

# Who pays? The distributional impact of slowing economic growth in Latin American labor markets

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# Assessing the vulnerability of employment across worker types

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This paper provides new **descriptive** evidence that formal employment is more volatile for low-wage (and low-skill) workers.

We look at how **employment patterns**, in particular flows between formality and informality, **how these differ across the wage and skill distribution**, and how they respond to **macroeconomic fluctuations**,

**Why labor transitions?** Transitions in/out of employment and across sectors are indicators of upward mobility, income volatility, job creation, and job destruction

We aim to answer two questions:

- 1) How do labor transitions differ across the wage and skill distributions?
- 2) What is the relationship between the business cycle and the employment patterns across the distribution? Are some types of transitions or for some workers more volatile than others?

# Related work

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- Employment volatility has been found to be higher for low-skill and younger workers in high income countries (Teulings 1993; Devereux 2004) as well as in developing countries (Freije, Lopez-Acevedo & Rodriguez-Oreggia 2011; Campos-Vazquez 2010).
  - more experienced workers may have higher productivity and require costly reinvestment by the firm to replace (Jovanovic 1979)
  - Robertson and Dutkowsky (2002) find that adjustment costs in the manufacturing sector in Mexico are higher for non-production workers (typically these are higher wage workers), for workers with more job-specific training, and for workers in more unionized sectors.
- An important caveat: high levels of informality in Latin America →
  - High informality and strong protections in the formal sector imply large differences in employers' adjustment costs between the two types of jobs.
  - Bosch and Maloney (2008) find countercyclical unemployment in Brazil and Mexico is driven by significant job separations of informal workers during recessions rather than separations from formal employment. They also find decreasing hires in the formal sector during downturns.
  - Bosch & Esteban-Pretel (2012) find that the cyclical variability of unemployment is mostly explained by changes in the separation rate of informal workers, while the cyclical variability of the formal employment share is explained by changes in the transition rate from informal to formal jobs.

# Data

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- We use harmonized labor force panels for Argentina, Brazil, Ecuador, Mexico, and Peru
  - LABLAC database (CEDLAS and the World Bank)
  - The analysis is limited to urban workers only

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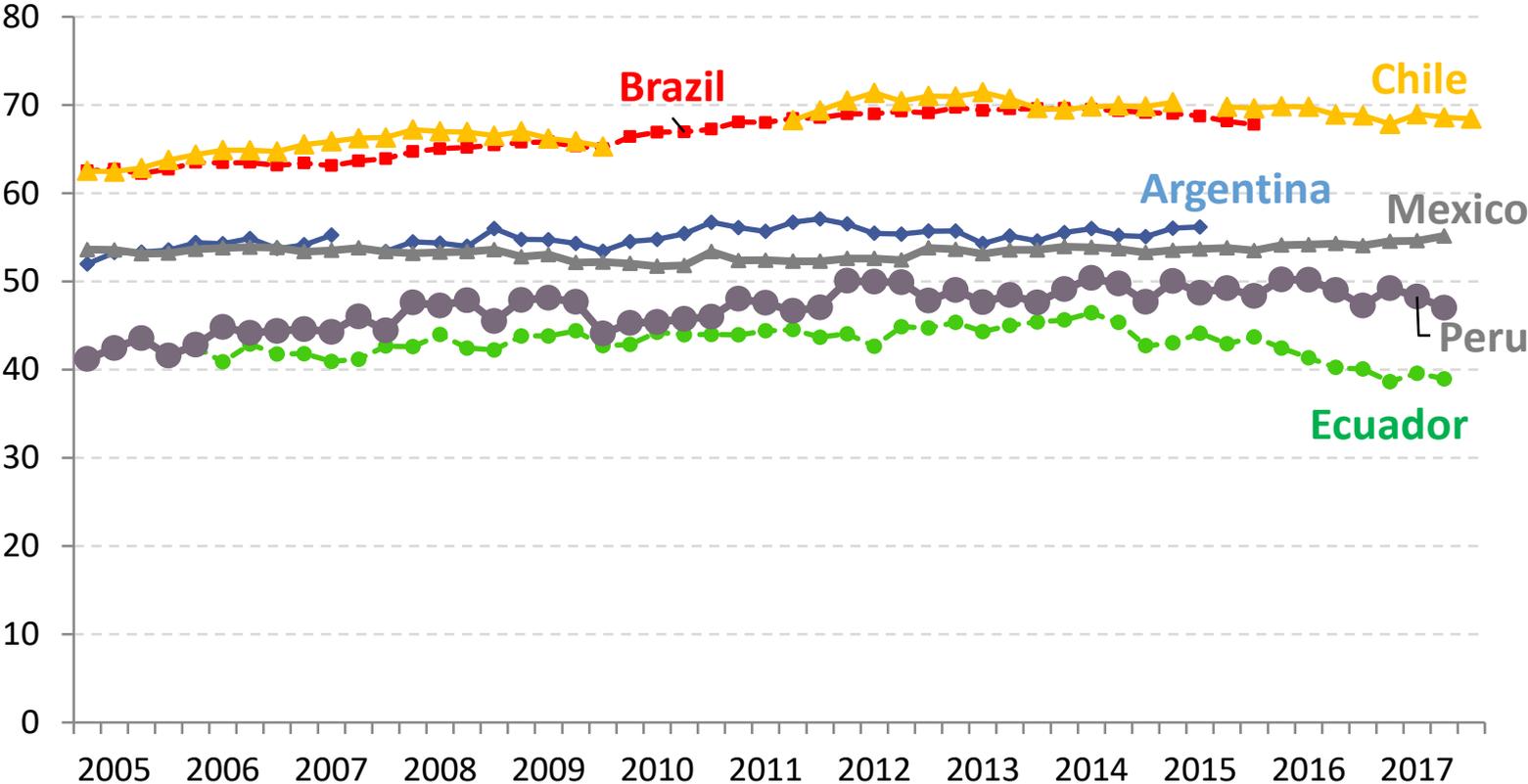
	Quarters	Observations	Mean
Argentina	38	501,980	13,210
Brazil	43	2,036,271	47,355
Chile	38	1,539,198	40,505
Ecuador	41	189,038	4,611
Mexico	49	4,716,391	96,253
Peru	49	187,920	3,835

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- We create quarterly panels for each country by linking across individuals between the ages of 15 and 64 from consecutive surveys between the years 2005Q1 and 2017Q4
- We proxy for informality using employer-type: self-employment and small firms

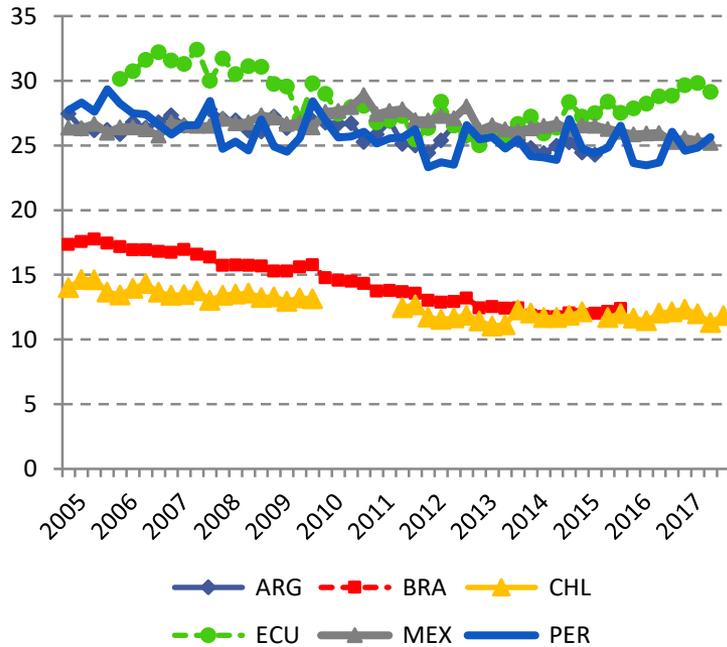
# Formal employment in private sector ranges from 40% to 70% of workers (urban areas)

Employed in large firm, more than 5 employees (% employed, private sector)

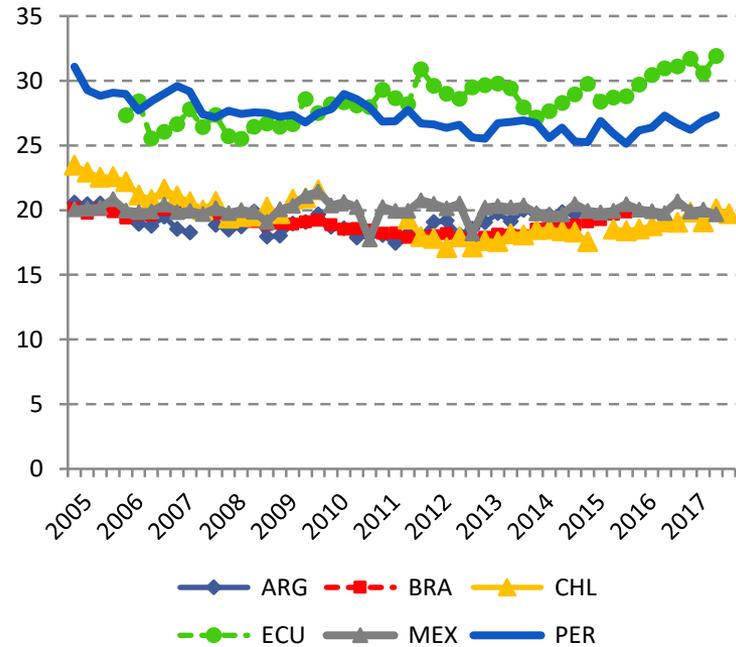


# Informality is a mix between self-employment and employment in small firms

## SMALL FIRM (5 OR FEWER)



## SELF-EMPLOYMENT



# Types of transitions

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Five types of transitions (staying and 4 possible changes) per initial condition

$t$	$t+1$
Large firm	Large firm
Small firm	Small firm
Self-employment	Self-employment
Unemployed	Unemployed
Out of labor force	Out of labor force

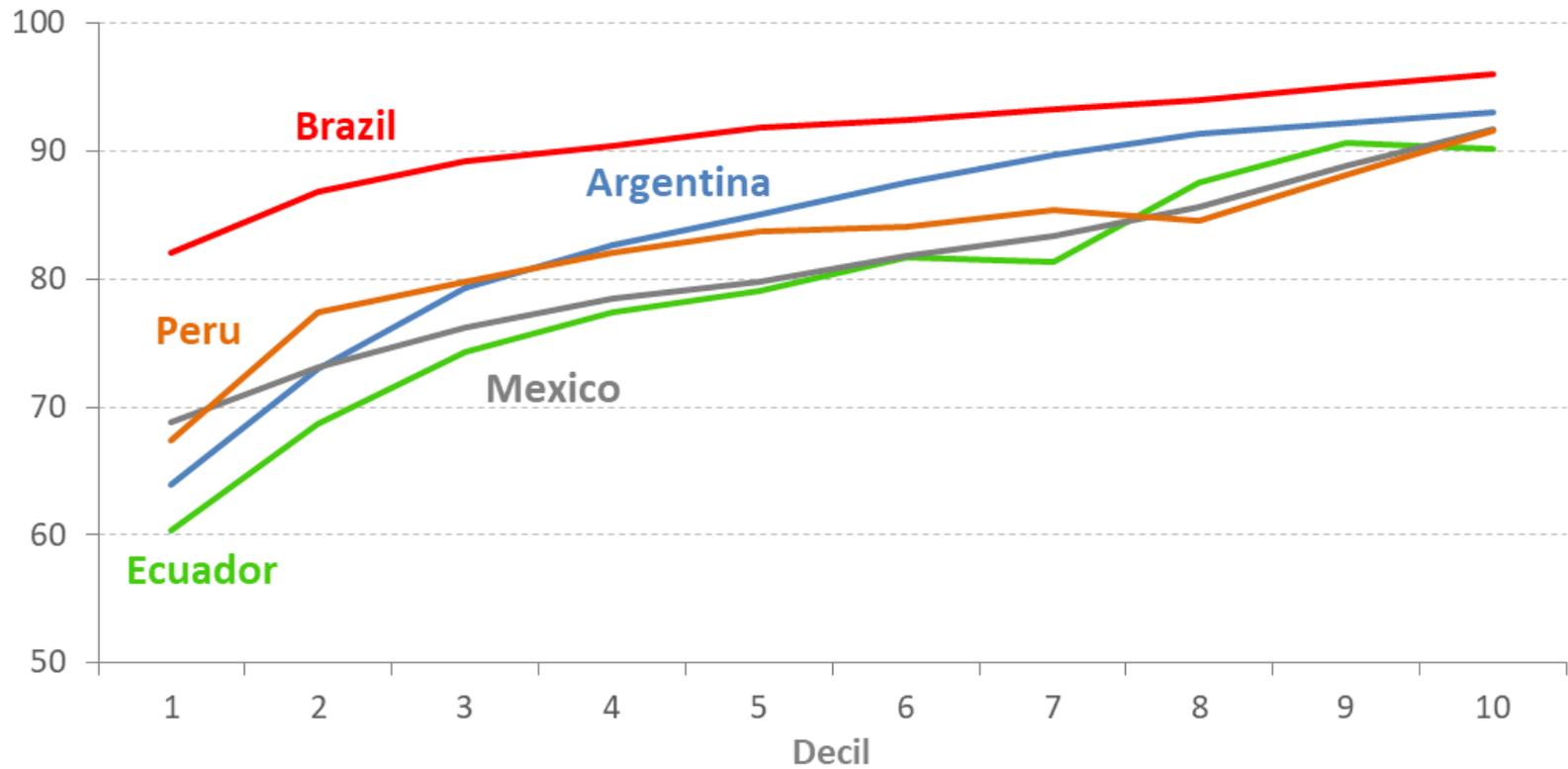
# The distribution of transitions into and out of formality

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THREE MESSAGES FROM THE DESCRIPTIVE ANALYSIS

# #1: Transitions by wage decile: Low-income formal workers are less likely to remain formal...

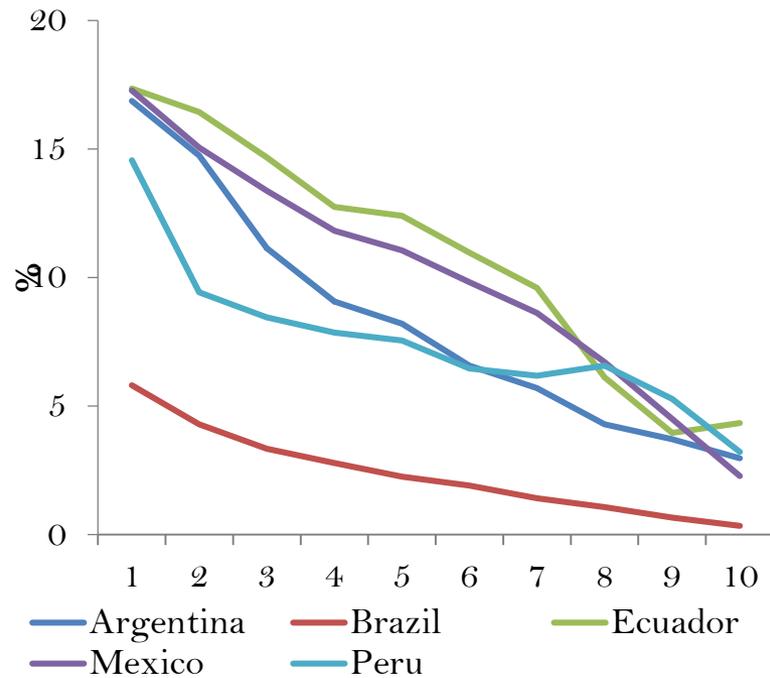
% of workers in **large firms**  
remaining in **large firms**



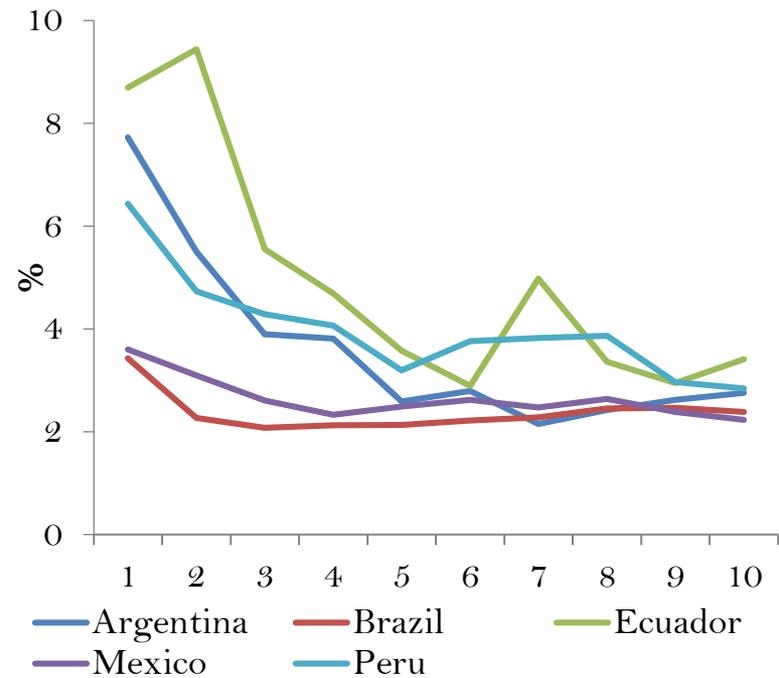
\*results are for men only

## ... and more likely to become informal

% of workers in **large firms** that transition into **small firms**



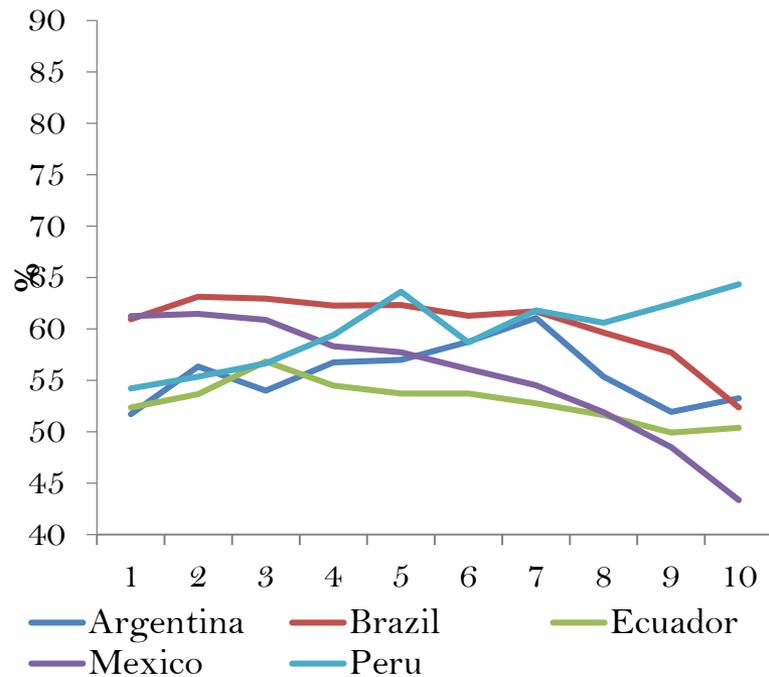
% of workers in **large firms** that transition into **self-employed**



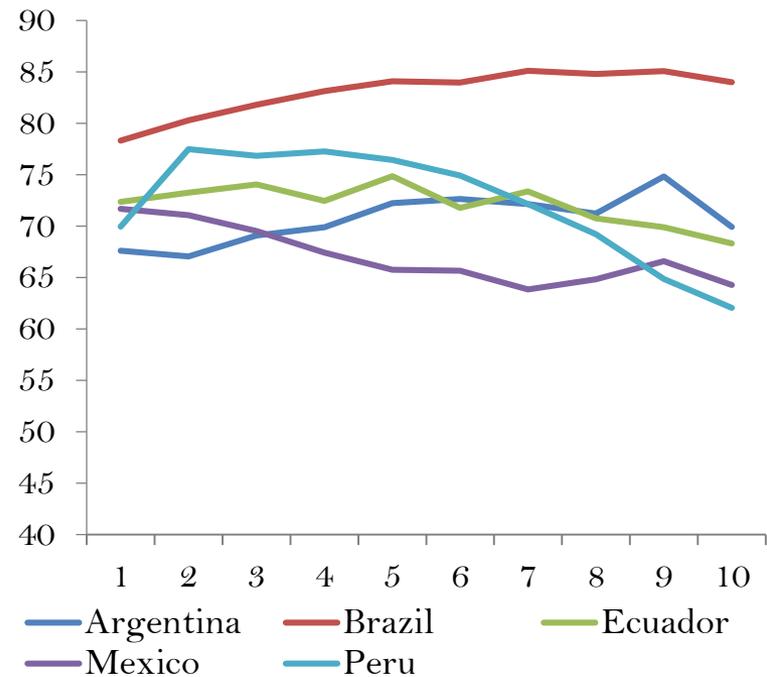
\*results are for men only

## #2: Low-wage workers have lower or similar employment volatility as other workers in informal employment

% of workers in **small firms** remaining in **small firms**



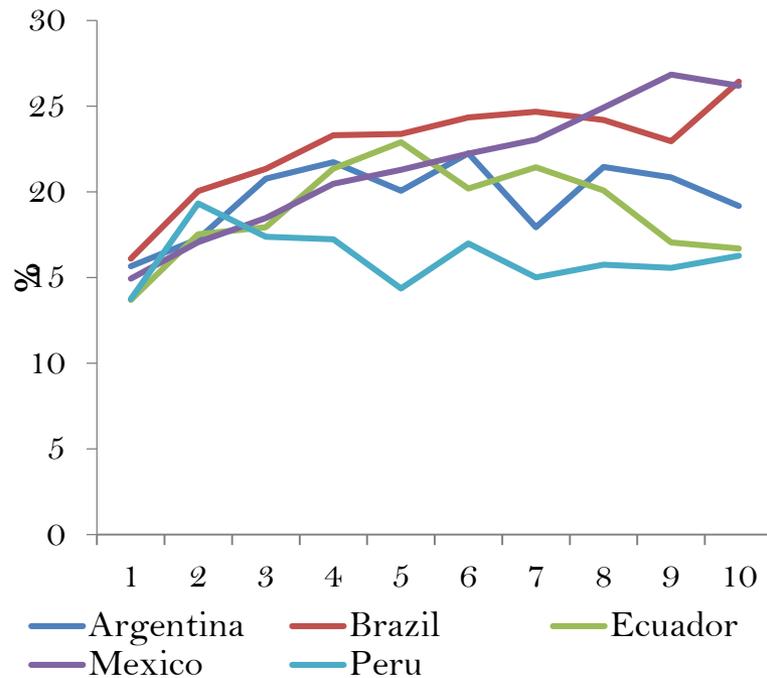
% of **self-employed** workers remaining **self-employed**



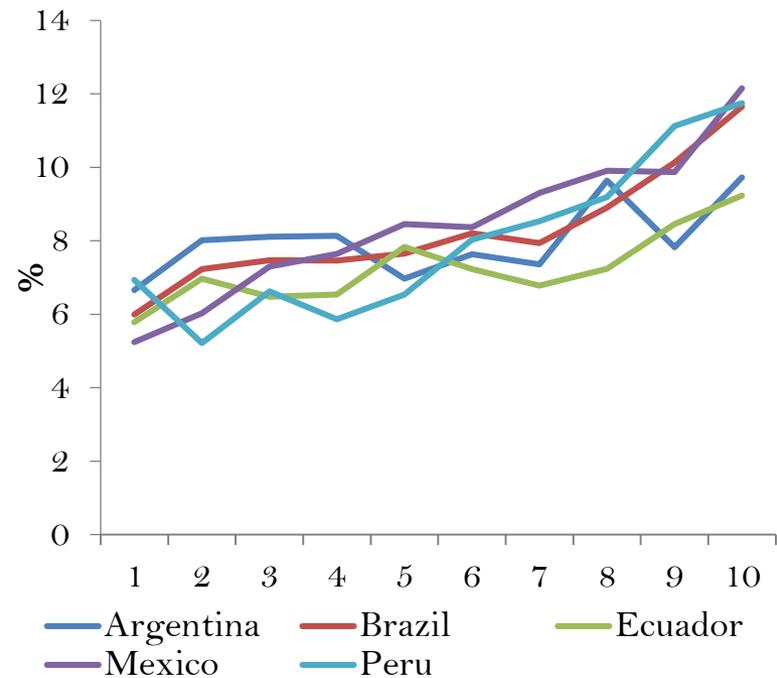
\*results are for men only

# #3: Transitions into formality are less likely for low-wage workers

% of **small firm** workers who joined a **large firm**



% of **self-employed** workers who joined a **large firm**



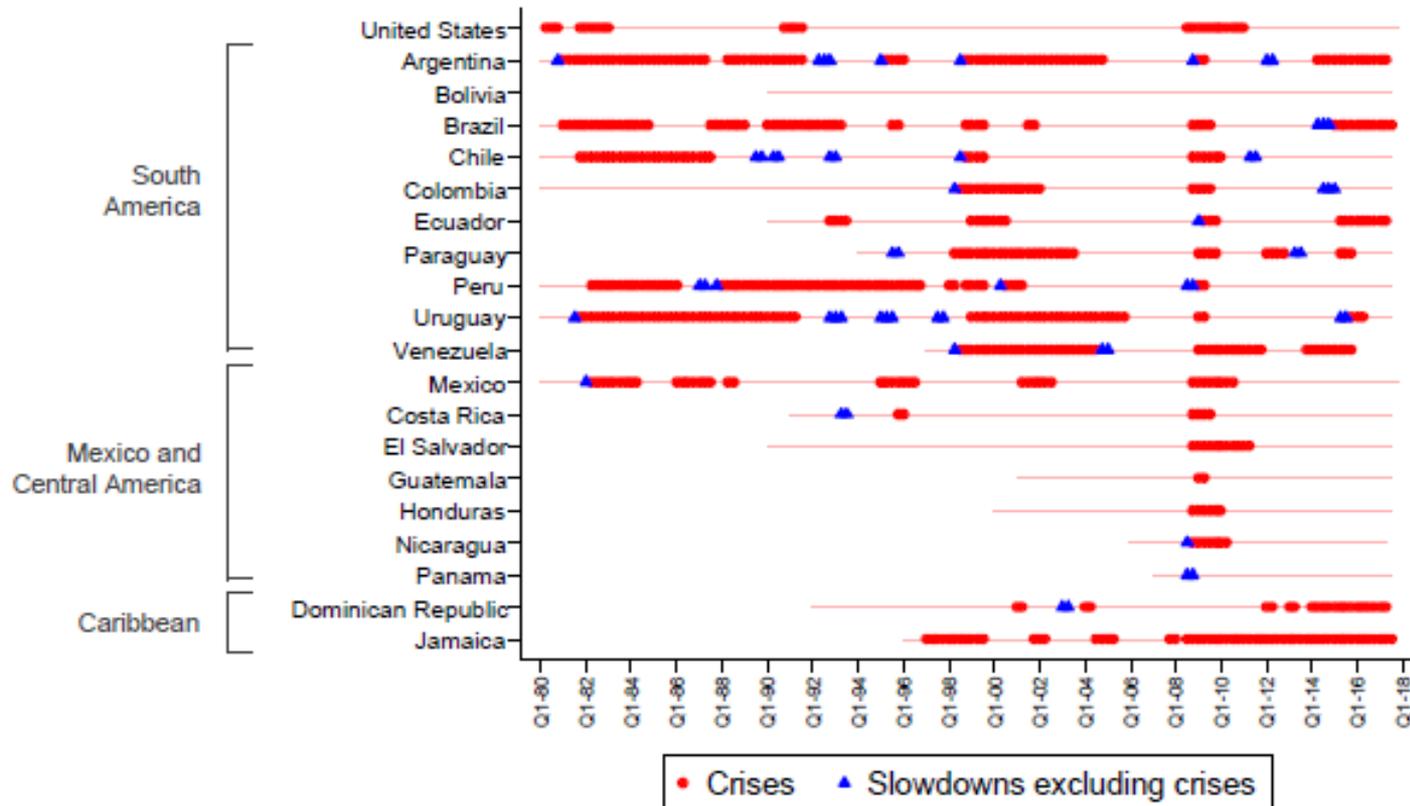
\*results are for men only

Are some types of transitions more cyclical than others? Are some workers more exposed to cyclical shocks than others?

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WORK IN PROGRESS

# Growth in Latin America is highly volatile



*Note:* Following Vuletin and Vegh (2014), a crisis is defined as beginning in the quarter in which real GDP falls below the preceding 4-quarter moving average and ending in the quarter in which real GDP reaches the pre-crisis level. Following Hausmann, Pritchett, and Rodrik (2005) and Eichengreen, Park, and Shin (2013), we identify an episode as a growth slowdown if GDP *growth* fell below the four-quarter moving average by at least 2 percentage points.

*Source:* Silva, Sousa, and Robertson (forthcoming). Calculations using International Financial Statistics and CEPAL.

# Measuring cyclicity in labor transitions

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1. Construct growth cycle by seasonally adjusting and detrending official quarterly GDP series
2. Construct quarterly transition series (Percent of relevant population that experienced the transition per quarter)
3. Estimate correlation between growth cycle and transition series
  - **Procyclical:** positive correlation with business cycle
  - **Countercyclical:** negative correlation with business cycle
4. Estimate correlation separately for positive and negative growth quarters
  - **Symmetry:** Does correlation change between downturn and growth?



# Measuring cyclicality in labor transitions across worker types

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Employment identified in **three initial** conditions, with **five possible transitions** each:

1. Large firms (firms with more than 5 workers)
2. Small firms (firms with 5 or fewer workers)
3. Self-employment
4. Unemployment
5. Out of labor force

Workers are stratified by **gender** – all analysis is either for men or women.

Within each gender, there are **two stratifications** to get at the distributional effect of growth:

1. Wage quintiles (5 groups), and
2. Skill groups:
  - Less than secondary complete
  - Secondary complete (and some university)
  - Tertiary complete

# Measuring cyclicity in labor transitions

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We adapt the methodology of Moscarini and Postel-Vinay (2012)

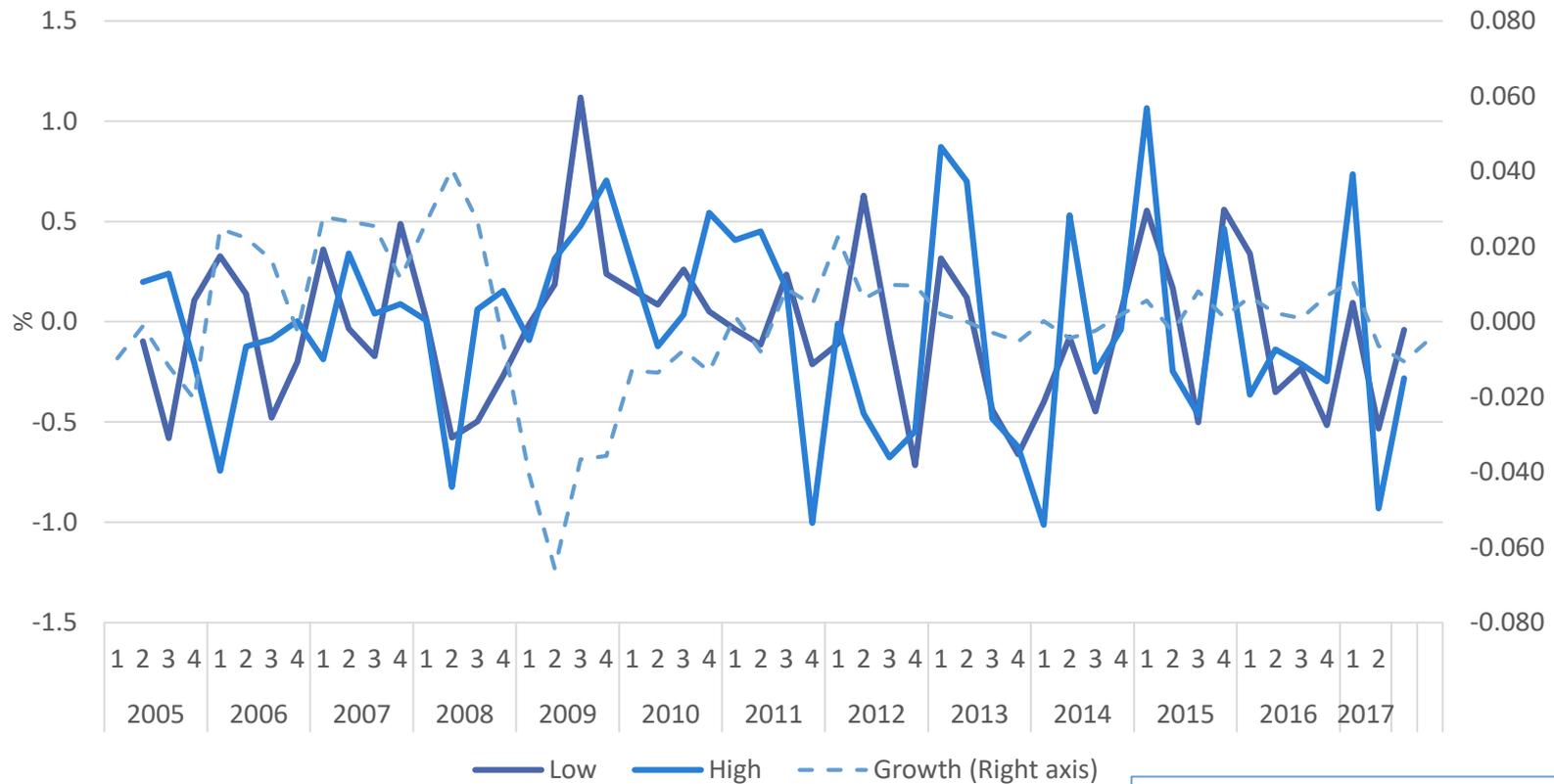
1. Construct growth series: growth cycle by seasonally adjusting and detrending official quarterly GDP series (national level)
2. Construct quarterly transition series (percent of relevant population that experienced the transition per quarter)
  - Detrend: Apply seasonal adjustment and HP filter – to split into trend and cyclical components
  - Estimate a differential transition rate (relative to middle group):

$$g(T_{j/k,q}^t) = T_{j/k,q}^t - T_{j/k,q=3}^t \text{ for } q \in \{1,2,4,5\}$$

3. **Correlation** between growth components and the components of the differential transition rate: A positive (negative) correlation means that  $T_{j/k,q}$  outgrows  $T_{j/k,q=3}$  as  $c$  increases (decreases). That is, that the gap between workers in  $q$  and  $q=3$  is growing.

# Example: Likelihood of moving from employed in a large firm to self-employed, men in Mexico, by skill level

## Differential growth vs GDP cycle



**Correlation:**  
 Low educ: **-0.408**  
 High educ: **-0.208**

# Results: Remaining formal and exits from formality

*Brazil's transitions have the strongest cyclical correlations*

	Educ	Argentina	Brazil	Ecuador	Me	
Transition: Large firm to large firm	Low	-0.286	<b>0.325</b>	-0.162	0.000	Stayers are procyclical
	High	-0.086	<b>0.348</b>	-0.223	0.200	
Transition: Large firm to small firm	Low	0.161	0.019	0.262	-0.100	Weak correlation with transitions to small firms
	High	0.043	-0.150	0.122	-0.000	
Transition: Large firm to self-employed	Low	0.059	<b>-0.321</b>	0.010	<b>-0.400</b>	Transitions to self-empl are counter-cyclical
	High	-0.093	<b>-0.335</b>	0.159	-0.100	
Transition: Large firm to unemployed	Low	-0.003	-0.281	-0.119	0.000	
	High	-0.097	-0.202	-0.033	-0.100	
Transition: Large firm to inactive	Low	<b>0.316</b>	-0.264	-0.099	0.080	-0.008
	High	<b>0.412</b>	<b>-0.353</b>	0.151	-0.132	-0.072

# Conclusions

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1. Descriptive evidence suggests that employment in large firms is more volatile or tenuous for low-wage workers. They are more likely to leave large firms and less likely to enter large firms.
  - We do not see the same pattern for employment in small firms and for self-employment
2. In general, transitions into formality are procyclical. Transitions into informality are not as cyclical.
3. Preliminary analysis suggests that cyclical shocks may have more disproportionate effects on workers in Brazil, and to a lesser extent Mexico, than in the other countries of analysis.
4. More work needs to be done to improve cyclical analysis and to understand drivers of the differences between the countries.