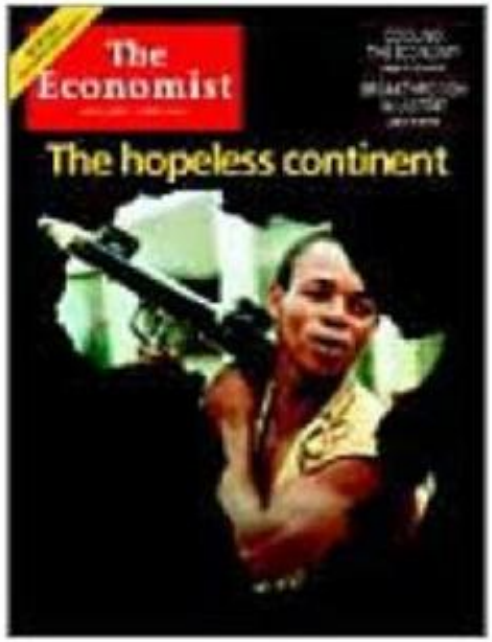
Labor Market Transitions in Selected African Countries

Andinet Woldemichael*,
Margaret Joldowski#, and Abebe Shimeles*

*African Development Bank
#Cornell University

IZA –GLM Conference on
Labor Markets in Western Africa: Evidence and Policy Lesson
Abidjan, Cote d'Ivoire
November 16-17, 2017

2000



2011

2013

2017 ???

Background

- Stylized Facts:
  - Africa's growth in the past decade and half has been impressive
  - 6/10 fastest growing economies in the world (2001-2014)

- However, growth has not been translated into sufficient level of poverty reduction
  - Widespread and persistent poverty (41%)
  - High income inequality—only 7% of income goes to the bottom 20% of the population

- Importantly, Africa's growth has been without "good" jobs

Background

- North African countries and South Africa grapple with high unemployment rates, particularly among youth.

- Lack high-quality remunerative ("good") jobs in SSA (Newman, et al. 2016)
  - Faced with limited number of "good" jobs, many in SSA create their own jobs in the informal sector (Household Enterprises)
  - 80% of non-farm employment is in HEs/informal sector (Fox and Sohnsen, 2012)
  - This led to the argument that "Informal is normal" (Fox and Gaal, 2008)

Background

- Informal jobs are low-quality in terms of wages, benefits, job security, basic worker rights, and often associated with poverty as they pay very little.
  - Nearly 82% of workers in African, mainly in the informal sector, are considered working poor as compared to the world average of 39% (Newman et al. 2016)
- At societal level, high concentration of informal sector employment undermines tax revenues, and the activities tend to stay small, have lower access to inputs, and are ineffective in formal business relationships (Jutting et al., 2009)
- The formal non-agricultural sector, on the other hand, represents a small fraction of employment
  - Only 15% of the labor force (including wage contract workers) (Fox et al., 2017).

Why it's important?

- In addition to its implication on poverty, Lack of "good" jobs has far-reaching consequences on the social and political fabrics of the continent
  - The "Arab Spring" in North Africa – lack of employment opportunities for the growing and increasingly educated youth (Malik and Awadallah, 2013).
  - A perilous journey of young Africans to Europe in search of "better lives."

CNN Regions » U.S. | Africa | Americas | Asia | China | Europe | Middle East | Opinion International Edition +

Exclusive report

People for sale

Where lives are auctioned for $400

By Nima Elbagir, Raja Razek, Alex Platt and Bryony Jones

Why it's important?

- The bottom-line:
  - Africa needs to transform its economy—moving people from low-productivity sectors (agriculture and informal sectors) into high-productive "modern" sectors.

The Challenges

- However, realizing faster structural transformation and high-quality employment creation could be difficult (Teal, 2011; Sen, 2016)
  - Without functioning and competitive factor (labor, land capital) and product markets
  - Prevalent market failures – credit market imperfections, human capital formation, etc.
  - Institutional and government failures

- The speed of structural transformation and, hence, high-quality jobs growth depends on the ease of labor mobility in response to productivity (wage) differentials

The Challenges

- In a frictionless labor market
  - Adjustments occurred instantaneously
  - Factors of production –land, labor, capital—would be allocated to the most productive activities
  - Workers move from farm to factories instantaneously and seamlessly

- In reality, labor market adjust adjustment is slow due to "sticky feet" distortions/frictions in labor markets, even when firms adjust faster (Hollweg et al., 2014), due to
  - Job search cost, geographic preference and relocation cost, family ties and social capital, psychological costs of changing jobs, etc.
  - Skill mismatches—skills of one industry may not be transferable to another
  - Severance and hiring costs
  - Labor regulations/conventions
  - Segmented labor markets (urban vs. rural, traditional vs. modern sectors, etc)

- Understanding the degree of labor market flexibility in Africa is essential to understanding the slow ST and "good" jobs growth.

The Literature and Gaps

- The literature on labor market flexibility/friction in Africa is voluminous:
  - Teal (2011); Tiffen (2003); Fox and Sohnesen (2012); Fox and Gaal (2008); Fox et al. (2017); Newman et al., (2016); Banerjee et al. (2008), etc.

- However, many of the studies in the literature:
  - Use highly aggregated data,
  - Cover shorter time spans that rarely correspond with the life-course of a typical worker and the long-term ST and growth processes, or
  - Focus on a single country

Contributions and Research question

- We shed some fresh light on this important topic, using individual-level data that covers the life-course of a typical worker in four major African countries—Egypt, Ethiopia, Nigeria, South Africa, which represent
  - 40 % of the population
  - 50% of Africa's GDP

- We investigate
  - The extent of long-term labor market transitions/flexibility ("Churning")
  - The relative degrees of labor market flexibility across major African economies

Data
and
Descriptive Statistics

Data

- Reliable and consistent individual-level employment data are often lacking in Africa.
  - Few countries carry out regular Labor Force Surveys (LFS), and censuses are often outdated, collected only decennially.

- We combine nationally representative micro-level datasets from Labor Force Surveys (LFSs) and harmonized Census Samples and General Household Living Standard surveys data from the IPUMS – International(U of Minnesota.)

- The combined repeated cross-section data cover about 30 million individuals born between 1932 and 2000, following cohorts of individuals over 20 year (early 1990s—2014/2015.)

Data

Table (3): Sample and data sources

Survey Year	Country	IPUMS	LFS	Pooled
1996	Egypt	4,797,998	-	4,797,998
2006	Egypt	4,733,066	-	4,733,066
2012	Egypt	-	195,488	195,488
2013	Egypt	-	179,692	179,692
1994	Ethiopia	4,630,117	-	4,630,117
1999	Ethiopia	-	156,174	156,174
2005	Ethiopia	-	148,018	148,018
2007	Ethiopia	4,158,631	-	4,158,631
2013	Ethiopia	-	116,497	116,497
				… cont'd

Data

…cont'd Table (3): Sample and data sources

Survey Year	Country	IPUMS	LFS	Pooled
2006	Nigeria	65,425	-	65,425
2007	Nigeria	62,934	-	62,934
2008	Nigeria	76,532	-	76,532
2009	Nigeria	53,608	-	53,608
2010	Nigeria	50,612	-	50,612
2014	Nigeria	-	267,575	267,575
2015	Nigeria	-	84,402	84,402
1996	South Africa	2,738,818	-	2,738,818
2001	South Africa	2,730,309	-	2,730,309
2007	South Africa	575,589	-	575,589
2008	South Africa	-	222,854	222,854
2009	South Africa	-	207,260	207,260
2010	South Africa	-	193,260	193,260
2011	South Africa	2,523,077	183,836	2,706,913
2012	South Africa	-	184,183	184,183
2013	South Africa	-	182,287	182,287
2014	South Africa	-	174,260	174,260
Total				29,692,502

Data
Labor Market Patterns

	Egypt				
	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%**
N					9,896,147

Labor Market Patterns

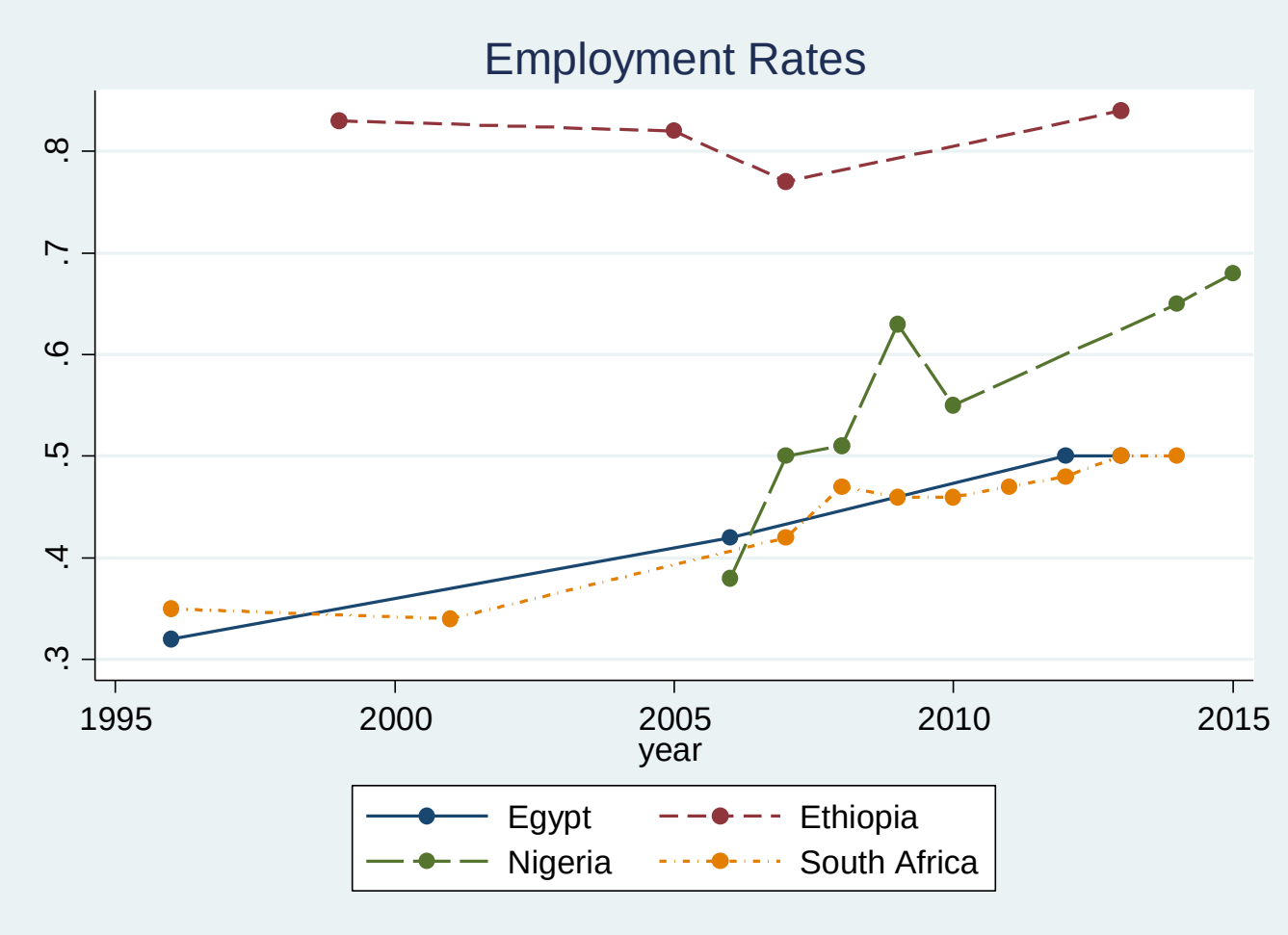
Nigeria								
	2006	2007	2008	2009	2010	2014	2015	Pooled
Employed	**38%**	**50%**	**51%**	**63%**	**55%**	**65%**	**68%**	**58%**
Self-Employed	89%	86%	88%	88%	.	90%	91%	89%
Wage/Salary	11%	14%	12%	12%	.	13%	12%	12%
Unemployed	**1%**	**2%**	**2%**	**1%**	**2%**	**8%**	**6%**	**5%**
Inactive	**60%**	**48%**	**46%**	**35%**	**43%**	**28%**	**25%**	**38%**
N								615,623

Labor Market Patterns

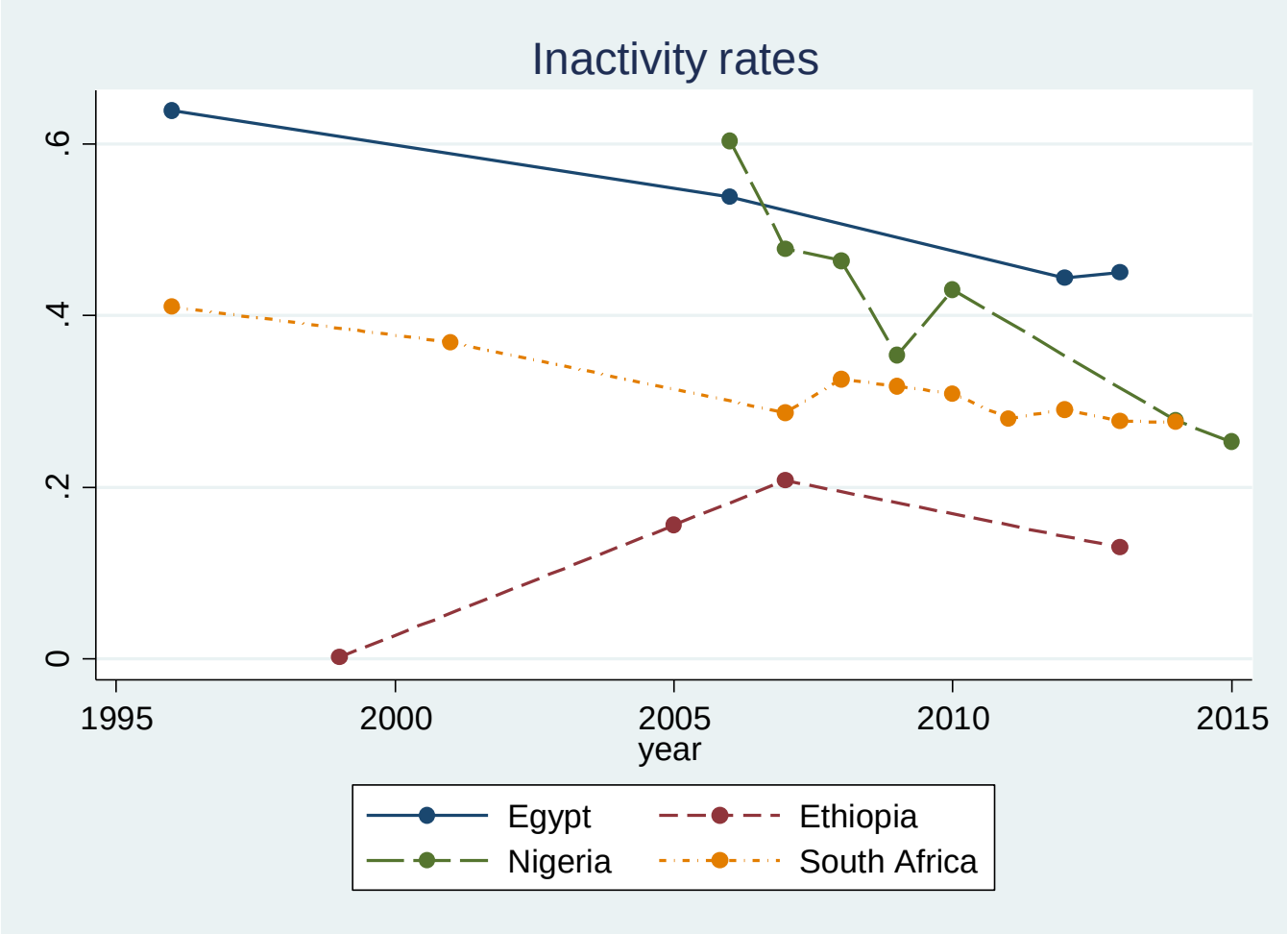
South Africa

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%**
N											8,508,415

Data
Labor Market Patterns



Data
Labor Market Patterns



Sectoral Distribution of Employment

	Egypt				
	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%
N					3,675,741.0

Sectoral Distribution of Employment

South Africa											
	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%
N											3,334,215

Labor Market Transitions
Empirical Approaches

Empirical Approaches

- We asses the degree of labor market transitions/flexibility by
  1) Estimating Transition Probabilities and Mobility Indices for each country
  2) Estimating True State Dependence in the labor markets using dynamic models accounting for observed and unobserved heterogeneity
  3) Analyzing the Relative labor market flexibility among major African countries

Empirical Approaches

1) Transition probabilities – the probability of moving across K labor market statuses between year $t-1$ and year t is given by the transition matrix

$$T_{i,j} = Pr\{S_t = i | S_{t-1} = j\}, \qquad (1)$$

where $\{i, j\}$ represents employment, unemployment and inactivity.

2) The Shorrocks (1987) mobility index m is given by

$$m = \frac{\left[K - trace(T_{i,j})\right]}{K-1}, \qquad (2)$$

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

Empirical Approaches

- The challenge: we do not have real panel data that follow individuals over a long period of time.

- Instead, we construct pseudo-panels using birth years, gender, and educational dummies.

- We use bootstrap sampling from each cohort cell to construct transition matrices and the associated mobility indices

$$T_{ij} = \frac{1}{R}\sum_{r=1}^{R} T_{ij}^{r} \qquad (3)$$

Empirical Approaches

- Transition matrices and mobility indices however have limitations:
  - Do not account for workers' characteristics that play critical roles in their decisions to move across the labor market (education, location of residence, age, gender, etc.)
  - Do not differentiate between spurious and true state dependence in the labor market.

Pseudo-Panel Econometrics Approach

- We implement dynamic Random Effects (RE) model following Papke and Wooldridge (2008) model of fractional response variables

- Accordingly, the generic dynamic fractional model using pseudo-panel data can be written as:

$$E(y_{ct}|X_{ct}, y_{ct-1}, \dots, y_{c0}, \alpha_c) = \Phi(X_{ct}\beta + \rho y_{ct-1} + \alpha_c), (4)$$

where $0 \leq y_{ct} \leq 1$ is the fractional individuals in labor market state (k), and X_{ct} is a vector of explanatory variables, β and ρ are coefficients to be estimated, and α_c is cohort specific unobserved heterogeneity term.

Pseudo-Panel Econometrics Approach

- Identification challenges:
  - Correlation beween y_{ct-1} and unobserved cohort heterogeneity term α_c
  - Correlation between and the initial labor market state y_{c0} , is which is rarely observed, and α_c

- We use Chamberlain—Mundlak (1987) approach to estimate

$$E(y_{ct}|X_{ct}, y_{c0}) = \Phi(X_{ct}\beta + \rho y_{ct-1} + \psi + \xi \bar{X}_c + \gamma y_{c0}) \ (5).$$

-

Results and Discussions

Long-term Labor Market Transition Probabilities

Egypt

		1996-2006			2006-2013		
		t			t		
		Employed	Unemployed	Inactive	Employed	Unemployed	Inactive
t-1	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**	0.30	0.05	**0.65**

Long-term Labor Market Transition Probabilities

Nigeria

		1996-2006			2006-2013		
		t			t		
		Employed	Unemployed	Inactive	Employed	Unemployed	Inactive
t-1	Employed	**0.41**	0.07	0.52	**0.78**	0.07	0.16
	Unemployed	0.40	**0.10**	0.50	0.66	**0.13**	0.21
	Inactive	0.26	0.03	**0.71**	0.57	0.11	**0.31**

Long-term Labor Market Transition Probabilities

South Africa

		1996-2006			2006-2013		
		t			t		
		Employed	Unemployed	Inactive	Employed	Unemployed	Inactive
t-1	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**	0.30	0.16	**0.53**

Shorrocks' (1987) Mobility Index

Egypt, Nigeria, and South Africa		
Egypt	1996-2006	2006-2013
	0.79	**0.72**
Nigeria	2007-2010	2006-2013
	0.89	**0.89**
South Africa	2001-2007	2007-2014
	0.87	**0.85**

Estimation Results and Discussions

Labor Market Participation

	Egypt					
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged Participation Rate	0.388***	0.272***	0.202***	0.224***	0.203***	0.0720
	(0.0196)	(0.0189)	(0.0173)	(0.0174)	(0.0222)	(0.220)
Lagged Participation Rate X [Male]						**-0.107*** **
						(0.0326)
Lagged Participation Rate X [Primary]						**0.0849*** **
						(0.0302)
Lagged Participation Rate X [Secondary]						**0.0780** **
						(0.0312)
Lagged Participation Rate X [University]						0.0406
						(0.0320)
Observations	1,147	1,147	1,147	1,147	1,143	1,143
Number of cohorts	579	579	579	579	575	575
Year FE	X	X	X	X	X	X
Demog. Char.	--	X	X	X	X	X
Birth Year	--	--	X	X	X	X
Educ. Dummies	--	--	--	X	X	X
Chamberlain Time-Means and Initial values	--	--	--	--	X	X
Interaction Terms	--	--	--	--	--	X

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Labor Market Participation

	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)	(0.0160)	(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 FE	X	X	X	X	X	X
Demog. Char.	--	X	X	X	X	X
Birth Year	--	--	X	X	X	X
Educ. Dummies	--	--	--	X	X	X
Chamberlain Time-Means and Initial values	--	--	--	--	X	X
Interaction Terms	--	--	--	--	--	X

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Labor Market Participation

	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 FE	X	X	X	X	X	X
Demog. Char.	--	X	X	X	X	X
Birth Year	--	--	X	X	X	X
Educ. Dummies	--	--	--	X	X	X
Chamberlain Time-Means and Initial values	--	--	--	--	X	X
Interaction Terms	--	--	--	--	--	X

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Labor Market Participation

Pooled (Egypt, Nigeria, South Africa)					
	(1)	(2)	(3)	(4)	(5)
Lagged Participation Rate	0.767***	0.721***	0.652***	0.659***	0.550***
	(0.0156)	(0.0174)	(0.0171)	(0.0171)	(0.0186)
Lagged Participation Rate X [Nigeria]	**-0.230*** **	**-0.284*** **	**-0.188*** **	**-0.182*** **	**-0.118*** **
	(0.0202)	(0.0231)	(0.0225)	(0.0225)	(0.0205)
Lagged Participation Rate X [South Africa]	0.000516	-0.0695***	-0.0978***	-0.0967***	0.0284
	(0.0201)	(0.0263)	(0.0252)	(0.0252)	(0.0241)
Nigeria	0.217***	0.279***	0.308***	0.302***	0.316***
	(0.0154)	(0.0227)	(0.0222)	(0.0222)	(0.0220)
South Africa	-0.0336**	0.0888***	0.177***	0.176***	0.0438
	(0.0131)	(0.0218)	(0.0216)	(0.0215)	(0.0449)
Observations	7,882	5,641	5,641	5,641	5,441
Number of cohorts	1,759	1,759	1,759	1,759	1,638
Year FE	X	X	X	X	X
Demog. Char.	--	X	X	X	X
Birth Year	--	--	X	X	X
Educ. Dummies	--	--	--	X	X
Chamberlain Time-Means and Initial values	--	--	--	--	X

Standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Employment

	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 Participation Rate X [University]						0.0485
						(0.0336)
Observations	1,147	1,147	1,147	1,147	1,143	1,143
Number of _ID	579	579	579	579	575	575
Year FE	X	X	X	X	X	X
Demog. Char.	--	X	X	X	X	X
Birth Year	--	--	X	X	X	X
Educ. Dummies	--	--	--	X	X	X
Chamberlain Time-Means and Initial values	--	--	--	--	X	X
Interaction Terms	--	--	--	--	--	X

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Employment

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)	(0.0170)	(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 _ID	590	590	590	590	563	563
Year FE	X	X	X	X	X	X
Demog. Char.	--	X	X	X	X	X
Birth Year	--	--	X	X	X	X
Educ. Dummies	--	--	--	X	X	X
Chamberlain Time-Means and Initial values	--	--	--	--	X	X
Interaction Terms	--	--	--	--	--	X

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Employment

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)	(0.0190)	(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 _ID	590	590	590	590	500	500
Year FE	X	X	X	X	X	X
Demog. Char.	--	X	X	X	X	X
Birth Year	--	X	X	X	X	X
Educ. Dummies	--	--	--	X	X	X
Chamberlain Time-Means and Initial values	--	--	--	--	X	X
Interaction Terms	--	--	--	--	--	X

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Self-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)	(0.0280)	(0.0288)	(0.0727)
Lagged Self-Employment Rate X [Male]						**-0.190*** **
						(0.0476)
Lagged Self-Employment Rate X [Primary]						0.0540
						(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 _ID	504	504	504	504	491	491
Year FE	X	X	X	X	X	X
Demog. Char.	--	X	X	X	X	X
Birth Year	--	--	X	X	X	X
Educ. Dummies	--	--	--	X	X	X
Chamberlain Time-Means and Initial values	--	--	--	--	X	X
Interaction Terms	--	--	--	--	--	X

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Self-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 _ID	584	584	584	584	501	501
Year FE	X	X	X	X	X	X
Demog. Char.	--	X	X	X	X	X
Birth Year	--	--	X	X	X	X
Educ. Dummies	--	--	X	X	X	X
Chamberlain Time-Means and Initial values	--	--	--	--	X	X
Interaction Terms	--	--	--	--	--	X

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Self-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)	(0.0400)	(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]						-0.0170
						(0.0939)
Observations	3,413	1,347	1,347	1,347	1,211	1,211
Number of _ID	585	558	558	558	468	468
Year FE	X	X	X	X	X	X
Demog. Char.	--	X	--	X	X	X
Birth Year	--	--	X	X	X	X
Educ. Dummies	--	--	--	X	X	X
Chamberlain Time-Means and Initial values	--	--	--	--	X	X
Interaction Terms	--	--	--	--	--	X

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Self-Employment

	Pooled				
	(1)	(2)	(3)	(4)	(5)
Lagged Self-Employment Rate	0.723***	0.811***	0.790***	0.773***	0.676***
	(0.0233)	(0.0270)	(0.0267)	(0.0261)	(0.0267)
Lagged Self-Employment Rate X [Nigeria]	-0.256***	-0.380***	-0.372***	-0.478***	**-0.558*** **
	(0.0299)	(0.0334)	(0.0330)	(0.0328)	(0.0351)
Lagged Self-Employment Rate X [South Africa]	-0.535***	-0.431***	-0.464***	-0.392***	**-0.161*** **
	(0.0301)	(0.0424)	(0.0419)	(0.0411)	(0.0468)
Nigeria	0.150***	0.269***	0.254***	0.342***	0.240***
	(0.0201)	(0.0263)	(0.0276)	(0.0275)	(0.0275)
South Africa	-0.137***	0.0558***	0.0570***	0.0624***	0.433***
	(0.0111)	(0.0197)	(0.0204)	(0.0199)	(0.0514)
Observations	6,316	4,250	4,250	4,250	3,961
Number of _IDall	1,673	1,646	1,646	1,646	1,460
Year FE	X	X	X	X	X
Demog. Char.	--	X	X	X	X
Birth Year	--	--	X	X	X
Educ. Dummies	--	--	--	X	X
Chamberlain Time-Means and Initial values	--	--	--	--	X

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Sector of employment

Services: Egypt

	(1)	(2)	(3)	(4)	(5)
Lagged: Employment in Agriculture	-0.481***	-0.317***	-0.247***	-0.295***	-0.0595
	(0.0679)	(0.0697)	(0.0686)	(0.0709)	(0.0685)
Lagged: Employment in Service	0.0792	0.216***	0.253***	0.163***	-0.0133
	(0.0575)	(0.0608)	(0.0608)	(0.0621)	(0.0617)
Observations	1,054	1,054	1,054	1,054	1,050
Number of cohort	564	564	564	564	560
Year FE	X	X	X	X	X
Demog. Char.	--	X	--	X	X
Birth Year	--	--	X	X	X
Educ. Dummies	--	--	--	X	X
Chamberlain Time-Means and Initial values	--	--	--	--	X
Interaction Terms	--	--	--	--	--

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Sector of employment

Services: Nigeria

	(1)	(2)	(3)	(4)	(5)
Lagged: Employment in Agriculture	-0.170***	-0.170***	-0.159***	0.0770**	**0.107*** **
	(0.0378)	(0.0371)	(0.0370)	(0.0361)	(0.0371)
Lagged: Employment in Service	0.205***	0.143***	0.134***	0.108***	**0.115*** **
	(0.0388)	(0.0382)	(0.0382)	(0.0353)	(0.0361)
Observations	3,015	3,015	3,015	3,015	2,962
Number of _ID	589	589	589	589	563
Year FE	X	X	X	X	X
Demog. Char.	--	X	--	X	X
Birth Year	--	--	X	X	X
Educ. Dummies	--	--	--	X	X
Chamberlain Time-Means and Initial values	--	--	--	--	X

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Sector of employment

Services: South Africa

	(1)	(2)	(3)	(4)	(5)
Lagged: Employment in Agriculture	-0.135***	-0.273***	-0.126**	-0.115*	**-0.117***
	(0.0395)	(0.0675)	(0.0627)	(0.0632)	(0.0656)
Lagged: Employment in Service	0.258***	0.224***	0.369***	0.251***	**0.230*** **
	(0.0259)	(0.0500)	(0.0466)	(0.0491)	(0.0498)
Observations	3,471	1,356	1,356	1,356	1,334
Number of _ID	590	568	568	568	550
Year FE	X	X	X	X	X
Demog. Char.	--	X	--	X	X
Birth Year	--	--	X	X	X
Educ. Dummies	--	--	--	X	X
Chamberlain Time-Means and Initial values	--	--	--	--	X
Interaction Terms	--	--	--	--	--

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Sector of employment

Services: Pooled

	(1)	(2)	(3)	(4)	(5)
Lagged: Employment in Agriculture	-0.523***	-0.592***	-0.555***	-0.492***	-0.454***
	(0.0599)	(0.0611)	(0.0605)	(0.0596)	(0.0562)
Lagged: Employment in Service	0.188***	0.119**	0.136***	0.0794	-0.0941*
	(0.0510)	(0.0519)	(0.0516)	(0.0509)	(0.0490)
Lagged: Employment in Agriculture X [Nigeria]	0.427***	0.531***	0.499***	0.550***	**0.620*** **
	(0.0708)	(0.0713)	(0.0706)	(0.0695)	(0.0676)
Lagged: Employment in Agriculture X [South Africa]	0.353***	0.353***	0.383***	0.448***	**0.424*** **
	(0.0729)	(0.0931)	(0.0919)	(0.0896)	(0.0906)
Lagged: Employment in Service X [Nigeria]	-0.0594	0.00681	-0.00665	0.0436	**0.312*** **
	(0.0636)	(0.0633)	(0.0629)	(0.0619)	(0.0619)
Lagged: Employment in Service X [South Africa]	0.0658	0.164**	0.192***	0.114*	**0.381*** **
	(0.0578)	(0.0699)	(0.0692)	(0.0676)	(0.0671)
Nigeria	-0.0890	-0.117*	-0.0848	-0.143**	-0.250***
	(0.0578)	(0.0615)	(0.0620)	(0.0610)	(0.0608)
South Africa	-0.0346	-0.158**	-0.176***	-0.129**	-0.721***
	(0.0500)	(0.0620)	(0.0618)	(0.0603)	(0.0809)
Observations	7,540	5,425	5,425	5,425	5,026
Number of cohorts	1,743	1,721	1,721	1,721	1,527
Year FE	X	X	X	X	X
Demog. Char.	--	X	X	X	X
Birth Year	--	--	X	X	X
Educ. Dummies	--	--	--	X	X
Chamberlain Time-Means and Initial values	--	--	--	--	X

Brief Discussions

- Long-term labor market mobility has declined for Egypt and South Africa, while remaining unchanged in Nigeria.

- We found significant long-term rigidities in
  - Entering the labor market – participation rates
  - Between employment and unemployed

- However, we found relative flexibility in informal sector employment in Nigeria and South Africa compared to Egypt.

Brief Discussions

- We found relative flexibility in labor mobility across the broader sectors of services and agriculture in Egypt compared to Nigeria and South Africa

- But there is evidence of segmentation between agriculture and services sectors in South Africa.

- We also found that relative to females, males tend to move between labor market statuses in Egypt and Nigeria with ease

- Moreover, in Egypt and in Nigeria, labor market rigidities are higher for workers with only primary and secondary education compared to workers with no education or with university level education