wage earners, females' wage penalties are higher but results point to higher wage gains as well.

4.4. Wage elasticity

4.4.1. Sample selection rules

At this point, we acknowledge that because of too much parameter uncertainty, we extend the scope of empirical investigation to accommodate various sample selection rules. Following Ng, Xhen, and Ho [2009], we pay close attention to how various sample selection rules determine differences among estimates and come up with a reasonable range of estimates. We will only focus on father-children pairs due to sample attrition encountered when dealing with mother-children pairs.[9]

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[9] Initially, mother-daughter and son pairs were included. However, due to selection rules, sample sizes were no longer feasible to yield feasible estimates.

For generating samples for sons and daughters, we limit our sample to individuals belonging to the 15 to 64 age group. Being mindful of life-cycle bias, we experiment by using several age groups for sons or daughters. We will also be using permanent worker status.

Our samples do not admit individuals who work for the first time. While there is a reason to believe that female workers self-select in the labor market, we do not control for sample selection at this point.

In the Labor Force Survey, basic gross daily pay is reported along with the basis of payment.[10] Wage rates are computed by dividing earnings by labor hours. In regression runs, observations with missing wage data will automatically be removed.

We compare estimates for each year in the 2003-2009. First, we estimate the correlation between log wages of sons/daughters relative to fathers/mothers using OLS, augmented by the ratio of standard deviation of relative wages. Second, we use for the same sample containing both parental and children outcomes, the linear IV method, using parental occupation and education as instruments,

Estimates are further conditioned using age restrictions for sons/daughters. Since we don't have access to career history which is critical for measuring lifetime earnings and its correlation with current earnings, we will also use permanent job status to increase the correlation with current and lifetime earnings. Based on the data statistics, there is serious sample attrition when we use a sample of non-permanent workers. Considerable bias is registered as some estimates breach 1 and have high standard errors.

4.4.2. Results

As shown in Tables 18 and 19, estimates based on full sample confirm what the literature has been saying all along: mobility estimates based on OLS suffer from attenuation bias for several known reasons. First, the permanent income of fathers is not measured properly by using current wages. Second, there is attenuation bias because included sons or daughters in the sample may be too young in their respective life-cycles, predictably earning less during the early years of their careers. This may imply that using a variable that indicates permanent job status may yield inferential benefits. Third, there is a possibility that the age and occupational status of fathers may cause attenuation. Fourth, there is also a possibility that urbanity may introduce wage disparities in the form of rural-urban wage differentials. Thus, including it may allow us to understand how geographical differences may determine the magnitude of the mobility estimate. Fifth, as sample size decreases significantly due to the application of various sample selection rules, there may be too much downward bias which may overstate mobility gains. Finally, maternal education has been known to influence the achievements of sons or daughters and omitting it may cause paternal effects to be upward biased.

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[10] Earnings from other jobs were not included due to the prevalence of missing values.

Role of restrictions. Without imposing restrictions, there is no doubt that full sample-based mobility estimates may be downward biased as they include younger sons or daughters. Restrictions play a role in mitigating the bias. A simple selection rule restricting ages of sons or daughters to 25 to 45 age group conforms with the predictable general effect of increasing the coefficient estimate, thereby indicating relatively lower mobility. Due to sampling variation, evidence is not consistent throughout the entire period, though.

Job status. We recognize that wage data may be subject to transitory effects due to the plausible movements of workers in the short run. While it may serve as an imperfect indicator of wage or earnings stability, job status may be important to assess mobility patterns. It is critical, though, not to overlook that job status alone will not imply that differences between permanent and current earnings have been minimized. The logic behind this is simple. Because no information on job history or career is given, we can use job status. It turns out that father's permanent status may be associated with higher mobility. Though not robust for all years, relative immobility is generally observed for son's whose job status is not permanent. The estimates associated with permanent fathers are more stable compared with those with their non-permanent counterparts. For daughters, having a father with permanent job status is associated with higher mobility, replicating the empirical evidence for sons. More interestingly, sons or daughters with permanent job status are generally more mobile.

TABLE 18. Intergenerational wage elasticity: sons

Year	No restrictions	1	2	3	4	5	6	7	8
2003	0.421	0.381	0.403	0.348	0.328	0.207	0.344	0.379	0.194
	0.001	0.002	0.006	0.003	0.003	0.009	0.004	0.005	0.027
2004	0.435	0.472	0.367	0.512	0.453	0.354	0.465	0.359	0.567
	0.001	0.002	0.019	0.002	0.002	0.034	0.002	0.004	0.005
2005	0.463	0.429	0.468	0.414	0.381	0.268	0.386	0.311	0.578
	0.001	0.002	0.003	0.002	0.002	0.002	0.002	0.003	0.014
2006	0.488	0.545	0.896	0.482	0.526	0.046	0.505	0.490	0.452
	0.002	0.001	0.007	0.002	0.002	0.180	0.002	0.003	0.005
2007	0.489	0.445	0.598	0.427	0.414	0.470	0.412	0.381	0.350
	0.000	0.001	0.003	0.001	0.001	0.013	0.002	0.003	0.004
2008	0.413	0.368	0.781	0.297	0.305	0.943	0.280	0.234	0.148
	0.001	0.002	0.008	0.002	0.002	0.063	0.002	0.002	0.011
2009	0.409	0.383	0.480	0.364	0.408	0.729	0.395	0.306	0.370
	0.001	0.002	0.018	0.002	0.003	0.086	0.003	0.005	0.012

Note: Numbers 1 to 8 pertain to restrictions imposed on the father-son sample pairs: 1 - age restriction on sons (25-45); 2- father's job is non-permanent; 3 - father's job is permanent; 4 - son's job status is permanent; 5 - son's job status is permanent and father's is not; 6 - both son's and father's status are permanent; 7 - both son's and father's status are permanent (urban); 8 - both son's and father's status are permanent (rural). Standard errors are found directly below estimates.

TABLE 19. Intergenerational wage elasticity: daughters

Year	No restrictions	1	2	3	4	5	6	7	8
2003	0.582	0.437	0.806	0.377	0.431	0.493	0.420	0.423	0.506
	0.002	0.006	0.016	0.006	0.007	0.028	0.007	0.011	0.013
2004	0.526	0.374	0.509	0.291	0.358	0.752	0.278	0.271	0.159
	0.002	0.005	0.058	0.006	0.006	0.035	0.006	0.007	0.040
2005	0.624	0.394	0.549	0.347	0.378	0.331	0.345	0.259	0.548
	0.002	0.004	0.025	0.004	0.004	0.028	0.004	0.005	0.034
2006	0.669	0.649	0.209	0.639	0.531	-1.552	0.550	0.396	0.636
	0.004	0.005	0.102	0.005	0.005	0.062	0.005	0.005	0.077
2007	0.679	0.522	0.573	0.462	0.481	0.608	0.439	0.372	0.358
	0.002	0.003	0.046	0.003	0.003	0.092	0.003	0.004	0.007
2008	0.652	0.504	1.010	0.475	0.532	0.885	0.517	0.498	0.459
	0.001	0.003	0.025	0.003	0.003	0.051	0.003	0.005	0.016
2009	0.538	0.399	0.835	0.350	0.350	0.643	0.338	0.274	0.722
	0.002	0.003	0.083	0.004	0.004	0.030	0.004	0.006	0.020

Note: Numbers 1 to 8 pertain to restrictions imposed on the father-daughter sample pairs: 1 - age restriction on daughters (25-45); 2 - father's job is non-permanent; 3 - father's job is permanent; 4 - daughter's job status is permanent; 5 - daughter's job status is permanent and father's is not; 6 - both daughter's and father's status are permanent; 7 - both daughter's and father's status are permanent (urban); 8 - both daughter's and father's status are permanent (rural). Standard errors are found directly below estimates.

Data realities. We set out to determine whether empirical feasibility can be one of the properties of survey data on labor market outcomes. The answer is that feasibility is not achieved in some subsamples created by restrictions. The effect of sample selection rules is to reduce the sample size, leading to surprisingly low estimates, thereby conveying falsely high mobility. There are mobility estimates that are comparable across estimation platforms. This implies that instruments are not strong enough or do not significantly raise the wages of sons. Results also show that regardless of urbanity, sons whose fathers' job status is non-permanent appear to be less mobile than their counterparts with fathers whose job status is permanent.Thus, we can say that mobility studies require many data points to permit occupation profiles to differ across urban and rural areas.

4.5. Wage distributions and transition matrix

Ascertaining distributional properties is critical to understanding mobility. Elasticity estimates are point estimates, which means that we only see a measure associated with the conditional wage distribution. A more useful statistic which is generated from ordered probit estimates pertain to probabilities in the transition matrix. Notwithstanding the limitations posed by the lack of panel data, this allows us to answer questions about distributional features of mobility.

Probabilities are presented in the Tables 20 and 21. Because parental investments may vary depending on the composition of households, we included results based on the number of sons or daughters. Because of the loss in sample points because of focusing on specific number of sons or daughters, we only focused on households with up to 2 sons or daughters.

TABLE 20. Transition probability matrix: father-children pairs

Overall	Father-son pairs					Father-daughter pairs				
						Overall				
Quintiles	Bottom 20%	2nd	3rd	4th	Top 20%	Bottom 20%	2nd	3rd	4th	Top 20%
Bottom 20%	0.480	0.220	0.149	0.092	0.059	0.367	0.233	0.179	0.131	0.090
2nd	0.263	0.208	0.196	0.168	0.165	0.247	0.215	0.201	0.176	0.161
3rd	0.190	0.185	0.197	0.193	0.234	0.189	0.195	0.203	0.198	0.215
4th	0.111	0.145	0.186	0.216	0.343	0.090	0.137	0.182	0.227	0.364
Top 20%	0.031	0.066	0.119	0.190	0.595	0.029	0.069	0.126	0.212	0.563

Note: Values pertaining to same quintile (on diagonal entries) for fathers and offspring represent average probability that a son or daughter will find himself or herself ranked in the same distribution as his or her father. Estimates for 1 and 2 son/daughter households were also provided to ascertain the degree of robustness. These are households where there are more than 1 sons or daughters.

TABLE 21. Transition probability matrix: mother-children pairs

Overall	Mother-son pairs					Mother-daughter pairs				
						Overall				
Quintiles	Bottom 20%	2nd	3rd	4th	Top 20%	Bottom 20%	2nd	3rd	4th	Top 20%
Bottom 20%	0.484	0.217	0.149	0.092	0.059	0.412	0.231	0.168	0.115	0.073	0.090
2nd	0.415	0.221	0.164	0.117	0.083	0.289	0.222	0.195	0.161	0.133	0.161
3rd	0.237	0.200	0.196	0.178	0.189	0.153	0.178	0.202	0.212	0.254	0.215
4th	0.087	0.125	0.172	0.216	0.400	0.045	0.090	0.148	0.226	0.492	0.364
Top 20%	0.037	0.078	0.126	0.197	0.562	0.031	0.070	0.126	0.211	0.562	0.563

Note: Values pertaining to same quintile (on diagonal entries) for mothers and offspring represent average probability that a son or daughter will find himself or herself ranked in the same distribution as his or her mother. Estimates for 1 and 2 son/daughter households were also provided to ascertain the degree of robustness. These are households where there are more than 1 sons or daughters.

Using father's wage distribution as reference, what Tables 20 and 21 remind us is that there is tremendous persistence at the bottom and top, especially for sons. For daughters, there is less at the bottom 20 percent, but, nonetheless, there is high persistence at the top. In households where there is only one son, persistence at the bottom decreases, but it becomes even more pronounced at the top.

Results for sons and daughters using mother's wage distribution appear to replicate those based on fathers.

4.6. Parental education and children's education: probability estimates

We now proceed to estimating parental education effects on child's education outcomes. This supplements the elasticity analysis, but it stands to offer much richer empirical outcomes as it contains information accounting for differences across households in terms of location, ability to generate non-labor income, and other controls.

By interpreting educational attainment as the result of a nonlinear data generating process, we can frame more questions on how parental education can influence child education outcomes. Using STATA, we could compute for various probabilities associated with the educational attainment of the child. First, using external information, we compute the probabilities associated with specific profiles. This will answer the following question: What is the probability that a child will finish college given that both parents have finished secondary education and the household resides in a region? Second, we estimate the probability of each outcome based on the groups to which the samples belong. For instance, what is the probability that the child will end up finishing college if he comes from households with college educated fathers? More interestingly, we need to quantify the likelihood that children from poor households will graduate from college. Third, we generate results pertaining to covariate effects on individual probabilities, contrasting the relative impact of parental education. This answers the question on how a change from a reference education achievement to other levels would affect the outcome.

4.6.1. College educated parents vs their high school graduate counterparts

Data show that there is a considerable number of parents with identical educational achievements. Without dismissing the value of undergraduates, we only focus on two parental educational outcomes (high school graduates and college graduates) and evaluate regional disparities in terms of probability estimates. Thus, the analysis proceeds from the assumption that other key variables are measured at their respective means, implying that the only change comes from location.

The exercise relies strongly on the assumption that parameters are structural in the sense that family structures are homogeneous across regions, which may not be plausible considering fertility profiles may vary location-wise. Of course, this kind of analysis does not incorporate the quality of school attended, the course obtained by college educated parents, and other key variables that determine child's education outcomes such as school resources, learning experiences, direct and indirect costs associated with education, among others.

Results for this exercise are found in Figures 1 and 2. If households receive the same amount of non-labor income (mean non-labor income), daughters whose parents are both college educated have higher chances of finishing college relative to sons, regardless of urbanity and region of residence. The same is true if both parents finished high school only. This appears to bolster preliminary statistical evidence showing that daughters are more likely to match their father's education compared with sons. Given parameter estimates, there is an appreciable increase in the probability that sons will finish college in 2009 compared with 2006.

FIGURE 1. Estimated probabilities that a son or daughter will finish college in 2006 and 2009: college educated parents in urban areas
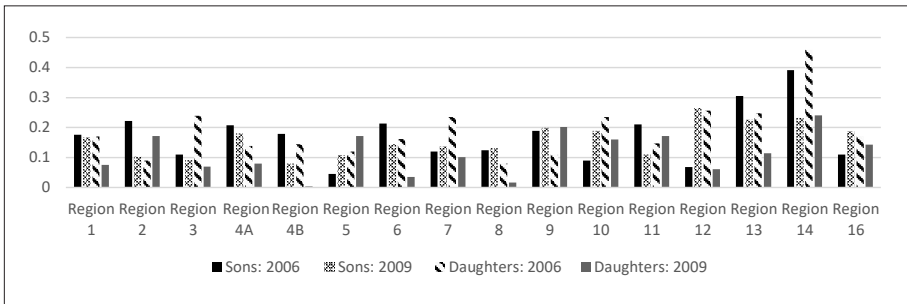
Note: Probabilities were predicted by pegging the educational achievements of both parents to college graduate and evaluating the rest of the included regressors at their respective mean values. To get the region-specific probability, one needs to evaluate the estimated model by setting the region dummy of interest to 1.

FIGURE 2. Estimated probabilities that a son or daughter will finish college in 2006 and 2009: both parents are high school graduates and reside in urban areas
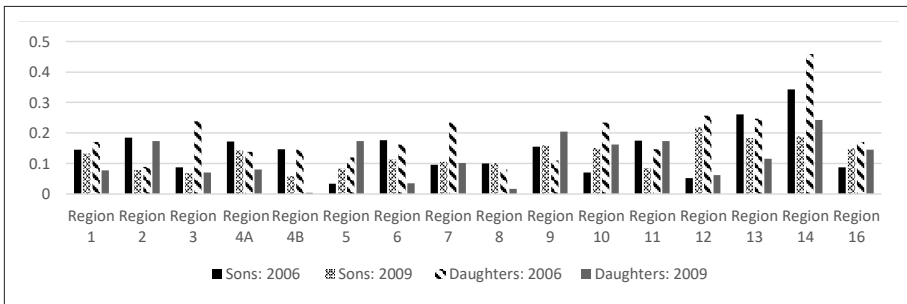
Note: Probabilities were predicted by pegging the educational achievements of both parents to high school graduate and evaluating the rest of the included regressors at their respective mean values. To get the region-specific probability, one needs to evaluate the estimated model by setting the region dummy of interest to 1.

4.6.2. Group-specific probabilities

Suppose we were interested in determining group-specific differences in terms of the educational achievements of sons and daughters. Will the probability associated with such outcomes be the same between two groups, say among fathers and mothers?

As shown in Tables 7 and 8, estimates indicate that the probability of sons getting college degrees relative to their fathers and mothers have fallen from 2006 to 2009. Conversely, the probability of daughters graduating from college relative to their mothers have increased during the same period. The probability that daughters will finish college in households with college educated fathers and mothers is higher compared with sons. Even for low levels of parental education, there is an appreciable difference in achievement probabilities between daughters and sons.

There is evidence that the marginal effects of having college educated parents across sons and daughter are quantitatively different. Results support the empirical observation that mother's college education is a crucial factor in determining the schooling success of daughters.

There is also evidence that the marginal effects of mother's education on sons are insignificant for both years. In contrast, the marginal effects of mother's education on daughters are significant in 2006.

4.6.3. On the impact of poverty status

The preceding computations were based on models that use non-labor income as an identification variable. For exploratory and comparative purposes, we also estimate the same models, but we now use poverty status as an alternative identification strategy. While this has far-reaching implications, it should be emphasized that the said variable is endogenous and may introduce bias.
Based on the results reported in Tables 9 and 10, attending college is less likely if the individual belongs to a poor household. For group-specific effects, being from a non-poor household is associated with a higher probability of finishing college compared with their poor counterparts.

5. Discussion

5.1. On poverty and educational mobility

Household's poverty status does matter in the intergenerational transmission of educational mobility. Probability estimates show that sons/daughters in non-poor households tend to complete college degrees compared with their counterparts in poor households.

While poverty status is patently endogenous, the results highlight disparities in educational outcomes between poor and non-poor households. Regardless of gender, children from non-poor households achieve better educational outcomes. Evidence showing significant effects from parental education is indicative of the degree of advantage of children living in households with highly educated parents.

The implications for children from poor households are obvious. First, because their parents' educational profiles are relatively inferior, they stand to face wage penalties and low education returns. Second, financial constraints may adversely limit the household's ability to defray direct and indirect costs of education, thereby limiting them to relatively low levels of education. This may potentially result in high intergenerational education persistence. Third, while not present in the data, the higher influence of maternal education may simply highlight the degree of involvement of mothers during the child's early formative years. Assortative mating may also play a role in determining the quality of home environments. Thus, it can be plausibly inferred that differences in quality of parental inputs may exist between poor and non-poor households, and this may eventually translate into permanent differences skills valued in the labor market.

5.2. On labor market structures and social mobility

While results were based on the period from 2003 to 2009, reports by the World Bank indicate implications on mobility in terms of intergenerational transmission of educational mobility and labor market segmentation.

We now relate our results to some external findings embodied in a World Bank report, which provides a more comprehensive assessment of labor market trends, challenges, and regulations.

As the 2016 World Bank Report has shown, the labor market seems not capable of lifting households out of poverty due to the increased informality, strong regulations, and substandard human capital profile of labor market participants. The relationship between labor market regulations and mobility has been established; it is important that the government acts on how to relax them.

How can we interpret our findings relative to the World Bank's in terms of mobility? First, poor workers suffer from immobility because of failure to benefit from wage increases. Informal sector workers rarely benefit from economic growth because of the poor linkages between informal sector businesses and formal sector ones. The segmentation of labor markets contributes to immobility. As more workers self -select to the informal sector, the lower the degree of mobility will be realized. Second, the results may confirm persistence within the lower part of the distribution. Third, underemployment appears to cause a dent on wage mobility. As noted in the World Bank report, poor workers or those who work in the informal sector desire longer hours of work, which could have translated into higher earnings. Thus, they are affected by low earnings and limited hours worked.

Apparently, questions that pertain to such cannot be adequately answered by mobility analyses. The more serious finding is that real daily earnings over the period 2003-2007 has declined. This is also affirmed by the World Bank Report which also noted that jobs have been adequate, but that the number of good quality jobs have stagnated, leaving bad ones unable to track economic growth. Again, this disparity has shown that growth is possible but not inclusive, especially when the labor market continues to be segmented.

5.3. Interventions and social mobility

There are government initiatives and programs that can potentially promote upward mobility. Some programs start by contributing towards quality child-rearing and overall development and targeted programs for improving human capital. Others represent active labor market interventions designed to bridge gaps between training or education and employment among the youth,

There is no doubt that we are missing a lot of factors, observed and unobserved, that may play critical roles in achieving upward mobility. The degree of social mobility in any given society is the result of a dynamic process closely intertwined with the evolution of public policy and other processes that undoubtedly emanate from the family. Understandably, the missing or generally unobserved factors are equally as important as the known ones, specifically educational achievement, occupational status, and household resources proxied by non-labor income. In a policy paper that the Philippines may wish to emulate, Corak [2013] pointed out that socio-economic background holds tremendous influence on child development from in utero to early childhood years. Based on this, government programs like the 4Ps present a good strategy to limit inequality of access of expectant mothers to proper counselling and improved nutrition balance to prevent stunting and better health monitoring. There should also be programs based on family initiatives that will ensure greater participation among mothers through the establishment of day care centers and other programs that help improve the quality of parental inputs towards young children, especially in poor households. The main implication of the World Bank study shows the need to relax stringent labor market regulations that stymie the growth of the informal sector. There are many legislative initiatives that have been advanced which can be interpreted as beneficial for improving mobility. A notable example is the legislative initiative to extend the duration of maternity leaves to 100 days. However, this initiative needs to be on guard against possible discrimination and other malpractices by ensuring job security. Another piece of legislation is the JobStart Philippines Program (Republic Act No. 10869). This law seeks to ameliorate the difficulties faced by the youth, who continue to register high unemployment rates. The law aims to shorten the school to work transition by enhancing the knowledge and skills so that they can be made more responsive to labor market demands. It mandates facilitation services by the Philippine Employment Service Office.

Clearly, there exist policy tensions with respect to the timing and effectiveness of interventions. In their review, Heckman, Stixrud, and Urzua [2006] note the importance of the active role of parents in developing their children's cognitive and noncognitive skills, which have been proven instrumental in ensuring persistence in ability differences. They remarked that early interventions, enriched with home visitations for disadvantaged children with high likelihood of dropping out of school may lead to better labor market outcomes and even lower incidence of other societal problems such as criminality. Apparently, interventions should not only be anchored on the strategy that cognitive skills should be prioritized, as evidence from the Perry Preschool Program highlighted the importance of developing non-cognitive traits as well. Legislation can also help in creating a good environment for the newborn. A good example of this is the recent Philippine law that mandated a longer duration for maternity leaves.

6. Concluding remarks

Due to data constraints, this paper provides only a partial characterization of mobility in the labor market. Measurements and various estimation strategies were operationalized using parents-offspring sample pairs that were constituted using various rounds of the Labor Force Survey and the Family Income and Expenditure Survey.

Wage persistence may be a central characterization the Philippine labor market. Wage premia associated with children with well-educated fathers are robustly high. On the other hand, wage penalties accruing to children with less educated parents have been consistently high.

Taking stock of period–specific wage distributions, estimated transition probabilities confirm persistence at the lowest and highest quintiles. The transition probabilities show that persistence is not uniformly observed throughout the reference distribution. Instead, such results confirm the plausible non-linearity of mobility estimates. The results also show that the probability that daughters will be in the lowest quintile of their father's distribution is lower than when the reference distribution belongs to their mothers.

The paper also fit models that effectively avoided biases and errors associated with wage data. Such models use permanent income proxies in the form of educational achievements. Results are promising and reflective of past evidence. They still show that parental education exerts a considerable influence on the likelihood that a son or daughter will finish college. Resources in the form of contributions from abroad or remittances play a critical role in improving the chance that a son or daughter will finish college. Disparities in economic status, proxied by poverty status, are reflected in significant statistical differences in terms of educational outcomes. The finding that the relative probability of sons or daughters to obtain a college degree is higher in non-poor than poor households only confirms the importance of family resources in helping ensure higher mobility for children.

While we need panel data to identify the degree of mobility, there are trends or developments in the labor market that may be informative as to how they will affect such a transition. The said conclusion is that results based on a 2016 World Bank study showed persistence of factors that hinder mobility. First, as documented in the World Bank assessment, trends show that real daily earnings are falling. Falling wages may delay participation in the labor market but not for those who are disadvantaged. Second, part-time employment remains significant especially in agriculture, transportation, and retail trade. Third, unemployment spells still afflict the youth and women. Fourth, a substantial proportion of the female population is simply not participating in the labor market. Fifth, underemployment continues to be high especially in regional labor markets. Thus, unemployment, underemployment, and limited labor force participation adversely affect mobility especially when they affect poverty outcomes, thereby acting as transmission mechanisms for immobility as sons or daughters replicate poor human capital profiles.

Recognizing that high mobility cannot be achieved in the short run is crucial. It is a long-term goal. There are simply too many factors that determine the pace of mobility that form well before the individual has decided to enter the labor market. Countering the problem of low mobility fundamentally necessitates not only active labor market programs that may either provide stopgap measures or promote sustainable employment, high productivity, and improve matching. Progressive policies that enhance human capital accumulation, foster skill development, improve labor market earnings, and render effective early interventions that will develop cognitive and non-cognitive skills are needed.

There should be a mobility blueprint to render coherent all policies expected to promote regional economic growth, uplift the life of the disadvantaged, improve the employability of the youth and women through innovative internship and job programs, reduce market discrimination and promote equality of opportunities, and sustain family-based programs that ensure proper nutrition, guidance, and delivery of other forms of support.

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Appendix

TABLE 22. Estimated probabilities that a son will finish a certain level of education: 2006 and 2009 (with poverty status)

Father's education	Son's educational attainment: 2006							Son's educational attainment: 2009						
	NGC	EU	EG	HU	HG	CU	CG	NGC	EU	EG	HU	HG	CU	CG
HSG	0.013	0.110	0.086	0.270	0.222	0.197	0.103	0.011	0.098	0.091	0.277	0.246	0.191	0.086
	0.002	0.005	0.004	0.006	0.006	0.006	0.005	0.002	0.007	0.006	0.009	0.008	0.009	0.007
CG	0.012	0.107	0.084	0.268	0.223	0.200	0.105	0.009	0.087	0.084	0.267	0.250	0.204	0.098
	0.002	0.007	0.005	0.007	0.006	0.008	0.008	0.002	0.009	0.007	0.010	0.009	0.012	0.010
Mother's education														
HSG	0.013	0.111	0.086	0.270	0.221	0.196	0.102	0.011	0.096	0.089	0.273	0.246	0.195	0.090
	0.002	0.006	0.004	0.006	0.006	0.006	0.006	0.002	0.008	0.006	0.009	0.008	0.010	0.008
CG	0.012	0.103	0.082	0.265	0.224	0.204	0.110	0.012	0.100	0.091	0.276	0.245	0.190	0.086
	0.002	0.006	0.004	0.007	0.006	0.008	0.007	0.002	0.009	0.007	0.010	0.009	0.011	0.009
Non-poor	0.014	0.112	0.086	0.271	0.221	0.195	0.101	0.011	0.098	0.091	0.277	0.246	0.191	0.086
	0.002	0.004	0.004	0.006	0.006	0.005	0.004	0.002	0.005	0.005	0.008	0.008	0.008	0.005

Note: Values in each row are interpreted as the probabilities that the son will achieve a certain level of schooling with reference to a particular attribute of parents and household. For instance, the value associated with the cell formed by CG and Non-poor (0.101) means that the probability that a son will finish a college degree is 10%, given that he comes from a non-poor household in 2006.

TABLE 23. Estimated probabilities that a daughter will finish a certain level of education: 2006 and 2009 (with poverty status)

Father's education	Daughter's educational attainment: 2006							Daughter's educational attainment: 2009						
	NGC	EU	EG	HU	HG	CU	CG	NGC	EU	EG	HU	HG	CU	CG
HSG	0.013	0.051	0.047	0.248	0.245	0.252	0.145	0.003	0.030	0.024	0.271	0.286	0.237	0.149
	0.002	0.004	0.003	0.007	0.006	0.007	0.007	0.002	0.005	0.004	0.013	0.011	0.011	0.011
CG	0.010	0.042	0.040	0.228	0.242	0.267	0.170	0.004	0.037	0.028	0.292	0.287	0.224	0.129
	0.002	0.004	0.003	0.009	0.006	0.008	0.010	0.002	0.006	0.005	0.016	0.011	0.013	0.013
Mother's education														
HSG	0.011	0.047	0.044	0.241	0.245	0.258	0.154	0.004	0.034	0.026	0.283	0.286	0.229	0.137
	0.002	0.003	0.003	0.007	0.006	0.007	0.007	0.002	0.005	0.004	0.014	0.011	0.012	0.012
CG	0.010	0.041	0.040	0.228	0.243	0.268	0.171	0.003	0.032	0.025	0.276	0.286	0.234	0.144
	0.001	0.004	0.003	0.008	0.006	0.008	0.009	0.002	0.005	0.004	0.015	0.011	0.012	0.013
Non-poor	0.012	0.047	0.044	0.240	0.244	0.258	0.154	0.004	0.034	0.026	0.280	0.286	0.231	0.140
	0.001	0.003	0.003	0.006	0.006	0.006	0.005	0.002	0.004	0.004	0.011	0.011	0.010	0.008

Note: Values in each row are interpreted as the probabilities that a daughter will achieve a certain level of schooling with reference to a particular attribute of parents and household. For instance, the value associated with the cell formed by CG and Non-poor (0.154) means that the probability that a daughter will finish a college degree is 154%, given that she comes from a non-poor household in 2006.