Intergenerational Mobility in Slums: Evidence from a Field Survey in Jakarta

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Slums are central to the global debate on inequality, serving as entry points for people moving to cities in search of economic opportunity. Yet we know little about the extent of intergenerational mobility in slums due to a lack of data tracking families across generations (including family members who no longer live together), as well as a lack of data covering slums. This paper addresses these empirical challenges using a field survey of four slums in Jakarta, tracking educational mobility spanning three generations: grandparents, parents, and children. Among grandparents who have less than primary education, only 24% of their children achieve junior secondary schooling or more. By contrast, among parents with less than primary education, 69% of their children attain junior secondary schooling or more. Overall, the patterns suggest improvements in educational mobility across generations. Moreover, there is suggestive evidence that groups with high educational mobility also exhibit high occupational mobility.

Keywords: intergenerational mobility, slums, urbanization
JEL codes: O18, R20

I. Introduction

The United Nations estimates that 1 billion people, close to one-third of the world's urban population, live in slums. Slums are at the heart of the global debate over income inequality. They serve as entry points for many people moving to cities in search of economic opportunity. Slums are also often characterized by poor living conditions, raising concerns that they represent poverty traps that impede upward mobility.

Yet we know surprisingly little about the extent of intergenerational economic mobility in slums (see Marx, Stoker, and Suri 2013 for a review of literature on slums). There are three major data constraints. First, most datasets do not have indicators to identify slum locations, and the ones that do often have geographic

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units that are too coarse. As a result, these datasets may not include enough slum residents. A second constraint is a lack of data spanning multiple generations. Third, there is limited information about family members who no longer reside together, because most surveys ask only about demographic information for people living in the same residence.

This paper addresses these empirical challenges using a field survey of four slums in Jakarta to study intergenerational educational mobility. The survey includes 160 households (664 individuals) and was conducted in 2016 in four centrally located slums in Jakarta. The survey includes information about education and occupation spanning three generations: grandparents, parents, and children. Importantly, the sample includes information about grandparents and children who do not reside with the household head.

I use several methods to characterize intergenerational educational mobility in these four slums. The primary metrics rely on transition matrices and conditional transition probabilities (Bhattacharya and Mazumder 2011). I focus on transitions from less than primary schooling to junior secondary schooling and beyond, conditioning on different subgroups (such as earlier versus later cohorts, migrants versus natives, and males versus females). While comparisons across subgroups are descriptive and not meant to be causal, they highlight where the potential barriers to mobility might be.

Next, I estimate intergenerational elasticities in years of schooling. The elasticities are not easily comparable across subgroups because they capture the rate of regression to the subgroup means. I report the means for different subgroups. A faster convergence toward a higher subgroup mean suggests greater mobility. Following Hertz et al. (2007), I also report intergenerational correlations, which capture "standardized persistence." These correlations standardize schooling outcomes by the standard deviation of schooling for each generation. Standardizing can be important for developing countries that experienced dramatic secular improvements in education outcomes.

Overall, I find large improvements in educational mobility across generations. The conditional transition probabilities are easiest to compare across subgroups. For example, among grandparents who have less than primary education, only 24% of their children achieve junior secondary schooling or higher. By contrast, among parents who have less than primary education, 69% of their children have junior secondary schooling or more. When comparing natives born in Jakarta and migrants born elsewhere, I find that natives have slightly greater mobility (transition probabilities of 47% for natives versus 38% for migrants).

Turning to estimates of intergenerational elasticities, the overall elasticity for years of schooling is 0.27, implying that educational disparities are smaller among children of more versus less educated parents. Interestingly, the intergenerational elasticity for younger generations (0.17 for parents and children) is around half of the elasticity for older generations (0.4 for grandparents and parents), implying

greater educational mobility for the younger cohort. In addition, average schooling is higher for the younger generations (11 years) than for the older generations (8 years). Together, these findings point to greater mobility toward a higher mean in the younger cohorts relative to the older cohorts. Looking across subgroups, I find larger elasticities for migrants relative to natives who were born in Jakarta, with both groups having similar means.

The improvements in educational mobility in these slums echo broader improvements in schooling attainment in Indonesia, mitigating concerns that slum residents are trapped in a low human capital equilibrium. According to the World Bank, primary school completion rates exceeded 95% by 1985 and junior secondary school completion rates increased from 69% in 2002 to 81% in 2013. These patterns are consistent with schooling policies that have expanded access to education, including a nationwide program to build schools in the 1970s (Duflo 2001), a large-scale slum upgrading program in Jakarta in the 1970s and 1980s (Harari and Wong 2018), as well as compulsory schooling policies.

Next, I investigate labor market outcomes to examine whether the robust patterns for educational mobility readily translate to occupational mobility. I measure the likelihood of transitioning from low-income occupations (farmers, cleaners, and laborers) to high-income occupations (retail, administrative, teachers, and police officers). There is less variation across the subgroups with respect to occupational mobility. Interestingly, cohort pairs (household heads and their children or household heads and their parents) exhibiting above-median educational mobility have a 48% chance of transitioning from low- to high-income occupations, relative to a 36% chance for cohort pairs with below-median educational mobility. When respondents were asked why they do not have a formal sector job, 21% reported that they did not have adequate schooling and 11% reported they lacked necessary skills or experience, pointing to the importance of education in the mobility process.

Finally, I explore the extent to which these four centrally located slums provide access to occupations with high incomes. Interestingly, 34% of males (63% of females) work at home or in the neighborhood, while 47% of males (35% of females) work in the town center. Incomes of workers in the town center are 49% greater than incomes of residents working in slums, even after controlling for gender, education, experience, and occupation. The concentration of work in slums in spite of the large disparities in income across places of work is suggestive of barriers to labor market access for slum residents.

While the survey data addresses concerns related to the lack of coverage of slum residents and bias due to coresidency, one important caveat is its generalizability beyond the sample. Ideally, it would be useful to have a nationally representative sample that identifies slum residents and tracks them across generations, regardless of residency. In addition, it would be important to track mobility over time to assess bias from endogenous sorting.

This paper is related to a small but growing literature on economic well-being in slums, which has its roots in seminal work by Lewis (1954) and Harris and Todaro (1970). Field (2007) studies a large titling program in Peru; Cavalcanti, Da Mata, and Santos (2017) model the formation of slums; Cattaneo et al. (2009) examine the impact of improving housing conditions in Mexico on child health and adult happiness; Feler and Henderson (2011) study the provision of local services in Brazil; and Barnhardt, Field, and Pande (2017) investigate a slum relocation program in India. Moreover, a related line of research examines urban development and slums. For example, Marx, Stoker, and Suri (2015) focus on ethnic patronage and private investments in slums in Kenya; Henderson, Venables, and Regan (2016) model the dynamic development process of slums in Kenya; Harari and Wong (2018) examine slum upgrading in Indonesia; and Michaels et al. (2018) study sites and service programs in slums in Tanzania.

There is limited work on intergenerational mobility in low-income countries, especially for slums. Krishna (2013) investigates economic mobility in slums in Bangalore but does not examine educational mobility. Hertz et al. (2007) report intergenerational elasticities in schooling for 42 countries, including low- and high-income countries, such as the United States (0.46), Norway (0.4), Switzerland (0.49), Bangladesh (0.58), Chile (0.64), South Africa (0.69), Ghana (0.71), and Colombia (0.80). Using survey data from 2000, they estimate an intergenerational elasticity of 0.78 for Indonesia. This estimate is not directly comparable given the different population means. In particular, the lower elasticity for slums in this paper (0.27) does not indicate more mobility in these four slums.

The rest of the paper proceeds as follows. Section II provides a background on Indonesia and the four slums. Section III describes the data. Section IV presents the empirical framework. Section V presents the results. Section VI concludes.

II. Background

Indonesia is the fourth most populous country in the world with around 250 million people and a gross domestic product per capita of $3,500 in 2016. The city of Jakarta has a population of 10 million and is part of a larger metropolitan region with more than 30 million people. The poverty rate was 12% in 2012 (World Bank 2014).

By many measures, Indonesians have achieved significant improvements in educational attainment in the past few decades, as discussed in the introduction. The government introduced compulsory schooling in primary education (6 years) in 1950, which it later extended to junior secondary school (9 years) in 1994, and to high school (12 years) in 2013. Historically, the government has tended to prioritize education, with more than 20% of the government's budget committed to education. Besides compulsory schooling policies, the government also embarked on a large

school construction program in the 1970s. In Jakarta, slum upgrading programs have also expanded access to schools.

The urban sector is rapidly growing in importance in Indonesia. According to the World Bank, Indonesian cities are growing faster than other Asian countries. Slightly more than half of the population live in cities, with more than two-thirds expected by 2025. Of the 21 million jobs created between 2001 and 2011, 18 million were in urban areas and 17 million were in the service sector (Lewis 2014).

The slums in the field survey are centrally located. On average, workers spend 27 minutes commuting to work, which is remarkably short given traffic congestion in Jakarta. Their jobs are an average of 7 kilometers from their homes. The high concentration of residents working in slums is consistent with Field (2007), who finds that providing property titles substantially shifts labor supply away from work at home. In the sample, only 15% of households reported having a title and more than 60% reported being anxious that they may be evicted by their landlord and the government.

In addition, these slums have relatively good access to local services. As many as 94% of households reported having access to electricity and 79% reported having their own latrines. Households also reported being satisfied with access to health services, education, electricity, and water.

While the slums are centrally located, not all of the residents are able to access formal sector jobs in the town center. Around one-third of males (63% of females) work at home or in the neighborhood, 47% of males (35% of females) work in the town center, and 9% of males work in factories in industrial centers. The rest do not have permanent locations (many are food vendors or work in the service sector). Those who work in the neighborhood are mostly sellers, laborers, or providers of transportation services. Those who work in the town center are part of retail establishments or restaurants, or have administrative jobs. About 22% of the slum residents are self-employed without employees and 13% have employees.

III. Data

The main data source is a field survey of four slums in Jakarta. I conducted the field survey in 2016, as part of a broader project with Mariaflavia (Nina) Harari on urban development patterns in Jakarta. The sample comprises 160 households (664 individuals). While there are several administrative surveys in Indonesia, the main difficulty is identifying slum residents. For example, the Indonesian Family Life Survey (IFLS) includes rich individual information, but asks only whether the *kelurahan* (urban village) has a slum, which would make the information on these urban villages too coarse to identify slums in Jakarta.[1]

[1]There are around 260 administrative localities in Jakarta. A locality is an important administrative unit where land transactions are recorded and public services are provided. Localities are akin to urban villages, with the

Table 1. **Demographics for Household Heads**

	Jakarta	Slums (Field Survey)				
Variable	**Mean**	**Mean**	**SD**	**P25**	**P50**	**P75**
Age	45	49	13	40	49	58
Male	0.85	0.81	0.40	1	1	1
Born in Jakarta	0.58	0.48	0.50	0	0	1
Household size	4.10	5.00	2.30	4	5	6
Years of schooling	10.00	7.20	3.90	3	6	9
Completed high school	0.51	0.24	0.43	0	0	0
Completed college	0.10	0.04	0.19	0	0	0

P = percentile, SD = standard deviation.
Notes: Summary statistics for household heads in two different samples. Column 1 corresponds to statistics for Jakarta computed from the 2008 Susenas households survey. The subsequent columns report data for 160 household heads in the field survey. The statistic for whether the household head was born in Jakarta was obtained from the 2010 population census (this variable was not available in the 2008 Susenas).
Sources: Author's calculations and 2008 Susenas survey.

The sampling strategy was as follows. The enumerators were told to visit four localities in Jakarta. Within each locality, the team identified *rukun warga* (hamlets, an administrative unit smaller than localities) that have slums, according to local officials. They then selected one hamlet randomly. Next, they identified the *rukun tetangga* (subhamlets) that have slums and randomly selected two subhamlets. Finally, they randomly selected 20 households from each subhamlet. In total, the sample has 160 households.

Table 1 reports summary statistics for 160 household heads in the survey, compared to all of Jakarta.[2] The average age of a household head is 49 years, slightly above the average for Jakarta (45 years). Males comprise 81% of the household heads in the survey, and 48% were born in Jakarta (compared to 85% and 58%, respectively, for the Jakarta sample). The average household size is 5, compared to 4.1 for Jakarta. The average years of schooling is 7.2 years, relative to 10 years for Jakarta. Moreover, only 24% completed high school and 4% completed tertiary education, compared to 51% and 10%, respectively, for Jakarta. The average annual household income is $3,500 in the slum sample, relative to a gross regional product per capita of $14,000 for Jakarta (Badan Pusat Statistik 2016).

To track educational mobility, the survey includes information on schooling attainment for all members residing in that household. Crucially, the survey also asks about the education and occupation of the oldest child, the second oldest child, and the parents of the household head, regardless of their residencies. For

average locality having an area of 2.5 square kilometers and 10 hamlets. Since not all hamlets in a locality are slums, data at the locality level would be too coarse to identify slums.

[2]The statistics for Jakarta were largely calculated from the 2008 Susenas (a nationally representative household survey), except for the indicator on whether a household head was born in Jakarta, which was obtained from the 2010 population census. I do not use the Indonesian Family Life Survey (IFLS) because it covers only 13 out of 27 provinces in Indonesia.

Table 2. **Schooling Attainment across Generations** (%)

Education:	<Primary	Primary	Junior Secondary	High School	College+	Total
Grandparents	47	37	9	6	1	100
Parents	25	30	21	20	4	100
Children	5	15	17	53	10	100

Source: Author's calculations.

intergenerational linkages, I primarily consider two cohort pairs (household heads and their children plus household heads and their parents).[3] I drop individuals who have not completed schooling, keeping those 18 years old and above.[4] The primary estimation sample for educational mobility includes 333 cohort pairs.

Table 2 presents average schooling attainment for three generations: grandparents, parents, and children. For the grandparents, 47% have less than primary education and 37% have primary education only. For the parents, 45% have junior secondary schooling and beyond. For the youngest cohort (children), 53% have a high school education and 10% have a college education and beyond. On average, the grandparents have 5 years of education, the parents have 8 years, and the children have 11 years of schooling.

Aside from education, the survey also includes information on labor market outcomes for the top two earners in the household, including information on occupation, place of work, and monthly income. Traditional occupation categories in some administrative surveys have tended to focus on agricultural occupations, and may miss many occupations that are common in slums (these tend to be related to service or retail sectors, with many being self-employed). For the field survey, respondents were asked to describe their occupations and I categorized their descriptions. The three most common occupations (comprising slightly more than half of the occupations) are sellers, drivers, and construction workers or contractors. To examine intergenerational mobility in occupations, the survey also inquired about occupations for children and grandparents who were not residing with the respondents. The sample for occupational mobility includes 292 cohort pairs with nonmissing occupation information (section V.B.1). Finally, I also examine labor market access for 248 working individuals (section V.B.2).

IV. Empirical Framework

The empirical analysis focuses on intergenerational mobility in education. Relative to estimating mobility in permanent income, there are fewer empirical challenges for educational mobility. First, measurement error is less of a concern

[3]The results are similar if I include spouses of household heads and their children, but I do not have information for parents of spouses.

[4]The results are similar if I restrict the minimum age to 25 years.

for schooling whereas measurement error in earnings could lead to attenuation bias for income mobility estimates. Also, individuals tend to complete their education early in their lifetime so there is less of a life-cycle bias, unlike earnings, which can change significantly throughout the life cycle. Finally, there is less of a selection concern with schooling in Indonesia because educational attainment rates are high, unlike unemployment rates.

I present three measures of educational mobility. The main measure of mobility will comprise transitional probabilities, which are easy to interpret and compare across subgroups. I present transition matrices across discrete categories of educational attainment. In particular, for subgroups, I report conditional transition probabilities (Bhattacharya and Mazumder 2011), focusing on the transition from below primary education (for the older cohort) to junior secondary schooling and beyond (for the children). As Indonesia has had near universal primary completion rates since the 1980s, there is relatively less variation in primary education attainment rates. I report 95% confidence intervals for the estimates, obtained from bootstrapping over 100 iterations.

Second, I present estimates of intergenerational elasticities:

$$\ln(s_c) = \alpha + \beta \ln(s_p) + \varepsilon \tag{1}$$

where s_c is the child's years of schooling, s_p is the parent's years of schooling, and ε is an idiosyncratic error term. The unit of analysis is a pair of cohorts (grandparents–parents or parents–children). The estimation sample has 333 parent–child pairs. Standard errors are clustered at the household level.

The parameter of interest is β, the intergenerational elasticity for schooling. It measures differences in outcomes between children of more versus less educated parents, with $1 - \beta$ corresponding to educational mobility. β also captures the rate of regression to the population mean, which is different across the subgroups. The estimating equation implies that the data generation process for s_c is characterized by the rate of convergence and the mean. For example, finding greater mobility toward a lower mean may not necessarily indicate an improvement.

For the third metric, following Hertz et al. (2007), I present estimates of intergenerational correlations for education. As shown below, the correlation (ρ) is obtained by multiplying the elasticity by the ratio of the standard deviations for parents (σ_p) and for children (σ_c).

$$\rho = \frac{\sigma_p}{\sigma_c}\beta \tag{2}$$

This metric effectively standardizes educational attainment by the standard deviation for each generation to account for secular changes in education across generations. For example, an overall expansion in schooling over time (such as what Indonesia has experienced) could increase the variance in schooling for younger cohorts. In this case, the intergenerational correlation would be lower

than the elasticity, indicating weaker (standardized) persistence. For example, Hertz et al. (2007) estimate that the intergenerational elasticity in education is 0.58 for Viet Nam, but the correlation is only 0.4. Moreover, they find that intergenerational elasticities declined steadily over time for Asia, but correlations remained stable. This indicates that much of the educational mobility improvements captured by the decline in intergenerational elasticities was driven by differences in the overall dispersion in educational attainment.

There are several empirical threats to estimating intergenerational mobility in education. First, most surveys only collect information for households whose members reside together. In the data, I find more mobility when including cohort pairs that are living together. This is consistent with the more upwardly mobile child living with and supporting the parents. Moreover, only 15% of the household heads are living with their parents, so conditioning on coresidence excludes many grandparents.

Another important concern is entry and exit of slum residents. To the extent that upwardly mobile residents are more likely to leave the slums and less mobile residents are more likely to stay in the slums, the estimated effect will tend to underestimate intergenerational mobility. By contrast, if less successful migrants leave the slums, I would be overestimating mobility. Residents in the survey are not very mobile. The 5-year mobility rate is less than 6% and the average length of stay is 24 years. Finally, an important concern is external validity, as the four slums in the sample are centrally located and have higher-quality amenities.

V. Results

A. Educational Mobility

I begin by presenting the overall transition matrix of educational mobility. Table 3 represents a transition matrix across five categories of educational attainment, including less than primary, primary, junior secondary, high school, and tertiary education. The rows represent children's schooling and the columns correspond to parent's education. Each column sums to 100%.

The mass is clearly concentrated below the diagonal, consistent with educational mobility. For example, while 44% of parents have not completed primary education (column 1), 32% of their children completed primary education, 14% completed junior secondary school, and 28% completed high school and beyond. Column 2 shows that among the older cohort who have completed primary schooling (35% of the sample), 69% of their children completed education beyond primary schools.

Next, panel A of Table 4 presents conditional transition probabilities across subgroups. I focus on the transition from below primary to junior secondary schooling and above. The brackets present 95% confidence intervals from

Table 3: **Transition Matrix for Educational Attainment** (%)

	Parent's Education				
Child's Education	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
1	26	8	4	0	17
2	32	23	15	11	0
3	14	25	17	11	0
4	25	35	56	67	33
5	3	9	8	11	50
Total	100	100	100	100	100

Notes: The five categories of educational attainment are less than primary (1), primary (2), junior secondary (3), high school (4), and tertiary (5). Each cell reports the percentage of children with educational attainment (row), conditional on parent's educational attainment (column).
Source: Author's calculations.

bootstrapping. Column 1 shows that for parents who have not completed primary education, 42% of their children completed at least junior secondary school (this corresponds to the last three rows in column 1 in Table 3). Notably, this transition probability is higher (78%) if we condition on cohort pairs that coreside in slums. The coresiding sample excludes working children, who have their own households and tend to exhibit lower mobility, as well as grandparents, who also tend to be associated with lower mobility. Indeed, columns 2 and 3 show strong improvements in upward mobility from the earlier cohorts (grandparents–parents) to the later cohorts (parents–children). If the grandparents have less than primary education, then only 24% of the parents have junior secondary education and beyond. However, if the parents have below primary schooling, then 69% of their children have junior secondary schooling.

All these parents were born in the slums. It would be a concern if a large fraction of the parents sorted into these centrally located slums in search of mobility for their children. Since the parents did not choose to locate in the slums, it is reassuring that the 69% estimate is unlikely to be driven by endogenous sorting (of course, endogenous exits remain potentially concerning). This upward educational mobility pattern is consistent with the expansion of compulsory schooling through junior secondary school in 1994. Columns 4 and 5 show slightly greater mobility for natives born in Jakarta (47%) compared to migrants born outside Jakarta (38%), although their confidence intervals overlap. Finally, the last two columns show a greater probability of upward mobility for females than males.

Panel B of Table 4 presents intergenerational elasticities with respect to educational achievement. Panel C presents intergenerational correlations (with p-values in brackets). Column 1 reports an intergenerational elasticity of 0.27 and a correlation of 0.28, suggesting that educational disparities are smaller in the younger cohort, even after accounting for differences in dispersion across generations.

Table 4. **Intergenerational Educational Mobility in Slums**

Dependent Variable	**Ln(child's education)**						
Sample:	**All** (1)	**Grandparents** (2)	**Parents** (3)	**Migrants** (4)	**Jakarta Natives** (5)	**Male** (6)	**Female** (7)
Panel A: Conditional Transition Probability							
Ln(parent's education)	0.42	0.24	0.69	0.38	0.47	0.31	0.54
	[0.28,0.56]	[0.08,0.40]	[0.46,0.93]	[0.18,0.58]	[0.26,0.68]	[0.13,0.49]	[0.22,0.85]
Panel B: Intergenerational Elasticity							
Ln(parent's education)	0.27***	0.40***	0.17**	0.37***	0.15	0.37***	0.08
	(0.06)	(0.10)	(0.06)	(0.08)	(0.09)	(0.08)	(0.09)
No. of observations	333	170	163	175	158	229	104
R-squared	0.08	0.13	0.06	0.13	0.03	0.14	0.01
Mean	9.6	8.3	10.8	9.5	9.6	9.5	9.6
Panel C: Intergenerational Correlation							
Ln(parent's education)	0.28	0.36	0.24	0.36	0.16	0.41	
	[0.00]	[0.00]	[0.002]	[0.00]	[0.04]	[0.00]	

Notes: The unit of analysis is a pair of generations (grandparents–parents and parents–children). The dependent variable is the logarithm of years of schooling for children and the regressor is the logarithm of years of schooling for parents. Column 1 includes 333 pairs with nonmissing information on educational attainment. Column 2 includes grandparents–parents pairs only and column 3 includes parents–children pairs only. Column 4 includes migrants and column 5 includes Jakarta natives. Columns 6 and 7 split the sample by gender. Panel A reports conditional transition probabilities (less than primary to junior secondary education and beyond), with 95% confidence intervals in brackets, obtained from bootstrapping. Panel B reports intergenerational elasticities with standard errors clustered by household. Panel C reports intergenerational correlations with p-values in brackets. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.
Source: Author's calculations.

To probe the extent to which intergenerational persistence is driven by family versus environmental contexts, I follow the framework developed by Solon (1999), who relates sibling correlations with intergenerational elasticities. In this model of human capital formation, schooling depends on intergenerational transmissions within the family and neighborhood effects. Under some assumptions, the sibling correlation depends on the square of the intergenerational elasticity, where $\rho_{siblings} = \beta^2 + \mu$, and μ corresponds to nonparental determinants of education (such as neighborhood effects). In the survey, the sibling correlation is 0.5. Using the elasticity estimate of 0.27 implies that up to 15% of the sibling correlation is driven by parental effects, with a large share left to be explained by other factors.

Next, I explore heterogeneity in intergenerational elasticities across subgroups. These subsample estimates measure mobility and regression to subsample means. While they are not readily comparable to the estimate in column 1, it is nonetheless instructive to assess the degree of heterogeneity across subgroups. I report the subsample means of the dependent variable (years of schooling of the younger cohort) at the bottom row of panel B.

Overall, the patterns are similar to those of the conditional transition matrix. Column 2 is restricted to the older generations (grandparents–parents) and column 3 examines only the younger generations (parents–children). The elasticity is more than twice as large for older generations (0.4) relative to younger generations (0.17). While elasticities are not directly comparable across subgroups in general, in this case, the mean is *higher* for younger generations (11 years of schooling, versus 8 years for older generations). A faster regression to a higher mean for younger generations suggests an improvement in educational mobility. Panel C shows that the differences between the two cohort pairs are smaller using correlations (0.36 for the older cohort versus 0.24 for the younger cohort). While these results are not necessarily a causal estimate of the effect of slums on upward mobility, they are consistent with compulsory and universal education as well as slum upgrading programs in Jakarta improving educational access for younger cohorts. The changes in estimates across subgroups are large and consistent with trends estimated by Hertz et al. (2007). They estimate that the elasticity fell by 0.04 units every 5 years for Indonesia (about 0.2 every 25 years).

The remaining columns in panel B show greater persistence for migrants (0.37) than for natives (0.15), and for males (0.37) than females (0.08 and insignificant). The means are similar for different subgroups, suggesting greater mobility for natives and females.

Next, Table 5 presents educational mobility estimates using Indonesia's national socioeconomic survey (Survei Sosial Ekonomi Nasional, widely known as Susenas) in 2008. The benefit of using Susenas is that it is nationally representative, but the limitation is that it collects schooling data only for

Table 5. **Intergenerational Educational Mobility, 2008 National Sample**

Dependent Variable	Child's Education		
Sample:	All (1)	Urban (2)	Rural (3)
Panel A: Conditional Transition Probability			
Ln(parent's education)	0.57 [0.53,0.62]	0.69 [0.63,0.75]	0.54 [0.49,0.58]
Panel B: Intergenerational Elasticity			
Ln(parent's education)	0.33*** (0.003)	0.28*** (0.004)	0.27*** (0.004)
No. of observations	665,332	250,949	414,383
R-squared	0.17	0.17	0.09
Mean	8.0	9.3	6.9

Notes: Educational mobility using data from a 2008 national household survey. Panel A reports conditional transition probabilities with 95% confidence intervals in brackets, obtained from bootstrapping. Panel B presents intergenerational elasticities with standard errors clustered at the household level. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.
Source: Author's calculations.

individuals who live together.[5] Nonetheless, it is instructive to examine educational mobility in the national sample. Panel A reports the conditional transition probabilities for all households (column 1), urban households (column 2), and rural households (column 3). The overall transition probability is 57%, greater than that for the slum survey (42%). Individuals reported greater mobility in urban settings (69%), compared to rural areas (54%) and the slums. Panel B shows similar elasticities in the urban and rural samples, but the urban sample has a higher mean (9 years, compared to 7 years for rural).

As discussed above, conditioning on coresidence in the slum sample increases the transitional probability to 78%, which is much greater than in the rural sample. In addition, the subgroup mean is also greater for coresidents in slums (11 years) than in the rural sample (7 years). These patterns suggest greater mobility among slum residents relative to the rural sector, albeit using the slum survey's limited sample size (93 cohort pairs that are coresiding).

B. Labor Market Access

Overall, the findings above are consistent with improvements in educational mobility across generations, mitigating concerns about slums representing poverty

[5]For example, Susenas surveys may be undercounting grandparents–parents cohort pairs that are not coresiding and these pairs tend to exhibit lower mobility (as discussed above). Thus, this coresidency bias would overestimate transition probabilities.

traps with low human capital formation. Next, I examine labor market outcomes for slum residents.

1. Occupational Mobility

I first explore occupational mobility by ranking occupations by income (see, for example, Abramitzky, Boustan, and Eriksson 2014). For the top two primary income earners for each household, I have information on their occupations and monthly income, which I used to rank occupations by income. I classified their occupations into aggregate categories based on the respondents' descriptions of the jobs. The highest incomes are associated with jobs in the public sector and independent sellers (around Rp3 million or $222 per month); followed closely by jobs in the formal retail sector (around Rp2.9 million); and administrative and managerial jobs, including jobs in banks and financial services (Rp2.6 million). The lowest incomes are associated with jobs in factories and security officers (around Rp2 million); construction jobs (Rp1.7 million); and service sector jobs, including cleaners (Rp1 million). The most common jobs are in retail, with 27% working as independent sellers (at food stands or kiosks), and 13% working in the formal retail sector (such as shopping centers). I classified the first four types of jobs—public sector, independent seller, formal retail, and administrative—as high-income occupations (the average income is above Rp2 million, the median in the sample). The rest are classified as low-income occupations. The conclusions are similar using other cutoffs to define high-income versus low-income occupations.

Table 6 presents conditional probabilities of transitioning from low-income to high-income occupations. In contrast to educational mobility, the patterns for occupational mobility are less robust. As discussed earlier, the occupational mobility estimates are less sharp and tend to be subjected to greater measurement error, life-cycle bias, and selection concerns due to unemployment. Nevertheless, education appears to be important. When I split the sample by educational mobility (bottom panel), I find that cohort pairs with high educational mobility (children with above-median education and parents with below-median education) have greater transition probability (48%) relative to those with low educational mobility (36%).

2. Slums and Labor Market Access

There is a large literature examining the role of workplaces in shaping labor market opportunities (Cutler and Glaeser 1997; Kling, Liebman, and Katz 2007; Chetty, Hendren, and Katz 2015). The centralized locations of slums may provide access to jobs and employment networks for workers. For example, Barnhardt, Field, and Pande (2017) examine a housing lottery in India that resettled slum dwellers to the city's periphery, and find that winners reported improved housing but no change in family income or human capital. This is consistent with the notion that

Table 6. **Intergenerational Occupational Mobility**

Sample:	**All (1)**	**Grandparents (2)**	**Parents (3)**	**Migrants (4)**	**Jakarta Natives (5)**
High-occupation jobs	0.40	0.40	0.43	0.41	0.40
	[0.19,0.62]	[0.16,0.63]	[0.05,0.81]	[0.11,0.71]	[0.09,0.70]
No. of observations	292	203	89	149	143
Sample:		**Low Educational Mobility**	**High Educational Mobility**	**Males**	**Females**
High-occupation jobs		0.36	0.48	0.38	0.48
		[0.10,0.62]	[0.16,0.81]	[0.15,0.62]	[0.17,0.78]
No. of observations		185	107	218	74

Notes: The unit of analysis is a pair of generations (grandparents–parents and parents–children). Similar to conditional transition probabilities reported in panel A of Table 4, the table above presents 95% confidence intervals in brackets, obtained from bootstrapping. The sample includes only cohort pairs with nonmissing occupation information. High-income occupations (average monthly income of more than Rp2 million) include jobs in the formal retail sector; administrative or office jobs (bankers, managers); jobs in the public sector (teachers, police officers); and sellers. Low-income occupations include service sector jobs, drivers, security officers, factory jobs, construction workers and laborers, cleaners, farmers, and homemakers. The transition probabilities present the likelihood of transitioning from low- to high-income occupations. The first two columns in the bottom panel split the sample by high educational mobility households (households where the older cohort's education level was below the median and the younger cohort's education level was above the median) and low educational mobility households. The last two columns split the sample by the gender of the child. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.
Source: Author's calculations.

slums in centralized locations can provide access to jobs and employment networks. In the data, less than 30% of workers reported finding a job by themselves, using ads, or through an employment agency. A majority of workers relied on friends and family to help them find a job. The data also show that 34% of employers required a reference or recommendation, and 24% required a background check.

Table 7 explores the relationship between slum residents' income and place of work. The dependent variable is the logarithm of monthly income (mean of Rp2.5 million or $193). Column 1 includes four dummies for place of work. Column 2 adds demographic controls, including gender, years of schooling, experience, and experience squared. Column 3 adds occupation dummies and two self-employment dummies (self-employed with and without employees). Standard errors are clustered at the household level.

Column 1 indicates that income is 65% higher in the town center and 55% higher in industrial centers, relative to the omitted group (working at home or in the neighborhood). These significant differences remain after controlling for demographics and occupation fixed effects. The coefficients in column 2 are smaller but still substantial and significant, reflecting the notion that those who work in the town center and industrial center tend to be male and more educated. Controlling for gender reduces both coefficients by around 10 percentage points, and further controlling for years of schooling reduces both coefficients by an additional 10

Table 7. **Income and Place of Work**

Dependent variable	**Ln(income)**		
	(1)	**(2)**	**(3)**
Industrial	0.55**	0.32*	0.51**
	(0.18)	(0.15)	(0.17)
Town	0.65***	0.43***	0.49***
	(0.13)	(0.12)	(0.12)
Not permanent	0.31	−0.03	0.06
	(0.18)	(0.19)	(0.24)
Other	0.72*	0.48	−0.02
	(0.30)	(0.35)	(0.34)
No. of observations	248	248	248
R-squared	0.11	0.24	0.46
Demographics	N	Y	Y
Occupation	N	N	Y
Self-employed	N	N	Y

Notes: The dependent variable is the logarithm of income for the two primary income earners in each household, winsorized at the top 1%. The four key regressors are dummies for place of work, relative to working at home or in the neighborhood. Column 2 adds demographic controls (gender, years of schooling, experience, and experience squared). Column 3 controls for occupation fixed effects and two indicators for self-employed (with and without employees). Standard errors clustered by household are reported in parentheses.
*p < 0.1, **p < 0.05, ***p < 0.01.
Source: Author's calculations.

percentage points. Column 3 shows that the results are robust to adding occupation controls. These large disparities in income by place of work, coupled with the high concentration of work in slums (particularly for women), point to potential barriers to labor market access for some slum residents.

Table 8 investigates compositional differences by comparing demographic characteristics by place of work. Column 1 shows that workers in the industrial sector and in the town center are 38% and 23%, respectively, more likely to be male. Column 2 shows that those working in the industrial sector have 2 more years of schooling, while those in the town center have 2.6 more years, compared to those working at home or in the neighborhood. Column 3 shows that high school completion appears to be more important for accessing jobs in the town center. Column 4 shows that the Javanese (the major ethnic group in Jakarta) are more likely to work in the industrial sector.

These demographic patterns characterize who works where and which subgroups face larger barriers to accessing high-income jobs in town centers and industrial centers. The large gender disparities suggest relatively larger potential gains from improving access for women. For example, Attanasio, Kugler, and Meghir (2011) and Attanasio et al. (2017) find that a vocational training program in Colombia helped women gain access to formal sector jobs. The probability of paid

Table 8. **Demographics and Place of Work**

	Male (1)	Years of Schooling (2)	High School (3)	Javanese (4)
Industrial	0.38*	1.99	0.13	0.32*
	(0.16)	(1.11)	(0.16)	(0.14)
Town	0.23***	2.60***	0.35***	−0.04
	(0.07)	(0.52)	(0.06)	(0.06)
Not permanent	0.57***	0.47	0.00	0.14
	(0.04)	(0.78)	(0.12)	(0.14)
Other	0.57***	0.43	−0.03	0.08
	(0.04)	(1.13)	(0.18)	(0.22)
No. of observations	248	248	248	248
R-squared	0.11	0.11	0.12	0.03
Mean	0.60	8.60	0.38	0.32

Notes: The table repeats column 1 of Table 7 but with demographics as the dependent variable instead of income. *p < 0.1, **p < 0.05, ***p < 0.01.
Source: Author's calculations.

employment increased by close to 7%, hours worked per week increased by almost 3 hours, and wages rose by nearly 20%.

VI. Conclusion

This paper provides novel estimates of intergenerational educational mobility using a field survey of four slums in Jakarta, shedding new light on the potential for upward mobility in slums. I find significant improvements in educational mobility across cohorts and relatively greater mobility for natives than for migrants. Turning to occupational mobility, the patterns are less robust, but the estimates suggest that groups with high educational mobility also exhibit high occupational mobility.

While the results for educational and occupational mobility are encouraging, the improvements in educational attainment do not seem to readily translate to occupational gains for everyone. To probe the issue of labor market access further, I document where slum residents work and which jobs provide greater incomes. I find that many residents reported working in slums (especially women) in spite of potentially large income gains from working in nearby town centers. These findings suggest potential barriers to labor market access for certain groups of slum residents.

There are several caveats and directions for future research. One important limitation of the field survey is potential generalizability. Therefore, it would be interesting to explore a larger sample with a wider geographic scope, including other slums and nonslum areas. Another direction for future research is to explore other notions of social mobility, including income and relative mobility in economic ranks. Finally, it would be interesting to study the role of policies in accelerating

economic mobility, including compulsory schooling laws, school construction programs, and slum upgrading programs that expand access to schooling.

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