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Informal Employment in a Growing and Globalizing Low-Income Country[†]

By BRIAN MCCAIG AND NINA PAVCNIK*

Reallocation of resources toward more productive uses contributes significantly toward economic growth. A distinct feature of the distribution of firms in low-income countries is the prevalence of small, informal, household-run firms, which employ a large share of the workforce and provide livelihoods for the poor, but lag in productivity far behind formal firms (Banerjee and Duflo 2007; Gollin 2008; La Porta and Shleifer 2014). Most of these firms have little potential to transition to the formal sector (de Mel, McKenzie, and Woodruff 2010, 2013; La Porta and Shleifer 2014). Nonetheless, the individuals working in them might transition to the formal sector as low-income economies develop (Lucas 1978; Gollin 2008). However, evidence on economy-wide transitions of individuals in and out of informality in a low-income setting is scarce, with most studies confined to urban middle-income settings (Maloney 2004).

We document several facts about individual transitions from the informal to the formal sector in Vietnam, a fast-growing, industrializing, and low-income economy. First, younger workers, particularly those who have migrated, are more likely to work in the formal sector and stay there permanently. Second, the decline in the

aggregate share of informal employment occurs through changes between and within birth cohorts. Third, younger, better educated, male, and urban workers are more likely to switch to the formal sector than other workers initially in the informal sector. A poorly educated, older, female, rural worker faces little prospect of formalization. Fourth, formalization is associated with occupational upgrading.

We focus on Vietnam over a decade of rapid growth from 1999 to 2009, when GDP per capita increased by 78 percent, the labor force grew by 35 percent, and the percentage of the workforce employed in the informal sector dropped from 86 to 79. This drop reflected a relative contraction of employment in agriculture and an expansion of manufacturing and services, as well as a drastic drop in the share of informal jobs within manufacturing from 58 to 43 percent.

We analyze data from the 1999 and 2009 Vietnam Population Censuses and the 2002, 2004, 2006, and 2008 Vietnam Household Living Standards Surveys (VHLSSs) focusing on workers ages 20–64. The data is nationally representative, covers all industries (including agriculture) and workers in formal and informal firms. An individual works in the informal sector if he is self-employed or works as an employee in the household business sector as opposed to the registered, enterprise sector. In Vietnam, state, foreign, and collective firms are legally required to register as an enterprise, whereas domestic private firms may legally operate as either an enterprise or a household business. Our definition closely corresponds to the notion of informality used in the literature (see La Porta and Shleifer 2014). The VHLSSs contain a rotating panel subcomponent that tracks individuals over a period of up to four years. We therefore analyze transitions to the formal sector in a nationally representative setting and over a longer time frame than is usually feasible (de Mel, McKenzie, and Woodruff 2010). The

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[†] Go to <http://dx.doi.org/10.1257/aer.p20151051> to visit the article page for additional materials and author disclosure statement(s).

TABLE 1—INFORMALITY ACROSS AND WITHIN AGE COHORTS

		Economy-wide			Manufacturing		
Year of birth	Age in 1999	1999	2009	Change	1999	2009	Change
<i>Panel A. Share of informal workers in age cohorts</i>							
1985–89	Age 10 to 14		0.716			0.287	
1980–84	Age 15 to 19		0.687			0.325	
1975–79	Age 20 to 24	0.873	0.761	−0.112	0.569	0.440	−0.129
1970–74	Age 25 to 29	0.864	0.816	−0.047	0.585	0.527	−0.059
1965–69	Age 30 to 34	0.868	0.843	−0.025	0.590	0.586	−0.004
1960–64	Age 35 to 39	0.850	0.835	−0.014	0.561	0.610	0.049
1955–59	Age 40 to 44	0.838	0.849	0.011	0.545	0.669	0.123
1950–54	Age 45 to 49	0.844	0.906	0.061	0.587	0.762	0.175
1945–49	Age 50 to 54	0.872	0.956	0.083	0.605	0.858	0.253
1940–44	Age 55 to 59	0.924			0.723		
1935–39	Age 60 to 64	0.967			0.866		
Total		0.864	0.790	−0.074	0.580	0.435	−0.145
		Within cohorts	Between cohorts	Total change	Within cohorts	Between cohorts	Total change
<i>Panel B. Decomposition of aggregate informality change 2009–1999</i>							
Decomposition		−0.023	−0.051	−0.074	−0.014	−0.131	−0.145

Note: Authors' calculations based on workers ages 20–64 from the 1999 and 2009 censuses.

online Appendix provides further information on this data.

I. Formalization Across and Within Birth Cohorts

Workers of different ages differ in mobility costs (Dix-Carneiro 2014), affecting their ability to transition to the formal sector as the economy grows. Age cohorts can shape the decline in aggregate informality through two channels. If the share of informal workers differs across birth cohorts, aggregate informality declines if cohorts entering the labor market have lower informality than existing and exiting cohorts. Additionally, workers within a given cohort may transition to the formal sector. We examine the role of birth cohorts in the aggregate decline in informality in Table 1. Panel A reports the share of informal employment by five-year birth cohorts from the 1999 and 2009 censuses. Cohorts are based on age in 1999.

Young workers make a key contribution toward the aggregate decline in informality. Young workers that enter the workforce between 1999 and 2009 (age 10–19 in 1999, then age 20–29 in 2009) are less likely to work

informally than older, exiting cohorts (ages 55–59, 60–64 in 1999. The informality among the entering cohorts is about 70 percent (column 2), compared to over 90 percent among the exiting cohorts (column 1). This highlights the importance of young cohorts for declines in informality through workforce shifts across cohorts. In addition, younger cohorts experience greater declines in within-cohort informality than older cohorts. Column 3 of Table 1 shows that reductions in informality are largest for the youngest cohorts and decline with age. Cohorts age 20–24 and 25–29 in 1999 experience an 11.2 and 4.7 percentage point drop in the share of informal employment by 2009, respectively, while workers in cohorts over age 40 either observe no change or gain employment in the informal sector.

Over the decade, manufacturing employment expanded from 8.9 to 13.7 percent of the workforce, accompanied by a 14.5 percentage point drop in informality in that sector. As noted in Table 1, young cohorts contribute even more significantly toward reductions in informality within manufacturing than they do economy-wide. In manufacturing, the gap in informality between entering young cohorts

and existing cohorts is more pronounced and younger cohorts experience a greater decline in informality relative to older cohorts over time. Analysis by gender yields similar findings, although the gaps in informality across cohorts are larger for women and the within-cohort changes in informality are larger for men (see online Appendix Table A4).

When formal manufacturing jobs are spatially concentrated, transitions to the formal sector in a low-income country in part occur through migration (Harris and Todaro 1970). In Vietnam in 1999, five provinces accounted for 63 percent of formal manufacturing employment. We define migration as moving across provinces within the past five years, using the censuses (see online Appendix Table A5). 4.6 percent of workers in 2009 migrated, 66 percent of them to the five key provinces. Migration significantly increases over the decade of growth, particularly for the youngest cohort, from 5.6 to 11.6 percent. Migration declines with age. Importantly, migrants are much less likely to work informally. For example, in 2009, 72 percent of the workers in the youngest cohort were employed in the informal sector (Table 1) compared to only 32 percent of migrants in this cohort. Migration among the young and lower informality among the migrants are even more prevalent for manufacturing workers and women (see online Appendix Table A6). This analysis suggests that younger workers in part formalize more quickly because they are more likely to migrate.

Overall, the between and within cohort shifts in informality contribute importantly toward economy-wide formalization. Panel B of Table 1 suggests that workforce shifts between cohorts account for 69 percent of the decline in aggregate informality, while within cohort changes account for 31 percent. The between cohort changes dominate in manufacturing, accounting for 90 percent of the decline in informality (particularly among women, see online Appendix Table A4).¹ These differences in the relative role of between and within cohort shifts highlight the importance of analysis based on all industries to

understand the trends in informality in a low-income industrializing country.

II. Switchers, Sorting, and Formalization

Section I highlights differences in formalization of the labor force across and within birth cohorts in a low-income country over a decade of fast growth. Using the VHLSS panels, which track individuals over a period of four years, we illustrate how workers actually transition to the formal sector within birth cohorts. We examine the permanence of switches to the formal sector over a longer time period than is usually possible, and examine whether and how workers sort between the formal and informal sectors in a low-income country.

We first document individual transition patterns for various age cohorts. Table 2 reports the share of workers in each age cohort that always hold an informal job, always hold a formal job, or switch between the two sectors using the three-survey panels covering 2002 to 2008.² Most workers are always in either the informal or formal sector. However, workers in younger cohorts are less likely to always be in the informal sector, more likely to always be in the formal sector, and more likely to switch sectors. In addition, among the switchers, younger cohorts are more likely to hold a formal job at the end of the period. Younger cohorts also experience greater increases in the share that end up holding a formal job. In contrast, switching workers in older cohorts tend to end up working in an informal job. Younger switchers also more permanently transition to the formal sector: they are more likely to stay in the formal sector two to four years following the switch.

The differences in switching behavior of workers across age cohorts in part reflect disparities in other worker characteristics, such as education. The literature (Maloney 2004; de Mel, McKenzie, and Woodruff 2010; La Porta and Shleifer 2014) emphasizes sorting of individuals into the formal and informal sector by education, consistent with theory (Lucas 1978; Rauch 1991). We also find evidence consistent with sorting based on education by relying on the usual cross-sectional analysis: formal workers

¹In contrast to the sharp decline in manufacturing, informality within services remained relatively constant (see online Appendix Table A3). Future research could explore possible reasons, including the role of government policies, firm organization, and FDI, for these different trends.

²This data excludes migrants, so Table 2 likely underestimates the transitions to the formal sector among the young.

TABLE 2—AGGREGATE SWITCHING BETWEEN THE INFORMAL AND FORMAL SECTORS

Age of workers at start of panel	Share of workers			Share of switchers		
	Always informal	Always formal	Switchers	Informal at start	Informal at end	Informal at start and permanently move to formal
20 to 29	0.698	0.151	0.151	0.652	0.443	0.217
30 to 39	0.795	0.111	0.094	0.572	0.533	0.174
40 to 49	0.785	0.130	0.085	0.528	0.597	0.136
50 to 64	0.868	0.057	0.075	0.444	0.640	0.140
All	0.784	0.116	0.099	0.569	0.536	0.173
Manufacturing	0.606	0.182	0.211	0.570	0.467	0.187

Notes: The sample of manufacturing workers is defined based on working in manufacturing at either the start or the end of the period. A worker is defined as permanently moving to the formal sector if they were initially working in the informal sector and subsequently working in the formal sector in the surveys two and four years later.

are more likely better educated, younger, male, non-minorities, and urban than workers in the informal sector (see online Appendix Table A7). We provide further evidence on sorting in transitions out of informality with panel-level data. If workers sort, the characteristics of workers in the formal sector are expected to be closer to the characteristics of workers that switch from informal to formal sector than to those of workers that remain in the informal sector. We limit the VHLSS panel sample to workers that are initially informal and regress an indicator for whether a worker switches to the formal sector by the end of the panel on a vector of worker characteristics.

The results are reported in Table 3 and support sorting into the formal sector as the workers that switch tend to be more educated, younger, male, non-minorities, and urban. This implies that relative to workers that remain in the informal sector, workers that switch out of informality tend to have more similar observable characteristics to workers already in the formal sector. We find further support for sorting in switching of individuals from the formal to the informal sector (see online Appendix Table A8). Relative to workers that remain in the formal sector, workers that switch to the informal sector tend to have more similar education, age, and residence to workers already working in the informal sector. However, women are less likely to switch to the informal sector, even though women are more likely to work in the informal sector.³

TABLE 3—SWITCHING TO THE FORMAL SECTOR

Age 25–29	–0.035*** (0.003)
Age 30–39	–0.058*** (0.002)
Age 40–49	–0.065*** (0.002)
Age 50–64	–0.069*** (0.002)
Female	–0.020*** (0.001)
Ethnic minority	–0.008*** (0.002)
Primary education	0.007*** (0.002)
Lower secondary	0.018*** (0.002)
Upper secondary	0.072*** (0.002)
Urban	0.010*** (0.002)
Observations	99,491
R^2	0.055

Notes: The sample is all two-survey panel individuals that worked in both surveys and were 20–64 years old and informal at the start of the panel. The regression also includes occupation, province, industry, and survey-year fixed effects.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

³This might be related to the type of jobs women and men hold in the formal sector. Women are more likely employed

in FDI manufacturing than men, and thus less likely to voluntarily leave the formal sector to the extent that FDI jobs are considered more desirable than other formal jobs.

These findings imply that informal workers that are most likely to move to the formal sector in a fast-growing low-income economy possess characteristics that most closely resemble those of workers already in the formal sector. Poorly educated, older, rural, female workers are unlikely to make such transitions. Importantly, even among the workers most likely to switch out of the informal sector (completed upper secondary school, young, urban, and male), actual switching is subject to a large amount of unobserved heterogeneity: the R^2 is 0.06. Thus, many of the workers that were the “most likely switchers” did not switch to the formal sector. However, the analysis excludes migrants, who are more likely to formalize (Section I). To the extent that worker characteristics affect geographic mobility, the above analysis does not capture their influence on switching to the formal sector through migration. In addition, future work should also explore the role of labor demand factors on switching behavior.

III. Formalization and Occupational Upgrading

The literature suggests that few informal firms transition to the formal sector (de Mel, McKenzie, and Woodruff 2013; La Porta and Shleifer 2014), consistent with evidence from Vietnam (McCaig and Pavcnik 2014). Most worker transitions from the informal to the formal sector occur by workers changing jobs. An interesting question then is whether workers engage in different job tasks as they switch to the formal sector.

We group workers from two three-round panels of the VHLSSs into workers that are always in the informal sector, always in the formal sector, and switchers. For each of the groups, we report the share of employment in each occupation category at the beginning of the period and the change over the period in Table 4. The occupations are in ascending order of mean monthly compensation. The composition of occupations significantly differs across these worker groups. Elementary occupations account for 85 percent of employment among informal workers, 67 percent among switchers, and 11 percent among formal workers. Switchers and formal workers have similar shares of employment in skilled occupations, but formal workers have notably higher shares of employment among

higher-skilled occupations such as assemblers, machinists, and professionals.

Importantly, switchers upgrade occupations. They tend to switch out of elementary toward skilled and professional occupations. The share of elementary occupations declines for all workers, but this decline is largest among the switchers. Switchers increase employment in skilled occupations (e.g., skilled handicraftsman and manual workers, skilled service workers), as well as in the assemblers, machinists, and professional occupations, all occupations associated with higher pay than elementary occupations. This analysis follows the same individuals over time, so occupation upgrading does not reflect changes in underlying workforce composition. Similar analysis of workers that move provides further support for occupation upgrading (see online Appendix Table A9).

Wage-earning informal workers receive lower wages and benefits than observationally equivalent formal workers, and households headed by an informal worker have lower per capita income than observationally equivalent households with a formal head (McCaig and Pavcnik 2014). The analysis of occupational upgrading sheds further light on changes in working conditions associated with formalization in a low-income country. While many workers switch to lower-skilled manufacturing jobs in the formal sector, these jobs offer higher-skilled occupations and higher compensation than jobs previously held by these workers in agriculture and in informal manufacturing.

IV. Concluding Remarks

Our study highlights how one can use census and panel-level data to document facts about workforce transitions from the informal to the formal sector in a fast-growing, industrializing, low-income country over a longer time horizon. At an aggregate level, the transition to the formal sector in Vietnam appears faster than in other countries (La Porta and Shleifer 2014). Economic growth in Vietnam was accompanied by an expansion of exports and inflows of foreign direct investment, propelled by the US-Vietnam Bilateral Trade Agreement and Vietnam's entry into the World Trade Organization (McCaig 2011; McCaig and Pavcnik 2013). Such increased exposure to global markets affects the transition out of informality in a low-income

TABLE 4—OCCUPATIONAL COMPOSITION AND CHANGES BY INFORMALITY STATUS

	Mean earnings	Always informal		Switchers		Always formal	
	2002	Start	Change	Start	Change	Start	Change
Elementary occupations	682	0.845	−0.040	0.668	−0.110	0.112	−0.021
Skilled workers	1,146	0.138	0.038	0.191	0.044	0.168	0.007
Technicians and associate professionals	1,452	0.002	0.000	0.040	0.009	0.251	−0.020
Clerks	1,711	0.000	0.000	0.021	0.006	0.105	−0.022
Armed forces	1,787	0.001	−0.001	0.005	−0.003	0.027	−0.005
Plant and machine operators and assemblers	1,917	0.013	0.002	0.033	0.015	0.069	−0.003
Legislators, senior officials and managers; professionals	1,979	0.001	0.000	0.043	0.039	0.268	0.064

Notes: For each group of workers, the table reports the share of employment in an occupation at the start of the sample and subsequent change in this share. Skilled workers occupation includes service workers and shop and market sales workers; skilled agricultural and fishery workers; and craft and related trades workers. Mean monthly compensation is in 000 Dong in January 2008 prices.

country setting (La Porta and Shleifer 2014; McCaig and Pavcnik 2014). Despite declines in informality, a high share of workers continues to work in the informal sector. Future work could further examine the effects of policies, including industrial policy and preferences for SMEs, for the transition to formality.

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