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Labor Market Flexibility and Jobs in Selected African Countries

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Abstract

A flexible labor market is a precondition for fast and efficient structural transformation—the reallocation of labor from low- to high-productivity jobs. This paper uses individual-level data that spans more than 15 years to analyze labor market flexibility in four of Africa's biggest or fastest-growing economies—Egypt, Ethiopia, Nigeria, and South Africa. The paper uses standard labor market mobility matrices and the Shorrocks mobility index. In addition, it estimates a dynamic random effects of participation rate and examines transitions between unemployment and employment, self-employment and wage-salary employment, and agricultural and nonagricultural sectors. While the two Sub-Saharan countries—Ethiopia and Nigeria—have relatively flexible labor markets—primarily due to the prevalence of the informal and agricultural sectors with low barriers to entry—Egypt and South Africa present relatively rigid mobility across labor market statuses. Roughly half the observed rigidity in entering the labor market in Egypt, Nigeria, and South Africa can be explained by worker characteristics such as age, gender, and education, whereas the other half is mainly due to institutional barriers and the lack of high-quality jobs. Although a normative assessment of the informal sector is difficult, its ability to absorb excess labor from an improperly functioning formal sector stands out. Thus, the informal sector is to be outgrown, not ignored.

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Labor Market Flexibility and Jobs in Selected African Countries

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1. Introduction

Africa enjoyed relatively fast economic growth over the past decade and a half. The sustained growth undoubtedly kindled hopes for a prosperous Africa. However, poverty and inequality remained pervasive. In 2013, poverty was still widespread, and the rate was high in Sub-Saharan Africa—41 percent, compared with the world average of just 10.7 percent and the South Asia average of 15 percent. While the intensity of poverty, measured by the poverty gap, declined from 26 percent to 16 percent during the same period, it is still high compared with the world average of 3.2 percent. Moreover, the benefits of growth were not shared widely, and inequality was widespread and persistent. The median Gini coefficient measuring inequality in Africa was 0.36 in 2014, and 7 percent of total income goes to the bottom 20 percent of the income distribution.

High and persistent poverty and inequality are closely related to the structure of African economies and the type of jobs they provide. The past decade's economic growth went largely without creating enough jobs to meet the growing labor force that seeks jobs or structural transformation. Structural transformation is broadly defined as the reallocation of economic activities—labor, land, capital, and other factors of production—across the broad sectors of agriculture, manufacturing, and services (McMillan and Rodrik, 2011). Structural transformation is at the crux of economic development that sustains improved welfare and living standards, and the speed of economic transformation determines the pace of poverty reduction (Duernecker et al. 2016; McMillan and Harttgen 2014; Herrendorf et al. 2013). Throughout the period, an additional 1 percentage point in gross domestic product (GDP) growth produced less than a 0.4 percentage point increase in total employment, even in the fastest-growing economies (AEO 2018; Newman et al. 2016; Page and Shimeles 2015). Evidence seems to indicate that Africa is heading toward a structural transformation turning point as urban population growth outpaces rural population growth (Tiffen, 2003). The changing demographics have been accompanied by changing employment from agricultural to nonagricultural sectors, particularly to services. However, much of the labor force is still concentrated in the low-productivity, low-pay agricultural sector.

The lack of "good" jobs has far-reaching consequences for the political and social fabric of the continent. The lack of employment opportunities, especially for the growing youth population, was one of the leading causes of the Arab Spring in Tunisia, Libya, and Egypt (Malik and Awadallah, 2013). Moreover, the lack of desirable jobs in Sub-Saharan Africa, coupled with

other socioeconomic and political stressors, has been the primary factor pushing a growing number of young Africans to embark on the perilous journey to Europe and other developed countries in search of a better life.

Africa faces complex employment problems. Workers struggle to find high-quality remunerative jobs in the formal sector, which accounts for only 15 percent of the labor force, including contract wage employment (Fox et al., 2017). Most formal sector employers are in small and medium enterprises with fewer than 250 workers (which globally account for up to 80 percent of employment in the formal sector). Productivity is typically higher in the formal nonagricultural sectors, but it largely depends on firm size (Page and Soderbom, 20150. Consequently, wage differentials between enterprises of different sizes persist.

Due to limited job opportunities in the formal sector, Africans in the nonagricultural sectors are often forced to create their own informal jobs—unincorporated businesses mostly operated by household enterprises and unpaid family members. The informal sector accounts for up to 80 percent of nonfarm employment, and some scholars argue that "informal is normal" in Sub-Saharan Africa, providing employment and income for people who would otherwise be unemployed (Fox and Gaal 2008; Fox and Sohnesen 2012). However, informal jobs have low wages, benefits, and job security and are often associated with poverty. Nearly 82 percent of African workers, mainly concentrated in the informal sector, are considered working poor, compared with the world average of 39 percent (Newman et al., 2016).

Persistent inequality throughout the developing world can be explained, at least in part, by the prevalence of the informal economy. In a sample of 16 transition economies, Rosser and coauthors found a strong correlation between a country's level of income inequality and the share of its economy that is informal (Rosser et al., 2000).

Furthermore, workers in the informal sector are vulnerable to violations of basic worker rights. They are not protected from various health and workplace risks or from loss of earnings. At the governmental level, concentrated informal sector employment diminishes tax revenue (Jutting et al., 2009). Consequently, much of the literature views widespread informal employment as a deterrent to economic growth and competitiveness, since informal enterprises tend to stay small, have lower access to inputs, and are ineffective in formal business relationships (Jutting et al.,

2009). The lower productivity in informal sectors accounts in part for Africa's failure to realize economic gains from workers moving out of agriculture: they are moving from one low-productivity sector to another, rather than to a highly productive industry or service sector (McCullough, 2017).

Today's advanced economies show that the countries that pulled their populations out of poverty were those that experienced structural transformation, creating high-quality employment opportunities through which the poor worked their way out of hardship. For Africa, the lack of enough good jobs in the formal sector and the concentration of employment in the informal sector present significant development challenges. Workers are not moving from farms to modern jobs despite the large and persistent productivity gap between nonagricultural and agricultural sectors: in services, labor productivity is 1.7 times higher than economy-wide labor productivity, and in industry, 2.7 times higher. With such productivity differentials, labor should have moved much faster than it has.

A strand of the literature argues that the slow movement of workers from low-productivity to high-productivity sectors is partly due to an inefficient allocation of labor across sectors that result from a range of distortions (Caselli 2005; Restuccia, Yang, and Zhu, 2008). Efficient movement of labor requires functioning and competitive factor and product markets, in which price signals transmit without distortion (Teal 2011; Sen 2016). Only when such conditions are satisfied is labor efficiently reallocated in response to productivity differentials. In a frictionless labor market, adjustments occur instantaneously—factors of production are allocated to the most productive activities, and workers move from farm to factories instantaneously and seamlessly. In reality, adjustments occur slowly due to distortions, market failures, market rigidity, and institutional and government failures.

Moreover, factors such as job search costs, skill mismatches, family ties and social capital, labor regulations and conventions, geographic preference and relocation costs, psychological costs of changing jobs, and severance and hiring costs of employers contribute to labor market rigidity, often referred to as "sticky feet" (Hollweg et al. 2014).

In Africa, the lack of high-quality job opportunities could be the most important contributor to the rigidity observed. But the extent of labor market rigidity, the factors that contribute to it, and its relation to structural transformation and high-quality job growth have received limited attention.

This paper addresses labor market rigidity in four major African economies—Egypt, Ethiopia, Nigeria, and South Africa—which combined have more than 40 percent of Africa's population and 50 percent of its GDP. These countries reflect the heterogeneity of employment challenges Africa faces: high unemployment in North African countries and South Africa and pervasive low-quality employment in Sub-Saharan Africa. The analysis addresses the following research questions: To what extent African labor markets have become flexible over the past two decades? To what extent do individual-level factors, such as gender, education, and age, explain labor market rigidity? The paper offers new empirical evidence on the ease of entry into and exit from the labor market, mobility between employment and unemployment, mobility between self-employment and wage or salary employment, and mobility between the broad agricultural and nonagricultural sectors to assess long-term labor market rigidity. The analysis evaluates whether African labor markets have been flexible enough to support structural transformation by efficiently reallocating labor from low- to high-productivity sectors.

The study uses harmonized individual-level labor market data from Labour Force Surveys (LFSs) and IPUMS-International, which cover about 30 million individuals over 1996–2015.[§] Lacking rich panel data, the study constructed pseudo-panel data that correspond to life-course labor market transitions and cover the most important periods in Africa for economic growth and structural transformation. An appropriate pseudo-panel econometric approach addresses issues of endogeneity that may arise due to observed and unobserved heterogeneity.

2. The Context: Formal and Informal Employment

One of the first papers to connect the theoretical understanding of the informal urban economy with empirical evidence emphasized a systematic difference between subsectors of the informal urban economy (Fields, 1990). Analysts should observe the sharp distinctions within the informal economy between the "easy-entry informal sector" and the "upper tier informal sector." Workers

[§] LFS is Labour Force Survey. IPUMS-I is the Integrated Public Use Microdata Series, International, compiled by the Minnesota Population Center.

consider the easy-entry sector as worse than formal sector employment because of low wages, the lack of protection, and so on. But they consider upper tier informal sector employment as better than formal sector employment because flexibility and higher wages are more appealing for high-human-capital workers who can establish their own small firms. From a labor market perspective, ease of entry is the crucial characteristic of the informal urban economy (Fields, 1990). Transitions between formal employment, informal employment or underemployment, and unemployment depend on the ease of entry as well as wages. There may be transitions from formal employment to upper tier informal employment that do not reduce wages or welfare. However, the informal rural economy is notably missing from that model, and this study aims to assess it empirically. Researchers have paid increasing attention to rural livelihood diversification and questioned the assumption that people in rural areas are earning a living from agriculture alone. Ellis states that, based on both large-scale national surveys and smaller, targeted surveys, about 50 percent of average rural household income comes from nonfarm work or transfers from urban areas or abroad (Ellis, 2005).

Another study, the first to use panel data to estimate earning differentials and transitions between the formal and informal sectors of a developing economy, also predicts that informal sector employment may be preferable to formal work for some workers (Maloney, 1999). Following male workers in Mexico for 15 months, the study found, contrary to theoretical predictions, that workers moving into formal work earned significantly less, while workers moving into informal work earned significantly more. (As the author himself notes, the data did not account for non-wage benefits in either sector.) The study also found evidence of systematically different informal sectors, since there are significant wage differentials between different kinds of informal work. The study found high turnover in the formal sector and shows that searches for work across all sectors, rather than preferring formal sector work. So, in Mexico at least, some informal sector employment is not just a safety net or holding tank for workers waiting to enter formal employment.

Access to informal sector employment was historically more challenging for women and non-whites than for white men in a study from South Africa using retrospective recall data for 1951–1991 (McKeever, 2006). Lower levels of education and experience compounded these effects, leaving some groups unable to transition to the informal economy when the formal

economy suffered from economic downturns. The study's limitations include the use of recall data and assumptions about which jobs were informal and which were formal, and the results are correspondingly noisy. But the summary statistics show informal economy participation contracting during formal economic upturns and expanding during formal downturns. This safety net finding contrasts with the studies just described.

A study of market changes in South Africa in the years following the 1994 transition from apartheid asked why unemployment in South Africa remained high, accounting for sectoral composition changes and individual-level wage outcomes (Banerjee et al., 2008). The unemployment rate in South Africa is high even among African countries, and the duration of individuals' unemployment is long. The authors found that, unlike in other African countries, the informal economy was unable to expand to include workers who would otherwise be unemployed. While the overall employment rate remained stable, a great deal of individual churning took place, with individuals changing employment status frequently throughout the year. Also, race, along with education and age, is important in the South African labor market.

Structural transformation affects not just the nation and region but the household, where decisions are made, often jointly, on what sector to work in and where to live while doing so. A study of household-level occupational decision in Tanzania examined the household allocation of labor to farming, wage employment, and self-employment operating a small enterprise (McCullough et al., 2016). The study used simulated shocks to predict how households move from one sector to another. Most households did not switch from one activity to another or change the mix of activities between survey rounds, especially for agricultural work. Households that diversify into wage or self-employment did not completely stop agricultural participation, pointing to the important safety net role of agriculture in rural communities.

3. Data and descriptive results

Reliable and consistent individual-level survey data on labor force participation and employment are often lacking in African countries. Few countries carry out regular Labour Force Surveys (LFS), and national censuses, conducted every ten years, are often outdated. This study conducts a detailed, micro-level analysis of a substantial segment of the population over a period that corresponds to long-term development processes. To do so, it combined nationally representative

micro-level data from two sources: LFSs and IPUMS-International—the Integrated Public Use Microdata Series-International harmonized by the Center for Population Studies at the University of Minnesota.[**]

The data cover about 30 million individuals in four countries, covering 18–20 years: Egypt, 1996–2013; Ethiopia, 1994–2013; Nigeria, 2006–2014, and South Africa, 1996–2014 (table 1). The harmonized data include key variables on individuals' labor market status and demographic characteristics collected consistently over time and across countries. The outcome variables include labor market participation, employment status, and detailed sector of employment. Demographic characteristics include age at the time of the survey, gender, marital status, level of education, the area of residence, survey year, country dummies, and survey type. The harmonized variables allow country-specific and pooled analyses.

[**] The IPUMS for Egypt is a census sample which was obtained from the Population, Housing, and Establishment Census of 1996 and 2006. The data were collected by the Central Agency for Public Mobilization and Statistics. The censuses cover all individuals (Egyptians and foreigners) present within the political boundaries of Egypt on the night of the census. The enumeration unit is the household for people who live in households and the individual for public housing residents. The sample is drawn from an Egyptian census and represents 10 percent of the census. For Nigeria, the IPUMS data includes the yearly General Household Surveys collected in 2006, 2007, 2008, 2009, and 2010. The survey is collected by the Nigerian National Bureau of Statistics. For South Africa, the IPUMS data are census samples from the Population Census of 1996, 2001, and 2007, which were collected by Statistics South Africa.

Table 1 Surveys—years, countries, and numbers

Survey year	Country	Numbers		
		IPUMS-I	LFS	Pooled
1996	Egypt	4,797,998	0	4,797,998
2006	Egypt	4,733,066	0	4,733,066
2012	Egypt	0	195,488	195,488
2013	Egypt	0	179,692	179,692
1994	Ethiopia	4,630,117	0	4,630,117
1999	Ethiopia	0	156,174	156,174
2005	Ethiopia	0	148,018	148,018
2007	Ethiopia	4,158,631	0	4,158,631
2013	Ethiopia	0	116,497	116,497
2006	Nigeria	65,425	0	65,425
2007	Nigeria	62,934	0	62,934
2008	Nigeria	76,532	0	76,532
2009	Nigeria	53,608	0	53,608
2010	Nigeria	50,612	0	50,612
2014	Nigeria	0	267,575	267,575
2015	Nigeria	0	84,402	84,402
1996	South Africa	2,738,818	0	2,738,818
2001	South Africa	2,730,309	0	2,730,309
2007	South Africa	575,589	0	575,589
2008	South Africa	0	222,854	222,854
2009	South Africa	0	207,260	207,260
2010	South Africa	0	193,260	193,260
2011	South Africa	2,523,077	183,836	2,706,913
2012	South Africa	0	184,183	184,183
2013	South Africa	0	182,287	182,287
2014	South Africa	0	174,260	174,260
Total				29,692,502

Note: LFS is Labour Force Surveys. IPUMS is Integrated Public Use Microdata Series-International.

Egypt

As across much of North Africa and the Middle East, unemployment in Egypt is largely characterized by an inability to absorb youth who have recently completed their education into the formal economy (Assaad et al., 2016). Egyptian youth have two different life courses: the first is the "traditional" path, in which youth leverage family or other social connections to enter the labor force directly after completing their education. The second is the "modern" path, in which youth suffer an often extended period of unemployment before entering the labor market. Very slow

uptake into the labor force contributes to massive rates of labor force inactivity among Egyptians, with more than half the population on average classified as inactive across all years (see table 2). Those who follow the modern life course tend to be more educated than those in the traditional path, contrary to expectations that returns to education should be high and that more education should lead to better job outcomes. Working-age Egyptians may be disillusioned by the lack of returns to education, since educational attainment is mostly stable or falling (table 3). In 2013, 44 percent of the working-age sample had no education or less than a primary education, up from 38 percent in 2006. Secondary attainment education rates grew between 1998 and 2006, and university rates between 1998 and 2012, but both fell between 2012 and 2013. The labor market is also characterized by a pronounced gender wage gap and employment discrimination that favors men at the expense of women in all sectors. It is most pronounced in manual, blue-collar jobs but extends to public sector employment (Said, 2009). So, education and gender are likely to shape labor market transitions for Egyptians.

Table 2 Labor market participation, Egypt (percent)

	1996	2006	2012	2013	Pooled
Employed	32	42	50	50	43
Self-employed	27	9	29	29	24
Wage/salary	69	90	62	61	70
Unemployed	4	4	6	5	5
Inactive	64	54	44	45	52
Number of observations					9,896,147

Source: Egyptian census of 1996 and 2006; Labor Market Dynamics Survey of 1998, 2006, and 2012; Labour Force Survey of 2012 and 2013.

Egypt's economy since 1994 has largely been shaped by two waves of government reform, both aiming at economic liberalization and growth. The first occurred in 1991, as part of a structural adjustment program to boost market openness and encourage private sector participation in the economy, especially in manufacturing. The second occurred in 2004, intended to further boost the private sector by reducing trade barriers and increasing the ease of doing business (Ali and Msadfa, 2016). But the reforms have not done enough, and the 2008 global financial crisis also set growth back. Ali and Msadfa describe Egypt as being in a state of growth-reducing structural change, where low-productivity industries such as mining and agriculture are attracting

job seekers, who either cannot find jobs in higher-productivity industries or are unqualified for them due to eroding human capital attainment. The financial crisis also affected labor market participation: although employment increased after it, the bulk of growth is coming from self-employment, rather than wage or salary employment. It is likely that the self-employed work is low growth and low wage.

Table 3 Age, locale, marital status, and educational level of individuals born between 1936 and 1985, Egypt (percent)

	1996	1998	2006	2012	2013	Pooled
Male	51	50	50	49	49	50
Age	26.34	28.64	34.92	41.08	42.83	35.43
	(15.02)	(15.79)	(14.96)	(14.52)	(14.10)	(16.01)
Urban	44	56	50	50	46	50
Marital status: single/never married	53	52	33	16	13	32
Marital status: married	44	44	60	75	77	61
Marital status: separated	1	1	1	1	1	1
Marital status: widowed	3	4	6	8	9	6
Education: none or less than primary	50	44	38	38	44	42
Education: primary	16	28	16	12	10	16
Education: secondary	17	18	33	30	28	27
Education: university	5	10	13	20	18	14
Education: unknown	0	0	0	0	0	0
Number of observations						9,976,966

Source: Egyptian census, 1996, 2006; Labor Market Dynamics Survey, 1998, 2006, 2012; Labor Force Survey, 2012, 2013.
Note: Standard deviations in parenthesis.

In a country experiencing positive-growth structural transformation, the share of the workforce in agriculture would declining, but in Egypt, it fluctuates around a mean of about 26 percent (table 4). Both agriculture and construction appear to be shelter sectors, where people find work when the more advanced sectors are declining (Ali and Msadfa, 2016). Supporting this inference (though not conclusively), the peak rate of workers in trade—an industry likely to be among the most affected by the 2004 reforms—appeared in 2006.

Table 4 Sectoral employment of workers born between 1936 and 1985, Egypt (percent)

	1996	2006	2012	2013	Pooled
Agriculture	32.4	25.9	25.9	26.6	27.4
Industry	22.8	23.0	23.7	22.6	23.0
Mining	0.4	0.2	0.2	0.2	0.2
Manufacturing	13.1	12.0	10.7	10.1	11.3
Utilities	1.0	1.4	1.9	2.0	1.6
Construction	8.3	9.5	11.0	10.4	9.9
Services	44.8	51.1	50.4	50.7	49.6
Trade	10.4	13.8	13.2	13.2	12.8
Transport	6.0	7.8	7.8	7.9	7.5
Finance	3.1	3.4	3.2	3.1	3.2
Community	22.4	21.1	21.8	21.9	21.8
Household	0.3	0.7	0.0	0.0	0.2
Other	2.6	4.2	4.4	4.5	4.1
Number of observations					3,675,741

Source: Egyptian census of 1996 and 2006; Labor Market Dynamics Survey of 1998, 2006, and 2012; Labor Force Survey of 2012 and 2013.
Note: Standard deviations in parenthesis.

There is evidence that Egypt recovered from the global financial crisis of 2008, since participation in agriculture was near its lowest rate in 2012, while participation in industry and services were near their highest. But the rebound dissipated by the next year, when rates returned to their pre-crisis levels, labor market inactivity increased, and the percentage working for a wage or salary decreased (see table 2).

Ethiopia

The contribution of off-farm income to total income in Ethiopia, especially in rural parts, is surprisingly low: 18 percent, exactly half the African average of 36 percent (Bachewe et al., 2016). Perhaps even more surprising, the share of off-farm income as a percentage of total income is highest for households in the lowest income quintile and lowest for those in the highest. These figures highlight the small-scale nature of off-farm, nonagricultural work in rural Ethiopia, since household enterprises are likely no more productive than agricultural work and require little to no capital investment. An overwhelming number of people are self-employed: 91 percent of the 83 percent who are employed (table 5). The household head's education level is the primary determinant of share of nonfarm income in a family's total income (Bachewe et al., 2016). So,

while self-employment requires little investment of physical capital, it takes a great deal of human capital.

Table 5 Labor market participation status, Ethiopia (percent)

	1999	2005	2007	2013	Pooled
Employed	83	82	77	84	83
Self-employed	91	91	88	88	91
Wage/salary	9	9	12	12	9
Unemployed	17	2	2	3	16
Inactive	—	16	21	13	1
No. of observations					922,113

Source: Ethiopian Labor Force Survey and IPUMS-International.

During the past decade and a half, when Ethiopia experienced one of the highest food price inflations in the world, wage growth and access to stable jobs became all the more important (Headey et al., 2012). The effect on the rural poor was ambiguous, since they are both producers and consumers of agricultural commodities. But because the urban poor are, by and large, only consumers, the labor market underwent enormous strain to provide employment whose wages kept pace with inflation. Employers had little incentive to increase wages, because the urban labor market had considerable slack, with unemployment averaging around 20 percent. As in Egypt, there was a significant gender gap in unemployment, though human capital differentials between men and women did more to explain it in Ethiopia than in Egypt.

In Ethiopia, in contrast to Egypt, workers are responding positively to increased incentives for human capital attainment (table 6). The percentage of the working-age population completing both secondary school and university increased, although the share is still very low compared with the world average, or even the African one. The increase is taking place even though most Ethiopians are in rural locales, where educational attainment is expected to be lower.

Table 6 Age, locale, marital status, and educational level of individuals born between 1936 and 1985, Ethiopia (percent)

	1994	1999	2005	2007	2013	Pooled
Male	50	56	47	50	49	56
Age	23.68	30.42	34.81	35.77	41.32	30.56
	(14.70)	(14.32)	(14.50)	(13.81)	(13.75)	(14.41)
Urban	14	11	17	19	n/a	11
Marital status: single/never married	53	33	20	17	8	33
Marital status: married	39	57	67	72	78	57
Marital status: separated	4	6	6	5	6	6
Marital status: widowed	3	4	7	6	8	4
Education: none or less than primary	90	77	71	82	66	77
Education: primary	6	18	22	12	22	18
Education: secondary	2	3	6	5	7	3
Education: university	0	1	2	0	3	1
Education: unknown	1	—	—	1	—	1
Number of observations						4,883,314

Source: Ethiopian Labor Force Survey and IPUMS-International.
Note: Standard deviations in parenthesis.

Ethiopia experienced one of the highest growth rates in the world during 1994–2013, although its impact across the income distribution has been debated. Growth was 8 percent a year even after the 2015–16 El Nino droughts, which many predicted would seriously reduce the rate of the progress Ethiopia had made in the prior ten years. At least one-fourth of the growth can be attributed to infrastructure projects, with a modest shift of workers from agriculture to more modern sectors, especially construction and services (table 7) (World Bank, 2016). However, the service enterprises were likely to be small scale, given the sectoral composition of workers. Although the percentage of workers in agriculture remains high, it declined throughout 1999–2013. This transition is also likely responsible for the large decrease in the percentage of unemployed from 17 percent in 1999 to 3 percent in 2013.

Table 7 Sectoral employment of workers born between 1936 and 1985, Ethiopia (percent)

	1999	2005	2013	Pooled
Agriculture	78.0	77.4	71.4	77.0
Industry	6.0		8.8	6.0
Mining	0.1	—	0.4	0.1
Manufacturing	4.8	—	5.5	4.8
Utilities	0.1	—	0.5	0.1
Construction	1.0	—	2.3	1.1
Services	16.0		19.9	16.1
Trade	10.2		7.5	10.2
Transport	0.6	—	1.2	0.6
Finance	0.2	—	1.4	0.3
Community	2.9	—	4.1	2.9
Household	0.9	—	4.5	0.9
Other	1.2	—	1.2	1.2
Number of observations				714,882

Source: Ethiopian Labor Force Survey and IPUMS-International.

The growth led by public investment highlights the role of the public sector in the Ethiopian labor market. In urban areas, up to half of wage employees are employed by the public sector in some capacity. Labor productivity in the private sector remains low, and increases are needed, especially for the lowest-skilled workers, to keep the marginal product of labor above the poverty wage rate. Competition for jobs comes from two sources—workers with a primary or secondary education unable to find work matching their qualifications, and workers migrating from rural to urban areas willing to be underemployed in manual sectors for a very low wage (World Bank, 2016). Overall, Ethiopia is following a much more standard structural development than Egypt, although starting from much farther back.

Nigeria

In Nigeria, conflict along ethnic and, by extension, regional lines has contributed to Nigeria's politically turbulent past and, some experts argue, stalled its economic growth (Obadina, 1999). How do the conflicts affect the labor market? Uwaifo Oyelere (2007) found that mean incomes and returns to education were similar across Nigeria's three major ethno-regional areas. Her study was unable, however, to distinguish outcomes for individuals inside and outside the region where their ethnic group is predominant.

Nigeria's manufacturing sector has declined because of a human capital issue: manufacturing firms use low-skill, low-wage labor not because higher-skill labor is unavailable, but because they cannot afford the wages demanded by higher-skill labor. Although Nigeria's levels of human capital attainment are not as high as South Africa's, Nigerians are more and more likely to have completed secondary education or have a university degree, about on par with Egypt's rates by 2013 (table 8). So, industry is stuck using outdated technology, with low returns and low productivity, and Nigeria's rate of unemployment is among Africa' highest, estimated at 37 percent, and higher among youth (Malik et al., 2006; Asaju et al., 2014). Highlighting growth without jobs, unemployment has been increasing at the same time GDP was increasing by 6 percent a year (Asaju et al., 2014).

Table 8 Age, locale, marital status, and educational level of individuals born between 1936 and 1985, Nigeria (percent)

	2006	2007	2008	2009	2010	2014	2015	Pooled
Male	50	50	50	51	50	50	50	50
Age	25.76	26.53	27.64	29.11	29.98	33.82	34.66	30.53
	(15.55)	(15.60)	(15.49)	(15.36)	(15.23)	(14.87)	(14.74)	(15.54)
Urban	24	31	36	34	24	31	31	30
Marital status: single/never married	53	50	48	47	46	35	34	43
Marital status: married	42	44	48	48	50	58	60	52
Marital status: separated	2	2	1	2	1	2	3	2
Marital status: widowed	3	2	2	3	3	4	4	3
Education: none or less than primary	51	48	46	41	37	0	0	25
Education: primary	28	28	30	32	30	18	19	24
Education: secondary	18	19	19	23	23	40	41	29
Education: university	3	3	4	5	3	11	12	7
Education: unknown	1	1	1	0	6	31	28	14
Number of observations								660,595

Source: General Household Survey, 2006–10; Labour Force Survey, 2014–15.
Note: Standard deviations in parenthesis.

Economic growth has been hampered by overdependence on primary natural resources, especially oil, a common finding in studies of the Nigerian manufacturing sector (Ku et al., 2010). The country's stability, both economic and political, is closely tied to the price of oil, and the government makes many concessions to the oil industry at the expense of others. Despite Nigeria's large reserves of crude oil, corruption, political instability, and mismanagement of oil revenues at

even the highest levels of government have contributed to the stagnation of Nigeria's manufacturing sector since the 1980s. Corruption goes beyond the ministers and high government officials to industry managers and hiring personnel, with nepotism and other corrupt hiring practices making job searches inefficient and unequal (Asaju et al., 2014).

The issues of job market and labor force accessibility are reflected in Nigeria's labor market participation rates (table 9). The country appears to be afflicted, unfortunately, with similar labor market setbacks to those in Egypt and Ethiopia. Nigeria has the same high rate of inactivity that defines Egyptian labor market participation and the same high rate of self-employment among those employed that is found in Ethiopia. Nigerians are challenged when trying to access the formal employment portion of the labor market.

Table 9 Labor market participation status, Nigeria, 2006–15 (percent)

	2006	2007	2008	2009	2010	2014	2015	Pooled
Employed	38	50	51	63	55	65	68	58
Self-employed	89	86	88	88	—	90	91	89
Wage/salary	11	14	12	12	—	13	12	12
Unemployed	1	2	2	1	2	8	6	5
Inactive	60	48	46	35	43	28	25	38
Number of observations								615,623

Source: General Household Survey, 2006–2010; Labour Force Survey, 2014–2015.

The discovery of oil and the subsequent oil boom of the 1970s interrupted Nigeria's structural transformation by undercutting the agricultural sector. First, the boom caused massive rural-to-urban migration, especially of men, who often left their families behind to continue low-productivity farming. Second, the government's investment in the oil industry came at the expense of continued investment in programs to improve agricultural productivity and move the rural population out of poverty. So, agriculture failed to become highly productive or less labor reliant. However, corrective policies in the past decade have shown some success, with the percentage of workers in industry increasing and the percentage in agriculture decreasing (table 10). Nigeria's service sector is also well developed, with an average service sector participation rate almost double Ethiopia's. However, as in Ethiopia, these service jobs are probably informal, given the rates of self-employment from (see table 9).

Table 10 Sectoral composition of workers born between 1936 and 1985, Nigeria (percent)

	2006	2007	2008	2009	2010	2014	2015	Pooled
Agriculture	56.0	49.2	50.8	56.3	60.7	42.0	37.8	47.2
Industry	1.8	7.9	6.9	9.2	3.7	9.4	11.8	8.1
Mining	0.2	0.4	0.2	0.3	0.2	0.2	0.2	0.2
Manufacturing	0.1	5.2	4.7	7.3	2.1	6.7	8.5	5.6
Utilities	0.4	0.7	0.3	0.3	0.2	0.7	0.9	0.6
Construction	1.1	1.5	1.7	1.3	1.2	1.8	2.2	1.6
Services	42.0	42.9	42.4	34.5	35.3	36.1	42.3	43.0
Trade	20.0	21.1	21.6	16.4	15.2	23.1	28.9	21.9
Transport	2.6	3.2	3.4	2.7	2.3	4.2	4.7	3.6
Finance	1.0	1.2	3.1	3.3	2.0	2.9	2.9	2.6
Community	7.9	10.1	7.9	7.7	8.0	—	—	8.3
Household	0.5	0.5	0.2	0.3	0.0	0.3	0.2	0.3
Other	10.0	6.8	6.1	4.0	7.8	5.5	5.7	6.3
Number of observations								362,092

Source: General Household Survey, 2006–10; Labour Force Survey, 2014–15.

South Africa

Inequality pervaded South African politics and economics for most of its modern history, and labor market outcomes are no exception. Under the widespread apartheid system, agriculture was modernized through government support for white farmers, who controlled most of the productive land and other capital inputs, while little protection went to farm workers, most of whom were black (Bhorat et al., 2014). Various measures replicated these inequalities throughout the economy. Today, South Africa has very high rates of unemployment, especially compared with its BRICS (Brazil, Russia, India, China, and South Africa) peers. The high unemployment rate is partly due to a decline in manufacturing jobs creation, especially in labor-intensive industries such as textiles. Inequality persists because of the skill differential between unskilled and skilled workers on one hand and mismatch between skilled workers and managerial positions, which is greater than in any other BRICS country. Education and training gaps contribute to the widening inequality (Kaplan, 2015). Only half of South Africans are employed, with the remaining half split fairly evenly between unemployment and inactivity (table 11).

Table 11 Labor market participation rates, South Africa (percent)

Employed	1996	2001	2007	2008	2009	2010	2011	2012	2013	2014	Pooled

Employed	35	34	42	47	46	46	47	48	50	50	45
Self-employed	13	10	16	6	6	6	9	8	8	8	8
Wage/salary	87	90	85	83	83	82	83	83	83	84	84
Unemployed	24	29	30	20	22	24	25	23	23	22	24
Inactive	41	37	29	33	32	31	28	29	28	28	31
Number of observations											8,508,415

Source: General Household Survey, 2006–10; Labor Force Survey, 2014–15.

Educational attainment in South Africa, although low when compared with Organization for Economic Co-operation and Development (OECD) countries, is following a hopeful trend (table 12). The percentage of citizens with no education has declined to an all-time low, while the percentage of people with upper-secondary or tertiary degrees has increased, especially among youth. Secondary educational attainment was higher in South Africa than in Egypt, Ethiopia, or Nigeria by 2014. When apartheid ended in 1994, the gap between men and women in upper-level educational attainment was substantial; as of 2010, it had nearly been eradicated. However, systematic gaps between white and black South Africans have been more persistent, although the gaps in primary and lower-secondary education have narrowed since apartheid. Gaps between whites and blacks in higher education attainment have continued and even increased, exacerbating inequality and skill differentials along racial lines (OECD, 2017).

Table 12 Age, locale, marital status, and educational level of individuals born between 1936 and 1985, South Africa (percent)

	1996	2001	2007	2008	2009	2010	2011	2012	2013	2014	Pooled
Male	47	48	46	48	48	48	48	48	48	48	48
Age	26.57	31.35	36.84	37.19	38.07	38.89	39.8	40.68	41.63	42.45	37.42
	(15.09)	(14.92)	(14.82)	(14.59)	(14.58)	(14.53)	(14.46)	(14.38)	(13.99)	(13.90)	(15.24)
Urban	55	59	65	.	67	68	68	69	70	70	66
Marital status: single/never married	64	57	49	48	47	46	44	43	42	41	48
Marital status: married	31	37	43	43	44	45	47	47	47	48	43
Marital status: separated	2	3	3	3	3	3	3	3	3	3	3
Marital status: widowed	2	4	5	6	6	7	6	7	8	8	6
Education: none or less than primary	39	29	19	7	7	6	12	3	0	0	13
Education: primary	42	49	54	13	12	12	27	14	17	16	26
Education: secondary	14	21	22	68	68	68	50	65	62	62	49
Education: university	1	2	4	11	12	13	10	12	10	10	9
Education: unknown	4	0	1	1	1	1	1	2	3	3	2
Number of observations											9,915,780

Source: South African Census, 1996, 2001, 2007, 2011; Labor Force Survey, 2008–10, 2012–14.

Note : Standard deviations in parenthesis.

South Africa appears to be farther along in the traditional structural transformation process than Egypt, Ethiopia, or Nigeria, though progress came at the expense of equality. Agricultural employment fell to one-third its all-time high in the 1960s, shifted by rural-to-urban migration and other factors that have increased the cost agricultural labor (table 13). Agricultural minimum wage laws, which went into effect in 2003, encouraged landowners and other employers of agricultural labor to invest in mechanization and other labor-saving, productivity-enhancing inputs (Bhorat et al., 2014). Agricultural enterprises also rely more on seasonal labor, rather than employing workers year-round (Liebenberg, 2013). And South African farms have experienced the structural change common to most developed country agricultural systems: the number of farms declined sharply, while the size of the farms increased steadily to an average of more than 2,000 hectares.

Table 13 Sectoral composition of workers born between 1936 and 1985, South Africa (percent)

	1996	2001	2007	2008	2009	2010	2011	2012	2013	2014	Pooled
Agriculture	8.9	10.1	7.1	5.7	5.1	4.9	2.3	4.8	4.8	4.5	5.2
Industry	23.2	22.7	25.5	25.8	25.3	24.4	24.2	23.6	23.5	23.5	24.2
Mining	3.0	3.9	3.9	2.4	2.4	2.3	2.4	2.6	2.8	2.9	2.8
Manufacturing	12.8	12.6	14.6	14.4	13.8	13.3	13.3	12.7	12.2	11.6	13.1
Utilities	1.2	0.7	0.8	0.7	0.7	0.7	0.6	0.7	0.9	0.8	0.8
Construction	6.2	5.5	6.2	8.4	8.4	8.1	7.9	7.5	7.6	8.2	7.5
Services	67.9	67.2	67.4	68.5	69.6	70.6	71.1	71.7	71.8	72.0	70.1
Trade	12.7	15.2	14.2	22.9	22.0	22.3	22.3	21.7	20.6	20.3	20.0
Transport	5.6	4.6	4.0	5.7	5.7	5.9	5.8	6.0	6.2	6.2	5.6
Finance	8.1	9.4	6.0	12.2	13.2	12.7	12.9	13.1	13.6	13.5	11.8
Community	15.8	16.8	13.6	19.0	19.9	20.9	21.7	22.4	22.9	23.6	20.1
Household	11.8	9.9	8.6	8.7	8.8	8.8	8.4	8.4	8.5	8.4	8.9
Other	14.0	11.3	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7
Number of observations											3,334,215

Source: South African census, 1996, 2001, 2007, 2011; Labor Force Survey, 2008–10, 2012–14.

Another sign of the formality of the South African economy is the high rate of unemployment, as opposed to inactivity (see table 12). “Unemployed” indicates that someone is actively looking for work or receiving unemployment benefits. A developing economy that lacks the infrastructure to provide such benefits will see people lapse into inactivity. Further, South

Africa's rate of self-employment is lower than Egypt's, Ethiopia's, or Nigeria's, and the great majority of employed persons are formally employed and receive a wage or salary.

As the importance of agriculture has fallen in South Africa, manufacturing and services have developed. Improving the manufacturing sector was a political goal of the new democratic government at the end of apartheid. Reintegration of the South African economy into the World Trade Organization helped to promote manufacturing and move South African exports away from dependence on primary commodities, especially gold. However, the share of manufacturing in GDP has been falling from the highs of the early years after the end of apartheid, and the service sector has become dominant, now accounting for two-thirds of GDP (Kaplan, 2015). Services accounted for almost 75 percent of jobs in the mid-2010s—the most robust service sector of the four economies studied.

4. Empirical methods

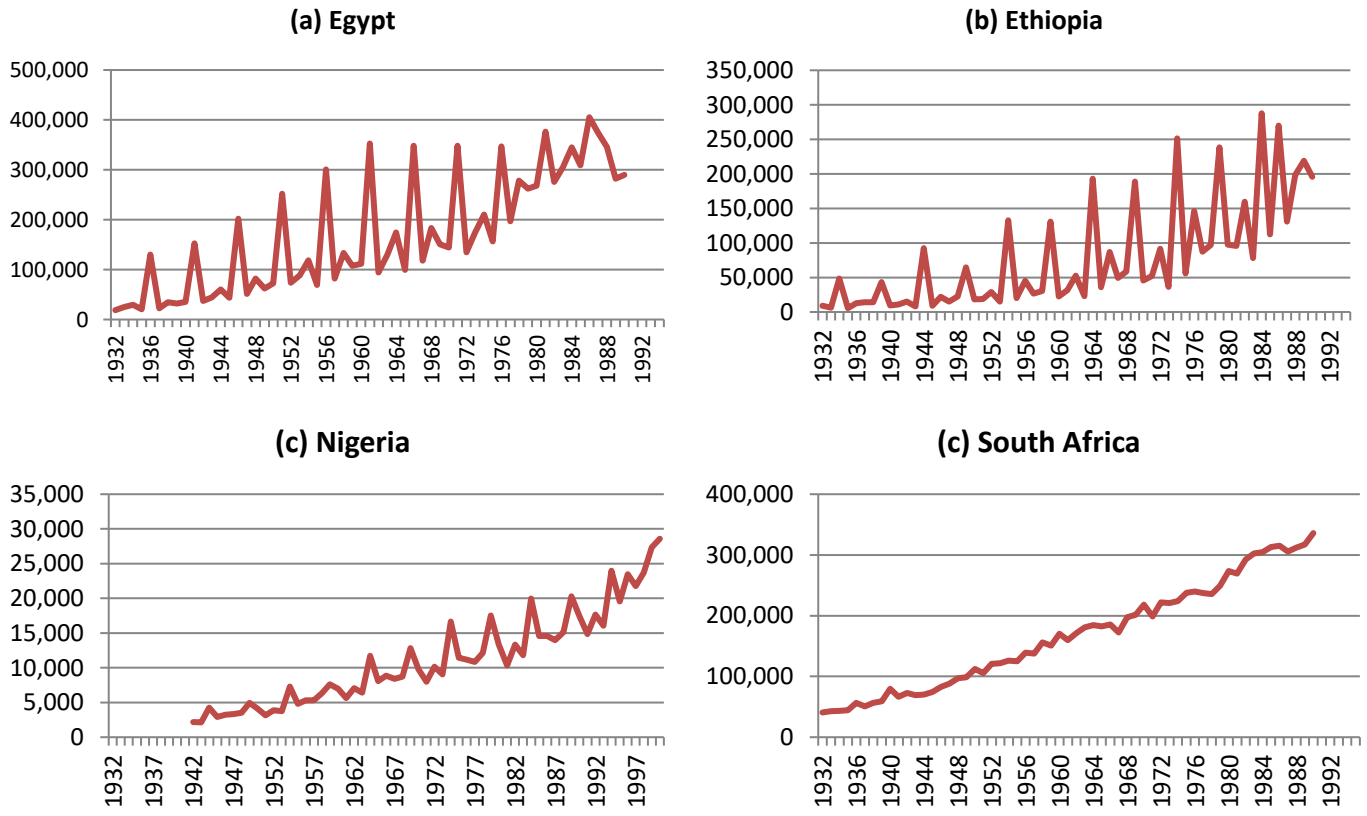
This study uses two empirical approaches to examine the degree of long-term labor market mobility in Egypt, Ethiopia, Nigeria, and South Africa, after creating a pseudo-panel from the data sources described above. The first empirical approach is to nonparametrically estimate simple transition matrices and mobility indices across different labor market statuses. The second approach is a pseudo-panel econometric estimation of mobility between different labor market statuses in order to decipher true state dependence from spurious relationships after controlling for observed and unobserved heterogeneity. (See annex 1 for a full discussion of methods.)

4.1.Pseudo-panel data construction

The common challenge in estimating comparable labor market transition parameters is the lack of consistent panel data. To tackle that issue, this study constructed pseudo-panels from the repeated cross-sectional data. In the absence of real panel data, the pseudo-panel approach is widely applied in the literature to estimate mobility across different states over time, such as mobility across employment status, occupations, and poverty levels (Deaton 1985; Bourguignon et al. 2004; Antman and McKenzie 2007; Cruces et al. 2013; Dang and Lanjouw 2013). The key assumption of the approach is that individuals within a cohort who share common characteristics behave in a similar fashion (Deaton, 1985).

The pseudo-panel for each country is constructed to approximate the typical structure of panel data, following a group of individuals within a certain cohort over time. Such an approach allows examination of the labor market transitions that a typical worker experiences over the course of his/her life. The pseudo-panels are arranged by fixing the birth years for cohorts of individuals born in a certain year as well as using time-invariant individual characteristics—specifically, birth year, gender, and four educational dummies (less than primary, primary, secondary, and university)—to define each cohort cell. This allocation gives a fairly large cohort size in each birth year–gender–education cell. Observations are restricted to individuals who were 6–64 years old at the start of the follow-up. The lower age limit of the cohorts was relaxed at the beginning of the follow-up period to have sufficient representation of youth and adolescents by the end of the follow-up periods. Due to the availability of data, the follow-up periods differ across countries: 1996–2013 for Egypt, 1999–2013 for Ethiopia, 2006–2015 for Nigeria, and 1996–2014 for South Africa. Figure A1 shows the number of individuals in each birth year–gender–education cohort cell for each country.

Figure 1 Number of individuals in each birth year-gender-education cell, by country



Accordingly, the cohort sizes are 574 for Egypt, 541 for Ethiopia, 398 for Nigeria, and 572 for South Africa. The final number of observations in the final econometric analysis may decrease slightly from these totals due to missing values in some of the explanatory variables.

4.2. Long-term labor market transition probabilities and mobility indices

The simplest and the most common approach in the labor market transitions literature is estimating transition probabilities over time. The probability of moving across K labor market statuses between year $t-1$ and year t is given by the transition matrix $T_{i,j} = \Pr\{S_t = i | S_{t-1} = j\}$, where $\{i, j\}$ represents employment, unemployment, and inactivity. The higher the degree of labor market mobility or flexibility, the higher the values of the off-diagonal elements of the matrix compared with the diagonal elements. Summary labor market mobility indices use the Shorrocks and Foster method (Shorrocks and Foster, 1987). The Shorrocks mobility index m, as it is commonly referred to, is given by:

$$m = \frac{K - trace\ (T_{i,j})}{K - 1}, \qquad (1)$$

where K is the number of labor market statuses and $trace\ (T_{i,j})$ is the trace of the transition matrix (the sum of the diagonal elements).

One of the cautions to using pseudo-panels is that calculating transition probabilities is not straightforward, since labor market statuses are averaged over individuals within a cohort cell, giving only fractional response variables instead of categorical values from which standard transition probabilities are calculated. To circumvent this challenge, a bootstrap sampling approach is used to maintain the categorical values for randomly selected individuals in the bootstrap sample. The categorical variables indicate individuals' labor market status from which one can easily calculate transition probabilities. In the bootstrap sampling approach, one individual cohort member at a time is sampled from each cohort-cell, and the transition matrices T_{ij}^{r} are calculated for bootstrap sample r. The sampling-with-replacement process is repeated R times to obtain a

single transition matrix $T_{i,j}$ by averaging over the samples: $T_{i,j} = \frac{1}{R}\sum_{r=1}^{R} T_{ij}^{r}$. With enough bootstrap samples, $T_{i,j}$ is asymptotically close to the transition probability that could be obtained from the cohort-cell averages.

Although informative, and common in the literature, transition matrices and mobility indices have limitations. First, the transition probabilities do not account for individual characteristics that play critical roles in individuals' ability and decisions to move across labor market statuses, such as education, location of residence, age, and gender. Second, the transition probabilities do not provide information on labor markets' flexibility or the degree of labor market segmentation or persistence over time. The next section discusses the econometric approach that addresses such limitations and provides useful labor market mobility parameters.

4.3.Econometric method

Labor market transitions are estimated using a dynamic random effects (RE) model following the Papke and Wooldridge panel data method of nonlinear models, which is suitable for fractional response variables (Papke and Wooldridge, 2008). In a pseudo-panel data setting, the dependent variable is the proportion of individuals in labor market status k in each cohort c and time t. Accordingly, the generic dynamic fractional model can be written as:

$$E(y_{ct}|X_{ct}, y_{ct-1}, \cdots, y_{c0}, \alpha_c) = \Phi(\rho y_{ct-1} + X_{ct}\beta + \alpha_c), \;\; t = 1, \cdots, T, \quad (2)$$

where $0 \leq y_{ct} \leq 1$ is the fraction of individuals in labor market state k, $X_{ct}$is a vector of explanatory variables, β and ρ are coefficients to be estimated, α_c is a cohort-specific unobserved heterogeneity term, and $\Phi(\cdot)$ is the standard cumulative distribution (cdf). The primary coefficient of interest is ρ, which captures the labor market's true state dependence, measuring the degree of mobility from one labor market state to another. With fractional data, the parameter of interest is the Average Partial Effects (APEs) given by:

$$\frac{\partial E(y_{ct}|X_{ct}, y_{ct-1}, \dots, y_{c0}, \alpha_c)}{\partial y_{ct-1}} = \rho\phi(\rho y_{ct-1} + X_{ct}\beta + \alpha_c). \qquad (3)$$

Equation (3) is difficult to identify, because y_{ct-1} and other explanatory variables could be correlated with the unobserved cohort heterogeneity term α_c. In addition, the estimated state

dependence coefficient could be inconsistent unless the initial labor market state y_{c0} is observed. As in most cases, the survey dates in the data and each individual's initial labor market condition hardly coincide. As a result, y_{c0} is endogenous and could potentially be correlated with the unobserved cohort-specific effects. These issues are addressed by using the Mundlak (1978) approach, which allows for the unobserved cohort heterogeneity term to be correlated with the explanatory variable as well as the initial condition as:

$$\alpha_c = \psi + \gamma y_{c0} + \xi \overline{X_c} + e_c, \qquad (4)$$

where $\overline{X_c}$ is a vector of selected time-variant explanatory variables averaged over survey waves, y_{c0} is the value of the dependent variable in the first available survey wave, and e_c is the error term, which is assumed to be normally distributed, conditional on X_c and y_{c0} (that is, $e_c|\overline{X_c}, y_{c0} \sim N(0, \sigma_e^2)$. Then, the fully parameterized dynamic RE model that accounts for unobserved cohort heterogeneity and initial labor market conditions can be written as:

$$E(y_{ct}|X_{ct}, \overline{X_c}, y_{ct-1}, y_{c0}, \alpha_c) = \Phi(\rho y_{ct-1} + X_{ct}\beta + \psi + \gamma y_{c0} + \xi \overline{X_c}). \qquad (5)$$

The model in equation (5) controls for unobserved heterogeneity and the initial conditions problem. The parameter of interest (ρ) can be consistently estimated from the model. The model in equation (5) estimates the degree of flexibility in entrance to and exit from the labor market, transition between employment and unemployment, mobility between self-employment and wage/salary (formal) employment, and mobility between agricultural and nonagricultural employment.

5. Results and discussions

5.1. Long-term labor market transitions

Transition probabilities and mobility indices are estimated over two historically important periods: late 1990s–2006/2013 and 2005–2014/2015. The first period roughly corresponds to the boom in commodity prices and acceleration of economic growth experienced in most African economies. The second period corresponds to two episodes of global economic crisis: the 2007–2008 financial crises and the sharp 2008–2009 downturn in commodity prices.

The long-term Egyptian and South African labor markets exhibit some similarities in the labor market statuses of inactivity, employment, and unemployment, but they are markedly

different from those of Nigeria and Ethiopia (table 14). This unsurprising result reflects the greater economic development in South Africa and Egypt than in the other two countries. Working-age individuals who started off employed in 1996 in Egypt had a 64 percent chance of staying employed in 2006, and those who started off employed in 2001 in South Africa had a 66 percent chance of staying employed in 2007.

Table 14 Transition matrices: Broader labor market statuses

	Year [t]					
	Employed	Unemployed	Inactive	Employed	Unemployed	Inactive
	Egypt: 1996–2006			Egypt: 2006–13		
Employed	**0.64**	0.01	0.35	**0.81**	0.04	0.15
Unemployed	0.68	**0.03**	0.28	0.67	**0.11**	0.22
Inactive	0.23	0.02	**0.75**	0.3	0.05	**0.65**
	South Africa: 2001–07			South Africa: 2007–14		
Employed	**0.66**	0.15	0.19	**0.52**	0.17	0.31
Unemployed	0.49	**0.28**	0.24	0.48	**0.26**	0.26
Inactive	0.41	0.27	**0.32**	0.3	0.16	**0.53**
	Ethiopia: 1999–2005			Ethiopia: 2005–13		
Employed	**0.77**	0.04	0.18	**0.84**	0.03	0.13
Unemployed	0.77	**0.03**	0.2	0.78	**0.09**	0.14
Inactive	0.74	0.03	**0.22**	0.72	0.06	**0.22**
				Nigeria: 2006–14		
Employed				**0.88**	0.06	0.07
Unemployed				0.80	**0.07**	0.14
Inactive				0.73	0.11	**0.18**

Three key differences can be observed between the Egypt and South Africa's labor market mobility patterns. The first is that while the probability of an Egyptian worker remaining employed increased to 81 percent in the second period (2006–2013), it decreased for a South African worker to 52 percent (2007–2014), mainly due to workers exiting the labor market. There are two potential explanations. First, South Africa's greater integration with the international economy would increase its exposure to the 2007–2008 global financial crisis, and in its more advanced economy, South Africa's informal sector would have less capacity than Egypt's to absorb excess labor during economic turmoil. Second, South Africa's generous social protection and benefits—unemployment insurance, a disability grant, a care dependency grant, and an old-age pension

system—could offer an additional incentive for discouraged workers unable to find employment to exit the labor market altogether.

The second key difference is that in Egypt the probability of unemployed individuals staying unemployed increased considerably from 3 percent in 1996–2006 to 11 percent in 2006–13, while in South Africa it remained high at 26–28 percent, reflecting persistent high unemployment rates even after the end of apartheid (during which the labor market had been segmented along racial lines).

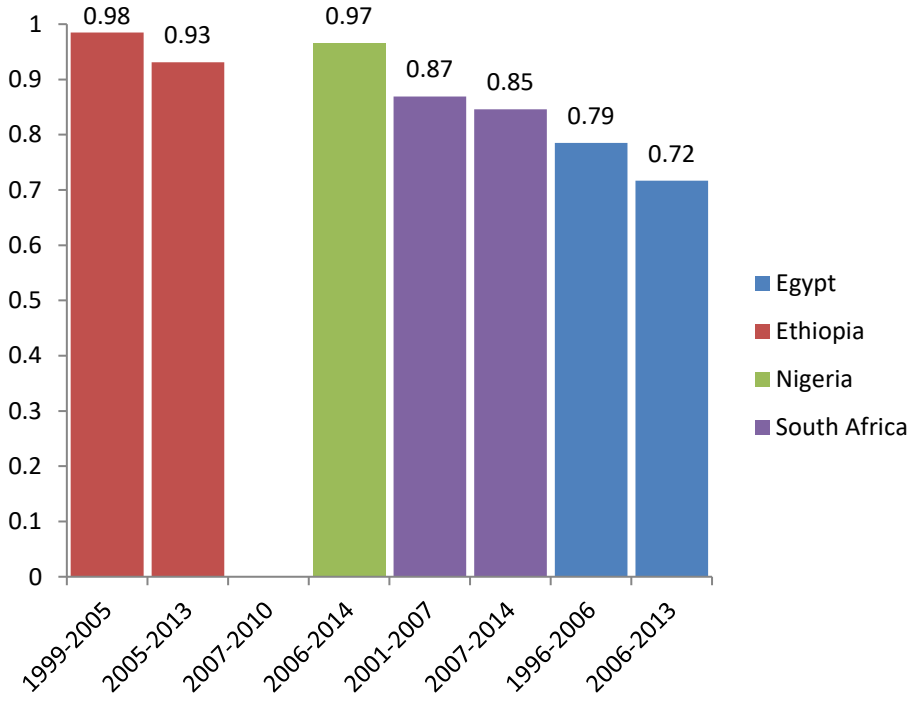
The third key difference is the higher rate of inactivity in Egypt and the greater difficulty in entering the labor market. About 75 percent of working-age individuals in Egypt who reported inactivity in 1996 were still out of the labor force 10 years later, compared with 32 percent in South Africa. Although Egypt's rate of continuing inactivity declined to 65 percent in 2006–2013, it remained the highest of the four countries being studied. Egypt's low labor market participation rate could partly be explained by the wide gender gulf in participation since women face difficulties in accessing the labor market due to cultural, religious, and institutional factors. Less than one-quarter of working-age women in Egypt participated in the labor market in 2013 compared with 65 percent in Nigeria and 60 percent in South Africa.

Ethiopia and Nigeria share key labor market features typical of sub-Saharan African countries. In both, employed individuals have high chances of staying employed and the unemployed have low chances of staying unemployed. For instance, workers who were employed in 2005 in Ethiopia had an 84 percent chance of staying employed in 2013, and workers who were employed in 2006 in Nigeria had an 88 percent chance of staying employed in 2014, whereas those who were unemployed in Ethiopia had only a 9 percent chance of remaining unemployed during the same period, and in Nigeria, 7 percent. This flexibility reflects these economies' ability to absorb workers into agriculture and informal sector work. The second shared feature is low rigidity in entering and exiting the labor market. Ethiopian working-age individuals out of the labor market in 2005 had a 22 percent chance of remaining inactive in 2013, and Nigerians out of the labor market in 2006 had an 18 percent chance of remaining out in 2014—both probabilities much lower than those in Egypt and South Africa. This, again, demonstrates the important role of the informal sector, where very low barriers to entry enable it to provide workers an employment safety net.

However, the work is unlikely to be remunerative for the workers or highly productive or structurally transformative for the economy.

Labor markets in Ethiopia, with a Shorrocks mobility index of 0.93 in 2005–13, and Nigeria, with 0.97 in 2006–14, were much more flexible than the labor markets during the same decade in Egypt, with an index of 0.72, and South Africa, with 0.85 (figure 2). The mobility indices for Ethiopia and Nigeria seem to have been driven by the relatively high probability of working-age individuals entering the labor market (presumably finding employment in agriculture and the informal sector), and the relatively low chances of their remaining unemployed and inactive, compared with chances in Egypt and South Africa.

Figure 2 Shorrocks mobility indices



Much labor market mobility in Egypt in 1996–2006 represented individuals moving from self-employment and unemployment into the wage/salary sector (table 15). They mainly went into the public sector, which accounted for more than one-fifth of total employment in the country. More recently, however, the chance of moving into self-employment increased considerably, indicating the growing importance of self-employment in Egypt in absorbing the unemployed and

new labor market entrants. In contrast, in South Africa, transition into self-employment declined, while the probabilities of moving into wage/salary employment and exiting the labor market altogether increased. Although this change could represent structural progress for South African economy overall, it could also mean that those who are systematically less able to access the formal labor market are falling through the cracks into unemployment.

Table 15 Transition matrices: Detailed labor market statuses

Year [t-1]	Year [t] Self-employed	Wage/salary	Unemployed	Inactive	Self-employed	Wage/salary	Unemployed	Inactive
	Egypt: 1996–2006				Egypt: 2006–13			
Self-employed	**0.09**	0.64	0.01	0.27	**0.30**	0.56	0.04	0.10
Wage/salary	0.07	**0.56**	0.01	0.37	0.26	**0.54**	0.04	0.16
Unemployed	0.06	0.61	**0.03**	0.29	0.20	0.48	**0.09**	0.23
Inactive	0.02	0.22	0.02	**0.75**	0.13	0.18	0.05	**0.65**
Mobility Index				0.86				0.81
	South Africa: 2001–07				South Africa: 2007–14			
Self-employed	**0.15**	0.59	0.10	0.16	**0.04**	0.42	0.16	0.39
Wage/salary	0.12	**0.53**	0.16	0.20	0.03	**0.49**	0.19	0.29
Unemployed	0.08	0.42	**0.28**	0.23	0.02	0.45	**0.26**	0.27
Inactive	0.07	0.34	0.27	**0.32**	0.02	0.28	0.17	**0.53**
Mobility Index				0.91				0.89
	Ethiopia: 1999–2005				Ethiopia: 2005–13			
Self-employed	**0.64**	0.13	0.04	0.19	**0.73**	0.10	0.03	0.14
Wage/salary	0.56	**0.21**	0.07	0.16	0.66	**0.19**	0.04	0.10
Unemployed	0.56	0.14	**0.04**	0.26	0.56	0.22	**0.07**	0.14
Inactive	0.65	0.11	0.04	**0.21**	0.56	0.17	0.06	**0.20**
Mobility Index				0.97				0.93

Note: Due to data sparseness in the cohort cell for the detailed labor market statutes, transition matrices are not calculated for Nigeria.

In South Africa, the role of the self-employed or informal sector is declining, since the probability of remaining self-employed between 2007 and 2014 was only 4 percent, compared with 15 percent between 2001 and 2007. However, without the backstop of an informal sector, the probability of someone remaining inactive in South Africa increased markedly, from 32 percent

between 2001 and 2007 to 53 percent between 2007 and 2014. Rates of remaining in formal sector employment or in unemployment between the two periods remained fairly constant.

Self-employment is dominant in Ethiopia's labor market. For instance, a worker who was self-employed in 1999 had a 64 percent chance of staying in the same status in 2006. Despite the high economic growth that the country achieved in recent years, the importance of self-employment in the labor market has increased, with the chances of a self-employed worker remaining in the same status increasing from 64 percent in 1999–2005 to 73 percent in 2005–13. Moreover, the sector continued to absorb the unemployed, new labor market entrants, and workers who were previously wage/salary employees.

Individual mobility between different labor market statuses depends on age, gender, social ties, skill mismatch, education, search and moving costs, geographic preferences, and psychological costs of changing jobs could contribute to labor market rigidity, often referred to as "sticky feet" (Hollweg et al., 2014). Demand-side factors also contribute, such as low demand and high costs of hiring and firing. Possible market-level factors include job–skill mismatches and the inefficient flow of information on vacancies. And macroeconomic conditions, weak labor market institutions, strict labor regulations and conventions, and inefficiencies in capital and land markets and product markets contribute to labor market rigidity.

Labor market entry and exit

Transition matrices, though informative of the overall degree of labor market mobility, are limited in disentangling the relative importance of the factors in labor market rigidity. A linear dynamic random effects estimation controls for cohort-level observed and unobserved heterogeneity as well as initial labor market conditions (tables 16–20). If workers can easily enter and exit the labor market, the true state dependence parameter is expected be zero and statistically insignificant. Whenever there are frictions or entry barriers, however, the coefficient is expected to be positive and statistically significant.

The true state dependence coefficients are positive and significant for five specifications (year fixed effects, demographic characteristics, birth year, educational dummies, and controls for unobserved heterogeneity and initial labor market conditions) for all four countries. In Egypt, a 1 percent higher inactivity rate in the previous period increases the likelihood of remaining inactive

in the current period by 0.20 percentage point. Similar results are found in South Africa, where the likelihood increases by 0.42 percentage point, and Nigeria, where it increases by 0.29 percentage point. Individuals in Ethiopia, however, seem to enter and exit the labor market with relative ease, as the estimated degree of rigidity is only 0.16 percentage point, which could be explained by the relative abundance of farm employment in rural areas, where close to 80 percent of the population resides, and the increasing availability of informal employment opportunities in urban centers, particularly for migrant workers.

Table 16 Dynamic random effects estimation of labor market entry and exit: Egypt

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged participation rate	0.388***	0.272***	0.202***	0.224***	0.203***	0.07
	(0.020)	(0.019)	(0.017)	(0.017)	(0.022)	(0.220)
Lagged participation rate X [male]						−0.107***
						(0.033)
Lagged participation rate X [primary]						0.0849***
						(0.030)
Lagged participation rate X [secondary]						0.0780**
						(0.031)
Lagged participation rate X [university]						0.04
						(0.032)
Observations	1147	1147	1147	1147	1143	1143
Number of cohorts	579	579	579	579	575	575
Year fixed effects	X	X	X	X	X	X
Demographic characteristics.	—	X	X	X	X	X
Birth year	—	—	X	X	X	X
Education dummies	—	—	—	X	X	X
Chamberlain time means and initial values	—	—	—	—	X	X
Interaction terms	—	—	—	—	—	X

Standard errors in parenthesis. *** $p \leq 0.001$; ** $p \leq 0.01$.

Note: Specifications 1–5 incrementally add sets of control variables: year fixed effects, demographic characteristics (gender, marital status, household size, and relation to the head), birth year, educational dummies, and controls for unobserved heterogeneity and initial labor market conditions. Specification 6 includes interaction terms between the lagged dependent variable and key observable characteristics of interest to our study: gender, education, and birth year.

Table 17 Dynamic random effects estimation of labor market entry and exit: Ethiopia

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged participation rate	0.194***	0.0763**	0.0179	-0.0187	0.161***	0.0155
	(0.0333)	(0.0311)	(0.0298)	(0.0294)	(0.043)	(0.126)
Lagged participation rate X [male]						0.0195
						(0.0915)
Lagged participation rate X [primary]						0.0643
						(0.111)
Lagged participation rate X [secondary]						0.397***
						(0.122)
Lagged participation rate X [university]						0.316*
	857	857	857	857	777	777
Observations	477	477	477	477	397	397
Number of cohorts	X	X	X	X	X	X
Year fixed effects	—	X	X	X	X	X
Demographic characteristics.	—	—	X	X	X	X
Birth year	—	—	—	X	X	X
Education dummies	—	—	—	—	X	X
Chamberlain time means and initial values	—	—	—	—	—	X

Standard errors in parenthesis. *** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$.

Note: Specifications 1–5 incrementally add sets of control variables: year fixed effects, demographic characteristics (gender, marital status, household size, and relation to the head), birth year, educational dummies, and controls for unobserved heterogeneity and initial labor market conditions. Specification 6 includes interaction terms between the lagged dependent variable and key observable characteristics of interest to our study: gender, education, and birth year.

Table 18 Dynamic random effects estimation of labor market entry and exit: Nigeria

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged participation rate	0.666***	0.371***	0.321***	0.315***	0.288***	0.309***
	(0.0112)	(0.0153)	(0.0159)	(0.016)	(0.0174)	(0.0557)
Lagged participation rate X [male]						−0.0916***
						(0.0328)
Lagged participation rate X [primary]						0.0423
						(0.0262)
Lagged participation rate X [secondary]						0.0569*
						(0.0291)
Lagged participation rate X [university]						0.0212
						(0.0308)
Observations	3,184	3,184	3,184	3,184	3,110	3,110
Number of cohorts	590	590	590	590	563	563
Year fixed effects	X	X	X	X	X	X
Demographic characteristics.	—	X	X	X	X	X
Birth year	—	—	X	X	X	X
Education dummies	—	—	—	X	X	X
Chamberlain time means and initial values	—	—	—	—	X	X
Interaction terms	—	—	—	—	—	X

Standard errors in parenthesis. *** $p \leq 0.001$.

Note: Specifications 1–5 incrementally add sets of control variables: year fixed effects, demographic characteristics (gender, marital status, household size, and relation to the head), birth year, educational dummies, and controls for unobserved heterogeneity and initial labor market conditions. Specification 6 includes interaction terms between the lagged dependent variable and key observable characteristics of interest to our study: gender, education, and birth year.

Table 19 Dynamic random effects estimation of labor market entry and exit: South Africa

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged participation rate	0.876***	0.516***	0.349***	0.354***	0.423***	0.211***
	(0.00848)	(0.0166)	(0.0169)	(0.0162)	(0.0182)	(0.0686)
Lagged participation rate X [male]						0.0450*
						(0.0241)
Lagged participation rate X [primary]						0.101***
						(0.0218)
Lagged participation rate X [secondary]						0.127***
						(0.0239)
Lagged participation rate X [university]						0.0713***
						(0.0251)
Observations	3,551	1,310	1,310	1,310	1,188	1,188
Number of cohorts	590	590	590	590	500	500
Year fixed effects	X	X	X	X	X	X
Demographic characteristics	—	X	X	X	X	X
Birth year	—	—	X	X	X	X
Education dummies	—	—	—	X	X	X
Chamberlain time means and initial values	—	—	—	—	X	X
Interaction terms	—	—	—	—	—	X

Standard errors in parenthesis. *** $p \leq 0.001$; * $p \leq 0.1$.

Note: Specifications 1–5 incrementally add sets of control variables: year fixed effects, demographic characteristics (gender, marital status, household size, and relation to the head), birth year, educational dummies, and controls for unobserved heterogeneity and initial labor market conditions. Specification 6 includes interaction terms between the lagged dependent variable and key observable characteristics of interest to our study: gender, education, and birth year.

Table 20 Dynamic random effects estimation of labor market entry and exit: Pooled

	(1)	(2)	(3)	(4)	(5)
Lagged participation rate	0.723***	0.667***	0.586***	0.588***	0.563***
	(0.0165)	(0.0175)	(0.017)	(0.0169)	(0.0181)
Lagged participation rate X [Ethiopia]	−0.393***	−0.429***	−0.405***	−0.412***	−0.0857**
	(0.0363)	(0.0369)	(0.0351)	(0.035)	(0.0418)
Lagged participation rate X [Nigeria]	−0.236***	−0.267***	−0.164***	−0.155***	−0.123***
	(0.0212)	(0.0231)	(0.0222)	(0.0222)	(0.0202)
			−0.0588**	−0.0899***	
Lagged participation rate X [South Africa]	−0.0101			−0.0886***	0.00725
	(0.0212)	(0.0265)	(0.0251)	(0.0251)	(0.024)
Ethiopia	0.381***	0.446***	0.438***	0.445***	0.123***
	(0.0286)	(0.0295)	(0.0281)	(0.0281)	(0.0357)
Nigeria	0.227***	0.274***	0.308***	0.301***	0.319***
	(0.0162)	(0.0224)	(0.0216)	(0.0216)	(0.0219)
South Africa	−0.0245*	0.0999***	0.193***	0.194***	0.0758***
	(0.014)	(0.0218)	(0.0211)	(0.0211)	(0.0207)
Observations	8,738	6,497	6,497	6,497	6,218
Number of cohorts	2,235	2,235	2,235	2,235	2,035
Year fixed effects	X	X	X	X	X
Demographic characteristics	—	X	X	X	X
Birth year	—	—	X	X	X
Educational dummies	—	—	—	X	X
Chamberlain time means and initial values	—	—	—	—	X

Standard errors in parenthesis. *** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$.

Note: Specifications 1–5 incrementally add sets of control variables: year fixed effects, demographic characteristics (gender, marital status, household size, and relation to the head), birth year, educational dummies, and controls for unobserved heterogeneity and initial labor market conditions.

Much of the rigidity in entry and exit can be explained by individual-level factors. For instance, when the model controlled for gender, marital status, household size, and relation to the head, the coefficient for Egypt declined from 0.34 (in table 16 specification 1) to 0.27 (in table 16, specification 2). It declined to 0.20, when the model further controlled for birth year, education, unobserved heterogeneity, and initial labor market conditions (in table 16, specification 5). So, close to 48 percent of the rigidity in labor market entry and exit in Egypt could be explained by individual-level factors, with the remaining 52 percent due to lack of demand and institutional, regulatory, and other factors. Similarly, the observed levels of rigidity in Nigeria and South Africa could be attributed to individual-level factors, with no strong evidence suggesting the same for

Ethiopia. In Ethiopia, the role played by individual characteristics in determining labor market rigidity is much lower, meaning that there are fewer systematic barriers based on personal factors like gender. What determines individual entry and exit in Ethiopia, is, therefore, based on idiosyncratic personal characteristics that influence how well a person can navigate the institutional and contextual barriers that explain more of the variation in entry/exit rigidity.

To assess the extent of rigidity for different groups of individuals, the model interacted the lagged dependent variable with gender, grouped birth year, and levels of education. The coefficients on the interaction terms (specification 6) show the relative rigidity for that particular group of interest compared with the reference group.[††] Gender and education emerge as significant factors in labor market rigidity in Egypt. For every 1 percent increase in the previous inactivity rate, for instance, men have a 0.11 percentage point lower the probability of staying inactive compared with women. Moreover, individuals with primary and secondary levels of education face higher rigidity in entry and exit, compared with low-skilled individuals with no or less than primary education. Individuals with secondary education in Ethiopia and Nigeria, and any level of education above primary in South Africa, face difficulty entering and exiting the labor markets compared with low-skilled (uneducated) individuals. Education, perversely, seems to restrict the jobs individuals can access, either due to demand-side (overqualification) or supply-side (holding out for remunerative jobs) factors. Younger Nigerians—those born after 1982—face some difficulty in entering the labor market compared with the older cohort. But South African youth born after 1973 face relatively less difficulty in moving into and out of the labor force.

Across countries, a pooled regression used Egypt as a reference country and interacted the lagged dependent variable with the country dummies (see table 20). Entry into and exit from the labor market is much easier in Ethiopia and Nigeria than in Egypt (column 5, the final model specification). Individuals in Ethiopia have a 0.09 percentage point lower chance of entering the labor market in the current period than a typical working-age Egyptian. And individuals in Nigeria have a 0.12 percentage point lower chance. Not surprisingly, there is no statistically significant difference in rigidity between South African and Egyptian labor markets. The higher rigidity in Egypt, even after individual-level characteristics were controlled for, could be attributed to low

[††] The reference groups for gender, birth cohort, and education, respectively, are female, oldest cohort, and the group with none or less than primary education.

labor demand due to premature deindustrialization in the past decade and a half, when the share of employment in manufacturing declined. At the same time, public sector employment, which already accounts for a relatively large proportion of employment in Egypt compared with other African countries, seems to be saturated. Further, the segregated, anti-black labor market and the country's relatively generous social benefit programs—child support, care dependency grants, disability grants, unemployment insurance, and an old-age pension system—could discourage working-age individuals from actively seeking employment. Moreover, unlike sub-Saharan African countries, relatively modern economies in Egypt and South Africa have small informal sectors with limited capacity to absorb excess labor that tend to concentrate in urban centers.

Mobility between employment and unemployment

For labor market mobility between employment and unemployment, except for Ethiopia, the true state dependence parameters on employment are all positive and statistically significant, in that workers face rigidity (tables 21–25). In the full model (column 5), after controlling for observed characteristics and unobserved heterogeneity, the coefficient of rigidity in Egypt is 0.26 percentage point, in Nigeria 0.22 percentage point, and in South Africa, 0.38 percentage point. Ethiopia shows no statistically significant level of rigidity in movement between employment and unemployment.

Table 21 Dynamic random effects estimation of mobility between employment and unemployment: Egypt

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged employment rate	0.464***	0.346***	0.253***	0.284***	0.262***	-0.0345
	(0.0206)	(0.0215)	(0.0194)	(0.0193)	(0.0252)	(0.227)
Lagged employment rate X [male]						−0.116***
						(0.0363)
Lagged employment rate X [primary]						0.0675**
						(0.0318)
Lagged employment rate X [secondary]						0.0850***
						(0.0324)
Lagged employment rate X [university]						0.0485
						(0.0336)
Observations	1,147	1,147	1,147	1,147	1,143	1,143
Number of cohorts	579	579	579	579	575	575
Year fixed effects	X	X	X	X	X	X
Demographic characteristics.	–	X	X	X	X	X
Birth year	–	–	X	X	X	X
Educational dummies	—	—	—	X	X	X
Chamberlain time means and initial values	—	—	—	—	X	X
Interaction terms	—	—	—	—	—	X

Standard errors in parenthesis.*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$.

Note: Specifications 1–5 incrementally add sets of control variables: year fixed effects, demographic characteristics (gender, marital status, household size, and relation to the head), birth year, educational dummies, and controls for unobserved heterogeneity and initial labor market conditions. Specification 6 includes interaction terms between the lagged dependent variable and key observable characteristics of interest to our study: gender, education, and birth year.

Table 22 Dynamic random effects estimation of mobility between employment and unemployment: Ethiopia

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged employment rate	0.148***	0.0268	−0.0259	−0.0773***	0.0176	−0.167
	(0.0331)	(0.0304)	(0.0291)	(0.0281)	(0.0392)	(0.13)
Lagged employment rate X [male]						0.0274
						(0.0802)
Lagged employment rate X [primary]						0.178
						(0.113)
Lagged employment rate X [secondary]						0.290**
						(0.119)
Lagged employment rate X [university]						0.300*
						(0.154)
Observations	857	857	857	857	777	777
Number of cohorts	477	477	477	477	397	397
Year fixed effects	X	X	X	X	X	X
Demographic characteristics.	—	X	X	X	X	X
Birth year	—	—	X	X	X	X
Educational dummies	—	—	—	X	X	X
Chamberlain time means and initial values	—	—	—	—	X	X
Interaction terms	—	—	—	—	—	X

Standard errors in parenthesis.*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$.

Note: Specifications 1–5 incrementally add sets of control variables: year fixed effects, demographic characteristics (gender, marital status, household size, and relation to the head), birth year, educational dummies, and controls for unobserved heterogeneity and initial labor market conditions. Specification 6 includes interaction terms between the lagged dependent variable and key observable characteristics of interest to our study: gender, education, and birth year.

Table 23 Dynamic random effects estimation of mobility between employment and unemployment: Nigeria

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged Employment Rate	0.684***	0.275***	0.262***	0.247***	0.218***	0.256***
	(0.0116)	(0.0152)	(0.0157)	(0.0158)	(0.017)	(0.0546)
Lagged employment rate X [male]						−0.0721**
						(0.0323)
Lagged employment rate X [primary]						0.0284
						(0.0261)
Lagged employment rate X [secondary]						0.0505*
						(0.0281)
Lagged employment rate X [university]						0.0478
						(0.0292)
Observations	3,184	3,184	3,184	3,184	3,110	3,110
Number of cohorts	590	590	590	590	563	563
Year fixed effects	X	X	X	X	X	X
Demographic characteristics	—	X	X	X	X	X
Birth year	—	—	X	X	X	X
Educational dummies	—	—	—	X	X	X
Chamberlain time means and initial values	—	—	—	—	X	X
Interaction terms	—	—	—	—	—	X

Standard errors in parenthesis.*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$.

Note: Specifications 1–5 incrementally add sets of control variables: year fixed effects, demographic characteristics (gender, marital status, household size, and relation to the head), birth year, educational dummies, and controls for unobserved heterogeneity and initial labor market conditions. Specification 6 includes interaction terms between the lagged dependent variable and key observable characteristics of interest to our study: gender, education, and birth year.

Table 24 Dynamic random effects estimation of mobility between employment and unemployment: South Africa

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged employment rate	0.863***	0.574***	0.457***	0.409***	0.381***	0.306***
	(0.00801)	(0.0181)	(0.0182)	(0.0175)	(0.019)	(0.0726)
Lagged employment rate X [male]						−0.0674***
						(0.0256)
Lagged employment rate X [primary]						0.00618
						(0.0304)
Lagged employment rate X [secondary]						0.00749
						(0.0277)
Lagged employment rate X [university]						−0.0575**
						(0.0275)
Observations	3,551	1,310	1,310	1,310	1,188	1,188
Number of cohorts	590	590	590	590	500	500
Year fixed effects	X	X	X	X	X	X
Demographic characteristics	—	X	X	X	X	X
Birth year	—	X	X	X	X	X
Educational dummies	—	—	—	X	X	X
Chamberlain time means and initial values	—	—	—	—	X	X
Interaction terms	—	—	—	—	—	X

Standard errors in parenthesis.*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$.

Note: Specifications 1–5 incrementally add sets of control variables: year fixed effects, demographic characteristics (gender, marital status, household size, and relation to the head), birth year, educational dummies, and controls for unobserved heterogeneity and initial labor market conditions. Specification 6 includes interaction terms between the lagged dependent variable and key observable characteristics of interest to our study: gender, education, and birth year.

Table 25 Dynamic random effects estimation of mobility between employment and unemployment: Pooled

	(1)	(2)	(3)	(4)	(5)
Lagged employment rate	0.724***	0.630***	0.554***	0.554***	0.470***
	(0.0169)	(0.018)	(0.0174)	(0.0173)	(0.0187)
Lagged employment rate X [Ethiopia]	-0.430***	-0.485***	-0.440***	-0.448***	-0.127***
	(0.0349)	(0.0354)	(0.0334)	(0.0333)	(0.0393)
Lagged employment rate X [Nigeria]	-0.242***	-0.340***	-0.241***	-0.231***	-0.162***
	(0.0214)	(0.023)	(0.022)	(0.0219)	(0.0204)
Lagged employment rate X [South Africa]	0.00589		-0.014	-0.0222	-0.0294 0.0152
	(0.0227)	(0.0284)	(0.0265)	(0.0267)	(0.0247)
Ethiopia	0.405***	0.491***	0.466***	0.474***	0.149***
	(0.0259)	(0.0267)	(0.0253)	(0.0252)	(0.0321)
Nigeria	0.198***	0.295***	0.355***	0.349***	0.316***
	(0.0157)	(0.0218)	(0.0209)	(0.0209)	(0.0215)
South Africa	-0.0484***	0.0291	0.107***	0.113***	0.0607***
	(0.0133)	(0.0202)	(0.0193)	(0.0193)	(0.0185)
Observations	8,738	6,497	6,497	6,497	6,218
Number of cohorts	2,235	2,235	2,235	2,235	2,035
Year fixed effects	X	X	X	X	X
Demographic characteristics	—	X	X	X	X
Birth year	—	—	X	X	X
Educational dummies	—	—	—	X	X
Chamberlain time means and initial values	—	—	—	—	X

Standard errors in parenthesis.*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$.

Note: Specifications 1–5 incrementally add sets of control variables: year fixed effects, demographic characteristics (gender, marital status, household size, and relation to the head), birth year, educational dummies, and controls for unobserved heterogeneity and initial labor market conditions.

The decreasing magnitude of the coefficient as more explanatory variables are added into the model suggests that rigidity could be explained by worker-level factors, mainly demographic ones, such as gender, birth year, marital status, and education. Individual-level factors account for 43.5 percent of the rigidity in Egypt, 68 percent in Nigeria, and 55.6 percent in South Africa (see columns 1 and 5 in tables 21, 23, and 24). Men face relatively lower rigidity than women, with coefficients of 0.13 percentage point in Egypt, 0.07 in Nigeria, and 0.07 in South Africa. Surprisingly, education actually reduces individual ability to move in and out of employment. For instance, individuals with primary and secondary education in Egypt, secondary and university education in Ethiopia, and secondary education in Nigeria have limited ability to move across

different employment statuses compared with individuals with no or less than primary education. This confirms our initial assessment that the jobs in these economies are not appealing to workers with any level of education, who probably would like productive and well-paying jobs. In South Africa, on the other hand, individuals with university education enjoy more flexibility than the uneducated, while individuals with primary and secondary education face the same rigidity as the uneducated. Compared with workers in Egypt, workers in Ethiopia and Nigeria move between employment and unemployment much more easily, while workers in South Africa face as much rigidity as those in Egypt. Once again, the two more advanced economies (Egypt and South Africa) behave much more similarly to each other, despite many contextual differences, than they do to the less advanced (Nigeria and Ethiopia).

Mobility between sectors of employment

What rigidity faces workers moving between self-employment—low-quality informal sector employment—and high-quality formal sector jobs, in either the private or the public sector, that pay better, provide non-wage benefits, and follow workplace safety regulations? What rigidity faces those moving between agricultural and nonagricultural employment—to the high-productivity non-agricultural sectors—broadly, services and industry?

Except in Ethiopia, workers face some rigidity in the ability to move from self-employment to wage/salary employment (tables 26–30). After worker-level characteristics and unobserved heterogeneity are controlled for (column 5 in tables 26, 28, and 29), the coefficient of rigidity in Egypt is 0.23 percentage point, in Nigeria 0.14 percentage point, and in South Africa 0.27 percentage point.

Table 26 Dynamic random effects estimation of mobility between self-employment and wage/salary employment: Egypt

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged self-employment rate	0.491***	0.424***	0.354***	0.323***	0.230***	0.122*
	(0.0312)	(0.0299)	(0.0286)	(0.028)	(0.0288)	(0.0727)
Lagged self-employment rate X [male]						−0.190***
						(0.0476)
Lagged self-employment rate X [primary]						0.054
						(0.0497)
Lagged self-employment rate X [secondary]						0.392***
						(0.0605)
Lagged self-employment rate X [university]						0.300***
						(0.0767)
Observations	975	975	975	975	962	962
Number of cohorts	504	504	504	504	491	491
Year fixed effects	X	X	X	X	X	X
Demographic characteristics	—	X	X	X	X	X
Birth year	—	—	X	X	X	X
Educational dummies	—	—	—	X	X	X
Chamberlain time means and initial values	—	—	—	—	X	X
Interaction terms	—	—	—	—	—	X

Standard errors in parenthesis.*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$.

Note: Specifications 1–5 incrementally add sets of control variables: year fixed effects, demographic characteristics (gender, marital status, household size, and relation to the head), birth year, educational dummies, and controls for unobserved heterogeneity and initial labor market conditions. Specification 6 includes interaction terms between the lagged dependent variable and key observable characteristics of interest to our study: gender, education, and birth year.

Table 27 Dynamic random effects estimation of mobility between self-employment and wage/salary employment: Ethiopia

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged self-employment rate	0.639***	0.607***	0.594***	0.139***	−0.032	0.173
	(0.0263)	(0.0264)	(0.0267)	(0.0362)	(0.0477)	(0.566)
Lagged self-employment rate X [male]						0.00739
						(0.0388)
Lagged self-employment rate X [primary]						−0.315
						(0.576)
Lagged self-employment rate X [secondary]						−0.287
						(0.569)
Lagged self-employment rate X [university]						−0.154
						(0.572)
Observations	814	814	814	814	755	755
Number of cohorts	449	449	449	449	390	390
Year fixed effects	X	X	X	X	X	X
Demographic characteristics	—	—	X	X	X	X
Birth year	—	—	X	X	X	X
Educational dummies	—	—	—	X	X	X
Chamberlain time means and initial values	—	—	—	—	X	X
Interaction terms	—	—	—	—	—	X

Standard errors in parenthesis.*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$.

Note: Specifications 1–5 incrementally add sets of control variables: year fixed effects, demographic characteristics (gender, marital status, household size, and relation to the head), birth year, educational dummies, and controls for unobserved heterogeneity and initial labor market conditions. Specification 6 includes interaction terms between the lagged dependent variable and key observable characteristics of interest to our study: gender, education, and birth year.

Table 28 Dynamic random effects estimation of mobility between self-employment and wage/salary employment: Nigeria

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged self-employment rate	0.530***	0.514***	0.483***	0.176***	0.135***	−0.0938
	(0.0164)	(0.0165)	(0.0173)	(0.0221)	(0.0268)	(0.0807)
Lagged self-employment rate X [male]						−0.0326
						(0.0317)
Lagged self-employment rate X [primary]						0.0368
						(0.148)
Lagged self-employment rate X [secondary]						0.177***
						(0.0666)
Lagged self-employment rate X [university]						−0.0132
						(0.0511)
Observations	1,928	1,928	1,928	1,928	1,788	1,788
Number of cohorts	584	584	584	584	501	501
Year fixed effects	X	X	X	X	X	X
Demographic characteristics	—	X	X	X	X	X
Birth year	—	—	X	X	X	X
Educational dummies	—	—	X	X	X	X
Chamberlain time means and initial values	—	—	—	—	X	X
Interaction terms	—	—	—	—	—	X

Standard errors in parenthesis.*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$.

Note: Specifications 1–5 incrementally add sets of control variables: year fixed effects, demographic characteristics (gender, marital status, household size, and relation to the head), birth year, educational dummies, and controls for unobserved heterogeneity and initial labor market conditions. Specification 6 includes interaction terms between the lagged dependent variable and key observable characteristics of interest to our study: gender, education, and birth year.

Table 29 Dynamic random effects estimation of mobility between self-employment and wage/salary employment: South Africa

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged self-employment rate	0.235***	0.370***	0.228***	0.225***	0.267***	0.234***
	(0.0166)	(0.0314)	(0.0281)	(0.0286)	(0.04)	(0.0709)
Lagged self-employment rate X [Male]						0.137**
						(0.0691)
Lagged self-employment rate X [Primary]						0.0868
						(0.0838)
Lagged self-employment rate X [Secondary]						0.0446
						(0.103)
Lagged self-employment rate X [University]						−0.017
						(0.0939)
Observations	3,413	1,347	1,347	1,347	1,211	1,211
Year fixed effects	X	X	X	X	X	X
Demographic characteristics	—	X	–	X	X	X
Birth year	—	—	X	X	X	X
Educational dummies	—	—	—	X	X	X
Chamberlain time means and initial values	—	—	—	—	X	X
Interaction terms	—	—	—	—	—	X

Standard errors in parenthesis.*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$.

Note: Specifications 1–5 incrementally add sets of control variables: year fixed effects, demographic characteristics (gender, marital status, household size, and relation to the head), birth year, educational dummies, and controls for unobserved heterogeneity and initial labor market conditions. Specification 6 includes interaction terms between the lagged dependent variable and key observable characteristics of interest to our study: gender, education, and birth year.

Table 30 Dynamic random effects estimation of mobility between self-employment and wage/salary employment: Pooled

	(1)	(2)	(3)	(4)	(5)
Lagged self-employment rate	0.629***	0.730***	0.710***	0.691***	0.664***
	(0.0234)	(0.0271)	(0.0269)	(0.0261)	(0.0263)
Lagged self-employment rate X [Ethiopia]	0.144***	−0.00077	0.00429	−0.124***	−0.275***
	(0.0314)	(0.0347)	(0.0342)	(0.0334)	(0.0362)
Lagged self-employment rate X [Nigeria]	−0.228***	−0.356***	−0.349***	−0.468***	−0.577***
	(0.0307)	(0.034)	(0.0337)	(0.033)	(0.0345)
Lagged self-employment rate X [South Africa]	−0.526***	−0.384***	−0.413***	−0.335***	−0.0564
	(0.0303)	(0.0427)	(0.0422)	(0.0411)	(0.046)
Ethiopia	−0.0502**	0.0621***	0.0627***	0.157***	0.139***
	(0.02)	(0.0226)	(0.0222)	(0.0219)	(0.0219)
Nigeria	0.172***	0.277***	0.269***	0.365***	0.237***
	(0.0209)	(0.0266)	(0.0274)	(0.027)	(0.027)
South Africa	−0.144***	0.0283	0.0350*	0.0365*	−0.0454**
	(0.0116)	(0.0197)	(0.0202)	(0.0195)	(0.0198)
Observations	7,129	5,063	5,063	5,063	4,716
Number of cohorts	2,121	2,094	2,094	2,094	1,850
Year fixed effects	X	X	X	X	X
Demographic characteristics	—	X	—	X	X
Birth year	—	—	X	X	X
Educational dummies	—	—	—	X	X
Chamberlain time means and initial values	—	—	—	—	X

Standard errors in parenthesis.*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$.

Note: Specifications 1–5 incrementally add sets of control variables: year fixed effects, demographic characteristics (gender, marital status, household size, and relation to the head), birth year, educational dummies, and controls for unobserved heterogeneity and initial labor market conditions.

In Ethiopia, where self-employment is more prevalent than the other countries, the rigidity in worker ability to transition from self-employment to wage/salary employment seems to be fully attributable to worker-level characteristics, mainly education. In Ethiopia, the coefficient decreased from 0.59 percentage point (see table 27, column 3) to 0.14 percentage point (column 4) after education was controlled for, implying that education accounts for about 76 percent of the rigidity in worker ability to move from self-employment to wage/salary work. The coefficient further declined to −0.03 in column (5) and become statistically insignificant when unobserved heterogeneity and initial labor market conditions were further controlled for. Moreover, the

coefficients on the interaction terms are all statistically insignificant after we control for individual-level factors.

In Egypt, gender also plays a major role in worker ability to move from self-employment to wage/salary employment: men face a 0.19 percentage point lower level of rigidity than do women. In South Africa, however, it is women who have relative flexibility in moving between self-employment and the wage/salary sectors, perhaps due to the large overlap of jobs in the service sector with informal and traditionally female work. In education, the coefficients are insignificant except for Egypt and Nigeria. In Egypt, workers with secondary and university level education and in Nigeria, those with secondary education fare poorly compared with individuals with no or less than primary level education. Finally, workers in Ethiopia and Nigeria move between self-employment and wage/salary employment with relative ease compared with those in Egypt workers, whereas the degree of rigidity in South Africa is not statistically different from Egypt's (see table 30).

For all four countries, agricultural workers tend to stay within the sector, even after worker-level characteristics are controlled for (tables 31–35). Rigidity varies considerably by country and group of individuals. The unadjusted degrees of persistence in agricultural employment are 0.76 percentage point for Egypt, 0.81 for Ethiopia, 0.48 for Nigeria, and 0.40 for South Africa (column 1 of tables 31–34). After observed characteristics of workers and unobserved heterogeneity are controlled for, the magnitude of the coefficients decreases considerably—to 0.27 percentage point for Egypt, 0.20 for Ethiopia, 0.14 for Nigeria, and 0.29 for South Africa (column 5 of tables 31–34).

Table 31 Dynamic random effects estimation of mobility between agricultural and non-agricultural employment: Egypt

	(1)	(2)	(3)	(4)	(5)
Lagged: employment in agriculture	0.762***	0.557***	0.532***	0.463***	0.268***
	(0.0508)	(0.0526)	(0.0533)	(0.0544)	(0.0524)
Lagged: employment in services	0.0116	−0.184***	−0.186***	−0.161***	−0.0452
	(0.0435)	(0.0462)	(0.0472)	(0.0478)	(0.0442)
Observations	975	975	975	975	962
Number of cohorts	504	504	504	504	491
Year fixed effects	X	X	X	X	X
Demographic characteristics	—	X	X	X	X
Birth year	—	—	X	X	X
Educational dummies	—	—	—	X	X
Chamberlain time means and initial values	—	—	—	—	X

Standard errors in parenthesis.*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$
Note: In order to avoid multicolinearity, we do not include industry employment rates.

Table 32 Dynamic random effects estimation of mobility between agricultural and non-agricultural employment: Ethiopia

	(1)	(2)	(3)	(4)	(5)
Lagged: employment in agriculture	0.811***	0.765***	0.759***	0.484***	0.197***
	(0.0242)	(0.0242)	(0.0246)	(0.0362)	(0.0575)
Lagged: employment in services	−0.0199	−0.0154	−0.0148	−0.036	−0.046
	(0.03)	(0.0298)	(0.0299)	(0.0288)	(0.0292)
Observations	813	813	813	813	755
Number of cohorts	448	448	448	448	390
Year fixed effects	X	X	X	X	X
Demographic characteristics	—	X	—	X	X
Birth year	—	—	X	X	X
Educational dummies	—	—	—	X	X
Chamberlain time means and initial values	—	—	—	—	X

Standard errors in parenthesis.*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$
Note: In order to avoid multicolinearity, we do not include industry employment rates.

Table 33 Dynamic random effects estimation of mobility between agricultural and non-agricultural employment: Nigeria

	(1)	(2)	(3)	(4)	(5)
Lagged: employment in agriculture	0.478***	0.479***	0.468***	0.127***	0.142***
	(0.0394)	(0.0388)	(0.0388)	(0.0368)	(0.0398)
Lagged: employment in services	0.0452	0.0782**	0.0828**	0.0567	0.0625*
	(0.0402)	(0.0398)	(0.0399)	(0.0355)	(0.0378)
Observations	2,909	2,909	2,909	2,909	2,677
Number of cohorts	584	584	584	584	498
Year fixed effects	X	X	X	X	X
Demographic characteristics	—	X	—	X	X
Birth year	—	—	X	X	X
Educational dummies	—	—	—	X	X
Chamberlain time means and initial values	—	—	—	—	X

Standard errors in parenthesis.*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$

Note: In order to avoid multicolinearity, we do not include industry employment rates.

Table 34 Dynamic random effects estimation of mobility between agricultural and non-agricultural employment: South Africa

	(1)	(2)	(3)	(4)	(5)
Lagged: employment in agriculture	0.401***	0.429***	0.404***	0.394***	0.289***
	(0.0184)	(0.0288)	(0.029)	(0.0291)	(0.0349)
Lagged: employment in services	−0.0898***	−0.0551***	−0.0734**	−0.0515**	−0.0736***
	(0.0116)	(0.0214)	(0.0216)	(0.0225)	(0.0229)
Observations	3,266	1,255	1,255	1,255	1,135
Number of cohorts	575	545	545	545	457
Year fixed effects	X	X	X	X	X
Demographic characteristics	—	X	—	X	X
Birth year	—	—	X	X	X
Educational dummies	—	—	—	X	X
Chamberlain time means and initial values	—	—	—	—	X

Standard errors in parenthesis.*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$

Note: In order to avoid multicolinearity, we do not include industry employment rates.

Table 35 Dynamic random effects estimation of mobility between agricultural and non-agricultural employment: Pooled

	(1)	(2)	(3)	(4)	(5)
Lagged: employment in agriculture	0.980***	1.079***	1.077***	1.006***	0.937***
	(0.0454)	(0.0504)	(0.0506)	(0.0481)	(0.0456)
Lagged: employment in service	0.0826**	0.166***	0.170***	0.247***	0.391***
	(0.039)	(0.0431)	(0.0434)	(0.0414)	(0.0402)
Lagged: employment in agriculture X [Ethiopia]	−0.127**	−0.243***	−0.243***	−0.380***	−0.456***
	(0.0511)	(0.0563)	(0.0565)	(0.0539)	(0.0523)
Lagged: employment in agriculture X [Nigeria]	0.578***	−0.572***	−0.575***	−0.715***	−0.713***
	(0.0542)	(0.0595)	(0.0597)	(0.0569)	(0.0554)
Lagged: employment in agriculture X [South Africa]	−0.658***	−0.516***	−0.521***	−0.610***	−0.619***
	(0.0563)	(0.0764)	(0.0765)	(0.0722)	(0.0746)
Lagged: employment in services X [Ethiopia]	−0.087*	−0.163***	−0.166***	−0.263***	−0.414***
	(0.0505)	(0.0552)	(0.0554)	(0.0529)	(0.0525)
Lagged: employment in services X [Nigeria]	−0.0432	−0.115**	−0.120**	−0.199***	−0.331***
	(0.0493)	(0.0537)	(0.0539)	(0.0514)	(0.0511)
Lagged: employment in services X [South Africa]	−0.161***	−0.138**	−0.147**	−0.0263	−0.226***
	(0.0445)	(0.0583)	(0.0585)	(0.0554)	(0.0557)
Ethiopia	0.110***	0.203***	0.205***	0.340***	0.424***
	(0.0377)	(0.0423)	(0.0425)	(0.0406)	(0.0397)
Nigeria	0.199***	0.263***	0.272***	0.385***	0.384***
	(0.0446)	(0.0522)	(0.0531)	(0.0506)	(0.0498)
South Africa	0.0976**	0.120**	0.133**	0.0631	0.185***
	(0.0382)	(0.0516)	(0.0522)	(0.0493)	(0.0488)
Observations	7,963	5,952	5,952	5,952	5,529
Number of cohorts	2,111	2,081	2,081	2,081	1,836
Year fixed effects	X	X	X	X	X
Demographic characteristics	–	X	–	X	X
Birth year	–	–	X	X	X
Educational dummies	–	–	–	X	X
Chamberlain time means and initial values	–	–	–	–	X

Standard errors in parenthesis.*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.1$

Note: In order to avoid multicolinearity, we do not include industry employment rates.

Moving out of agriculture is much more difficult for farm workers in Egypt and South Africa than for those in Ethiopia and Nigeria. The skill sets of Egyptian and South African agricultural workers are less likely to transfer to the nonfarm economies than are the skills of their Ethiopian or Nigerian counterparts. Nonetheless, individual-level observed and unobserved factors

account for 66 percent of the rigidity in Egypt, 75 percent of that in Ethiopia, 70 percent of that in Nigeria, and 28 percent of that in South Africa. This implies that empowering women and improving such worker-level conditions as education could pay off considerably in easing the movement of people out of agriculture, especially in Ethiopia and Nigeria.

Egypt and Ethiopia are experiencing no significant shift from service sector employment to agriculture, with South Africa experiencing a strong negative shift, implying a continued exodus from agriculture. Alarmingly, however, Nigerian workers have been moving from the service sector to agriculture, in a reverse structural transformation. The result reflects Nigeria's oil-dependent economy, with a stagnating manufacturing sector unable to create enough high-quality jobs, so that some low-skilled workers have been forced to migrate back to rural areas from the crowded urban centers, where living costs have skyrocketed. It is also possible that wage and nonpecuniary differentials between the predominantly informal service sector (mainly trade) and agricultural activities are narrowing, so that for low-skilled workers, farm activities are becoming more attractive.

6. Conclusion and policy recommendations

Employment in Sub-Saharan Africa is highly variable, with great diversity and flexibility of both employment status and sector. The growth of the continent's largest economies, however, seems to have arrived without the benefit of stable, formal employment for most citizens, especially in rural areas.

The sustained growth and development probably rely on the large and pervasive informal sector. That complex sector encompasses pursuits ranging from productive, high-quality entrepreneurship to activity that is, unfortunately, a mere step above begging. The informal sector's continued presence implies that it benefits those who consume its services and products, which it provides to the market cheaply and, some might argue, efficiently. Formal sector employees use the informal market to extend their own salaries by procuring goods and services at lower prices. The lower prices, of course, come at the expense of informal sector employees, who tend to be paid much less than formal sector employees, lack the worker protections and regulations of the formal sector, and are not protected by the safety nets that to some extent support formal sector employees. But

it is difficult to finally condemn the informal sector, given that, especially for less developed economies, it offers flexibility. As shown in this study, workers who cannot find formal sector employment in less developed countries do not immediately fall into unemployment or inactivity as they would in more developed economies. Instead, their labor is absorbed into the "informal economy safety net," which provides a level of employment, though one perhaps less remunerative.

The flexibility benefits individuals with determination and persistence, or with high skills, who can be productively and gainfully employed without the restraints imposed by the formal sector. However, protective policies do not target those people, but rather those who find themselves in the informal sector as a last resort.

Thus, this study recommends a policy approach that acknowledges the important role played by the informal sector and the value of the services rendered by those employed there. Although recommending one policy is difficult for the four economies studied here with their vastly different stages of development, policymakers should recognize the informal sector in the less developed economies as an important stepping-stone to economic development. Provisions that protect the rights of these workers, including a streamlined process to formality allowing them to collect social benefits, would be ideal.

About half the variation in labor market entry/exit rigidity can be explained, on average, by the observed characteristics of workers, according to the results of this study. The other half, therefore, comes from demand-side lack of high-quality job opportunities and institutional factors, which are notoriously hard to address through policy. However, the increased labor market rigidity for more educated workers shown in this study demonstrates that jobs appealing to those with even a rudimentary education are, simply, not there. Furthermore, educated workers cannot be reabsorbed into the informal employment market, which appears saturated with workers with lower human capital attainment. One possible remedy is widening entrepreneurship opportunities that provide financial and intellectual rewards for those with education. Supply-side reasons, including the stigma of informal sector work, probably play a huge role in the rigidity preventing educated workers from benefiting from informal sector flexibility. Nevertheless, the usual recommendations stand about improving demand-side job creation through proper investment,

curbing corruption, and improving the ease of doing business in Egypt, Ethiopia, Nigeria, and South Africa. An economy cannot develop if those investing in education cannot find productive work. Brain drain and economic stagnation will follow.

The study's results on workers exiting agriculture and rigidity highlight the huge gap between the urban and rural sectors. The nonfarm rural labor market absolutely must be supported, especially in the age of megacities, where the population has far surpassed the capacity of the infrastructure to support it.

In an almost perverse way, the result from Nigeria in which people leave the service sector and return to agriculture may be heartening. People who return to rural areas having experienced the nonfarm sector, whether formal or informal, are more likely to develop nonfarm enterprises than the average people in rural areas. Government support for the rural nonfarm economy must be guaranteed if structural transformation is to occur. This may involve initially thinking small—providing small-scale support for informal cottage industries and nonfarm service providers. Provisions such as income insurance or other livelihood guarantees would give such enterprises the confidence they need to expand, growing the nonfarm economy from the ground up.

The ease with which workers move between different statuses of employment (such as employment or unemployment) and between different sectors of employment (such as agricultural and nonagricultural) affects whether or not an economy can mobilize quickly to benefit from changing worldwide conditions, investments, and regulatory frameworks. That ease of mobility also indicates systematic limitations on certain groups of people and tells whether, once limitations have been identified, they can be removed. Finally, the informal sector has some ability to absorb excess labor from an improperly functioning formal sector, although it is impossible to make a normative assessment of informality's role in these economies. So, governments and policymakers should think of the informal sector as something to be outgrown, rather than something to be ignored or, worse, uprooted entirely.

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