

Could an upstart competitor overtake the Chinese?

A comparison of Chinese and Mexican firms

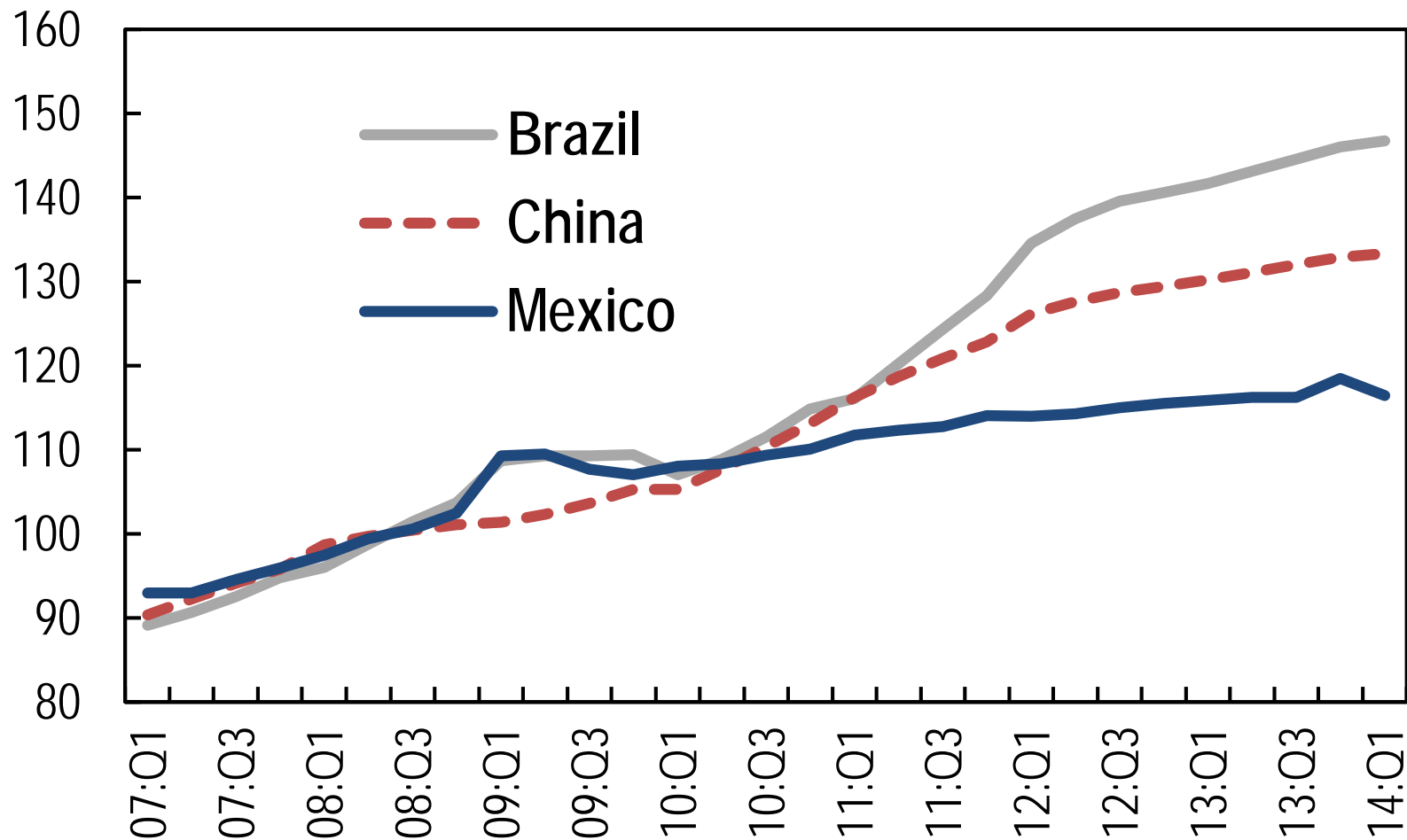
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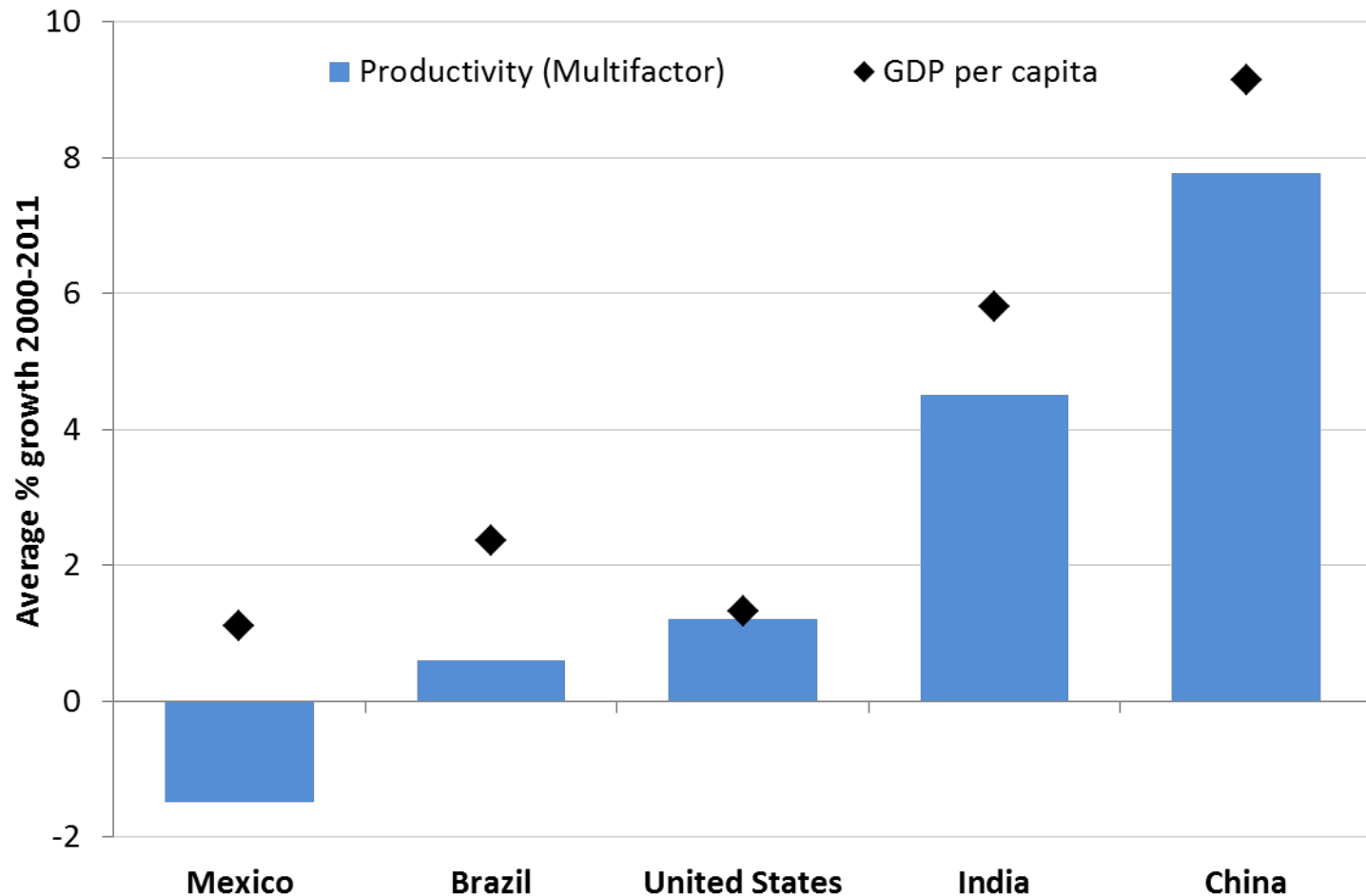
Outline of paper

- **China versus Mexico?**
 - Unit Labour Costs and aggregate TFP
 - The distribution of employment by firm size
 - Informality
- **Let's look at TFP**
- **Data and empirical strategy**
- **Results**

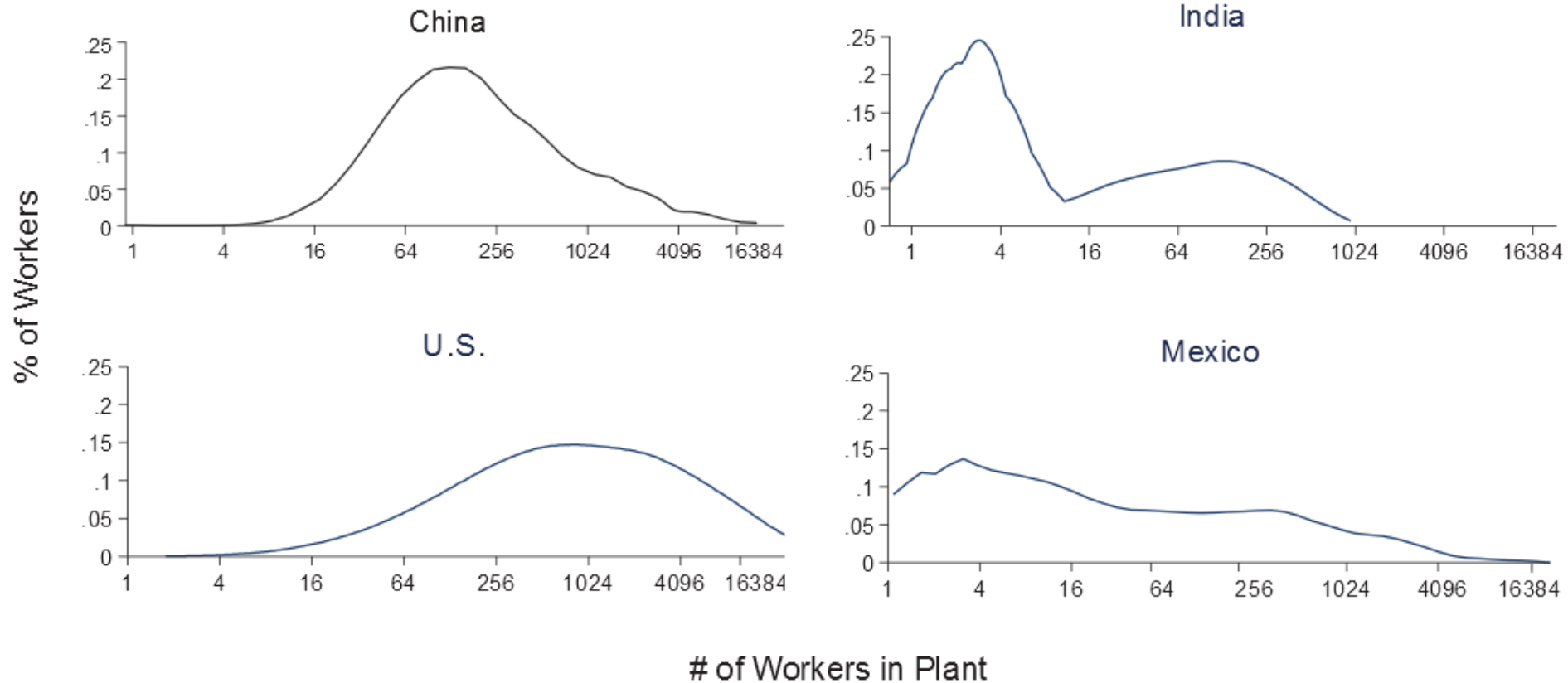
Mexico's Unit Labour Cost rises have been mild



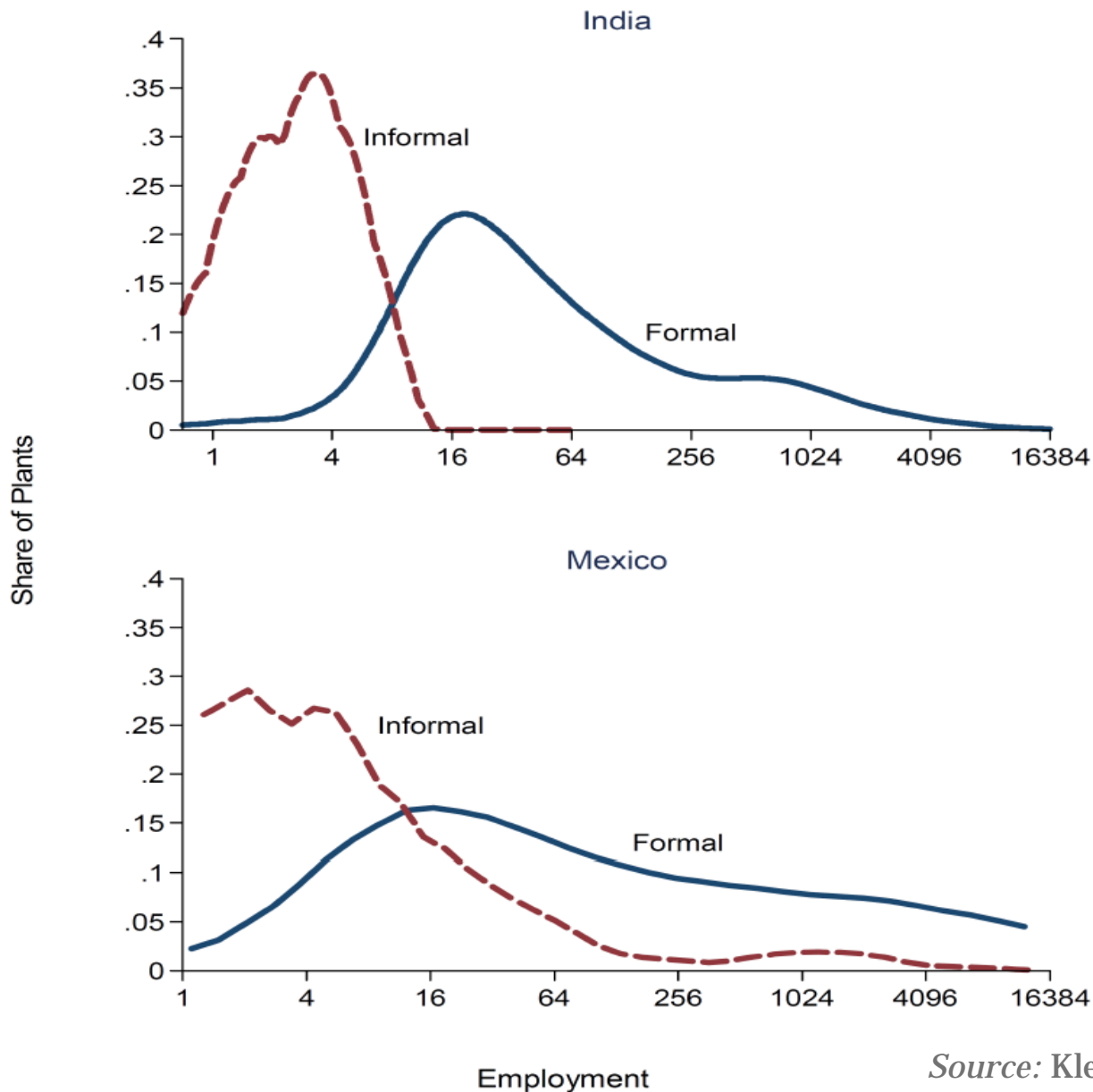
Mexico's TFP growth has been sluggish



The employment distribution by firm size is skewed



Informality and firm size are tightly intertwined



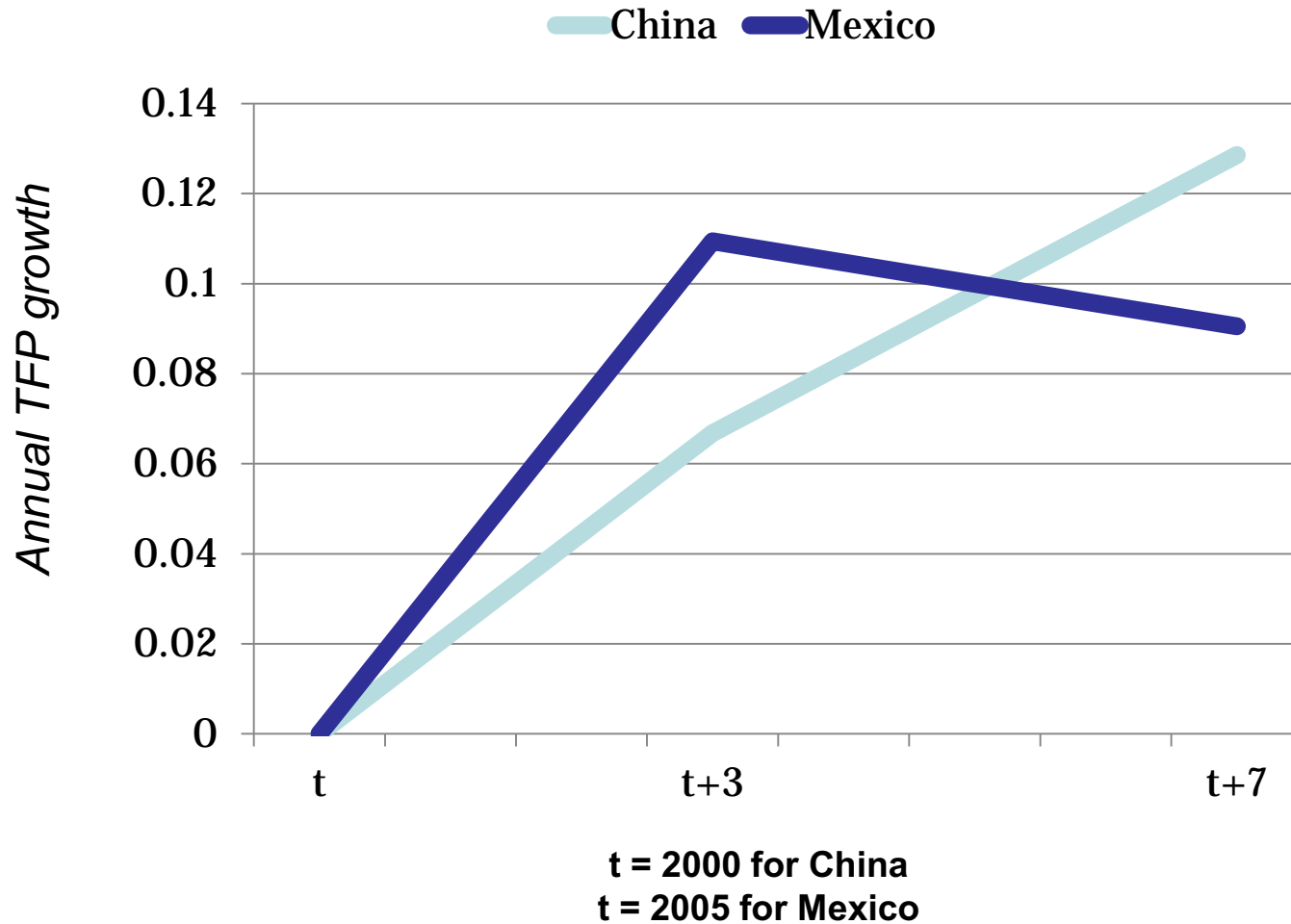
Calculating TFP

We use these data to calculate plant's TFP as its logged output minus a weighted sum of its logged capital, labour, and intermediate inputs:

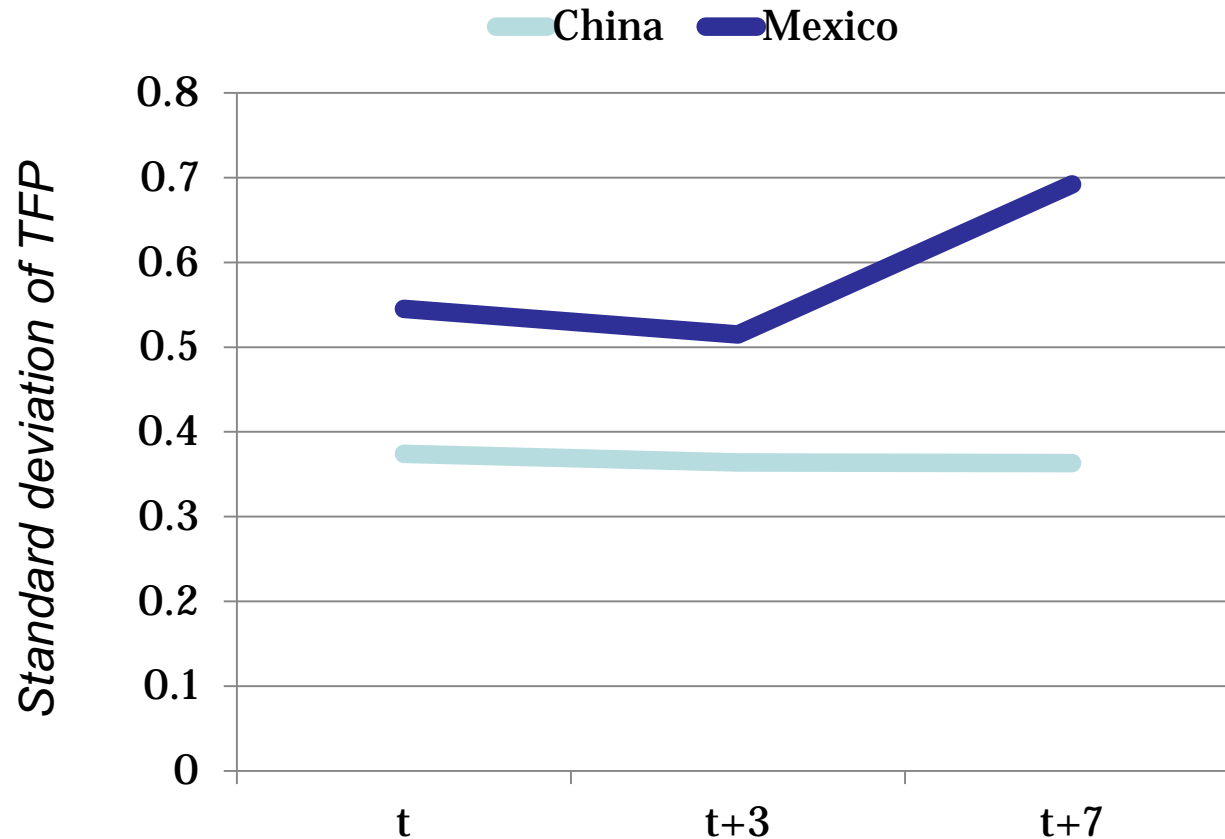
$$TFP = \ln(Y) - \alpha_K \ln(K) - \alpha_L \ln(L) - \alpha_M \ln(M) \quad (1)$$

where the weights α_j are each input $j \in \{K, L, M\}$ elasticities. To measure these elasticities, we use industry-level input cost shares. We compute cost shares, at NAICS 3-digit level, using Mexico's input-output table for the year 2008 from INEGI System of National Accounts (SCNM). Following OECD (2001), for each industry, we use data on total output (Y), expenditures on intermediate inputs (M), compensation of employees (W), net taxes (T), gross operating surplus and mixed income ($GOS + I$), and the number of employees and self-employed.

Firm level TFP growth is vaguely similar, on average

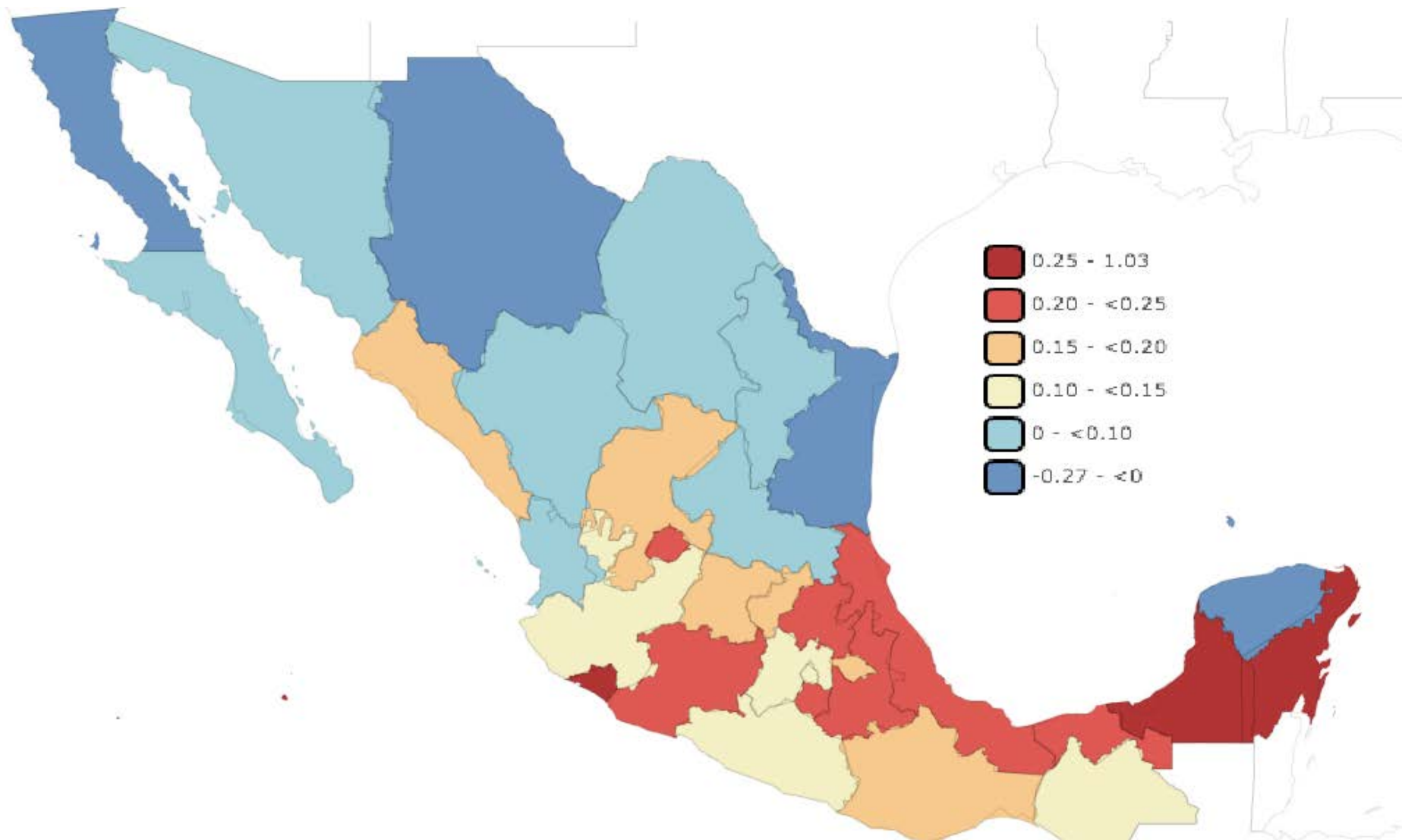


Firm level TFP dispersion is much higher in Mexico



t = 2000 for China
t = 2005 for Mexico

Mexican firms' TFP growth is higher near the border



Interim Conclusions

- Unit costs are converging
 - But productivity and firm size distributions are very different
- Productivity (TFP) differs a lot
 - But (large) Mexican firms do relatively ‘ok’
- What are the policy drivers?
 - Let’s look at Mexican industries and firms

Regressing TFP on policies (I)

Our analysis relies on the following model to analyse the influence of informality on productivity:

$$TFP_{i,s,t} = \alpha Informality_{s,t} + X_{i,s,t}\beta + \eta_{i,s} + \varepsilon_{i,s,t} \quad (2)$$

where $TFP_{i,s,t}$ is the logarithm of 3-digit industry i in state s total factor productivity in year t . $Informality_{s,t}$ is the logarithm of informality rate in state s . $X_{i,s,t}$ is a vector of control variables. Among these variables, we use the logarithm of state-level variables such as the cost to start business, the number of establishments that are ISO-9000 certified per 10,000 habitants, PISA mathematics score, the number of private credits per 1,000 habitants. We also use state-industry level variables

Regressing TFP on policies (II)

In addition, the error term $\varepsilon_{i,s,t}$ may be within-cluster correlated over time due to omitted factors that evolve progressively over time. This serial correlation can be handled adding time-lagged TFP as explanatory variable. We use then Arellano and Bond (1991) difference GMM estimator, which uses the lagged levels of the endogenous regressors, including the lagged dependent variable, as instruments. Endogenous variables are then predetermined and, then, not correlated with the error term.

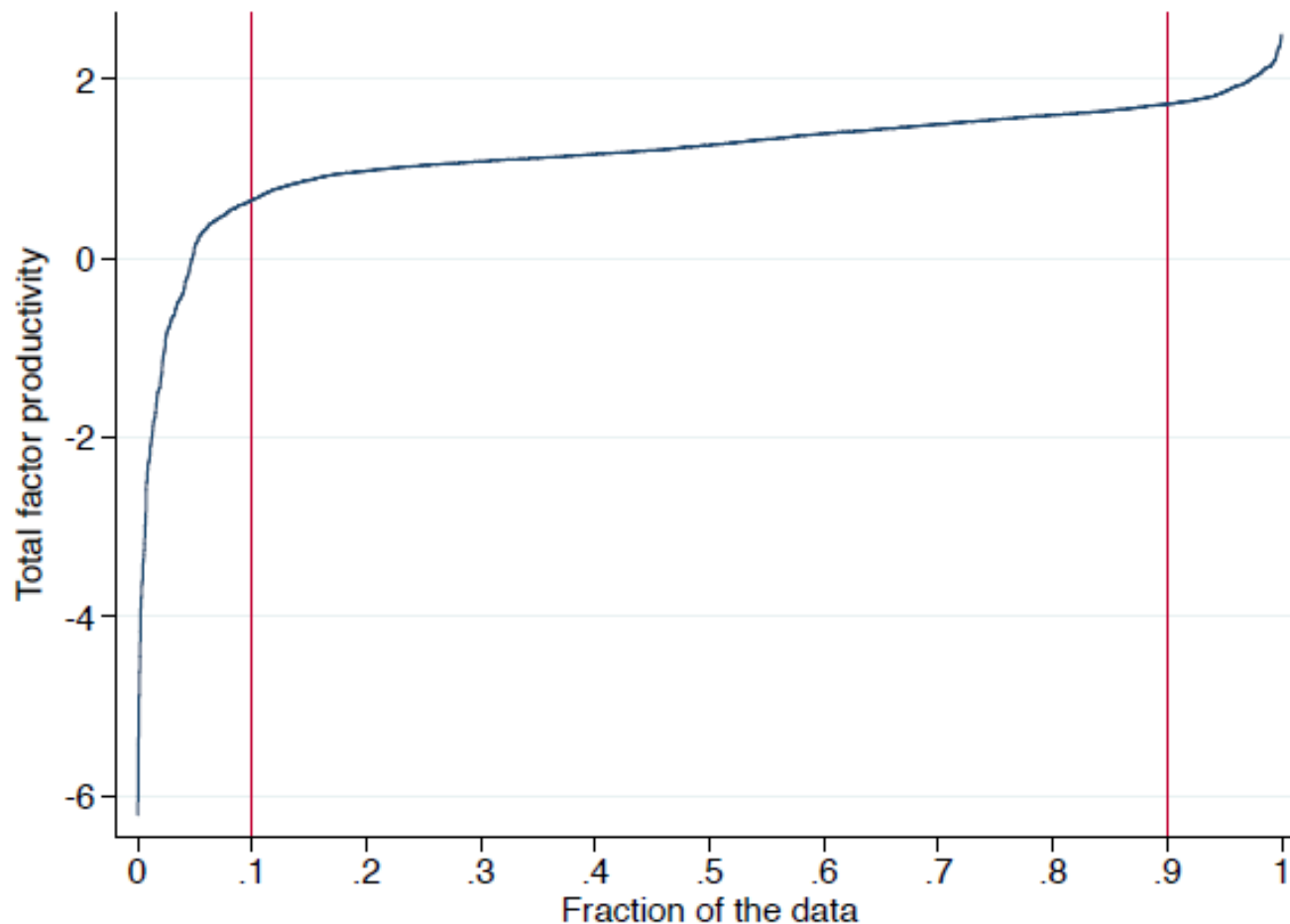
$$\Delta TFP_{i,s,t} = \delta \Delta TFP_{i,s,t-1} + \alpha \Delta Informativity_{s,t} + \Delta X_{i,s,t} \beta + \Delta \varepsilon_{i,s,t} \quad (3)$$

Informality is the strongest driver of TFP

Dependent variable: Total factor productivity (TFP)

<i>Estimator</i>	<i>LSDV</i> (1)	<i>LSDV</i> (2)	<i>GMM</i> (3)	<i>GMM</i> (4)
Informality	-0.948** (0.286)	-0.735** (0.264)	-0.474* (0.194)	-0.336* (0.165)
MNEs workers		0.145** (0.043)		0.128** (0.034)
Imported inputs		0.011 (0.009)		0.020* (0.009)
Maquila industry dummy		-0.160** (0.035)		-0.105** (0.025)
ISO-9000 plants		0.083 (0.060)		0.035 (0.049)
PISA		0.583 (0.593)		0.445 (0.307)
Loans		-0.021 (0.015)		-0.016 (0.012)
Cost to start a business		-0.092 (0.047)		0.009 (0.032)
Rule of law		-0.021 (0.115)		0.041 (0.083)
Wage inequality		0.001 (0.067)		-0.029 (0.039)
Time-lagged TFP			0.367** (0.118)	0.322** (0.044)
Observations	2970	2970	2121	2121
R-squared	0.896	0.901		
RMSE	0.242	0.235		
Instruments			48	280
Groups			408	408
Hansen <i>J</i> p-value			0.355	0.132

Long left tail of the TFP distribution in Mexico



*Source: Dougherty
and Escobar (2015b)*

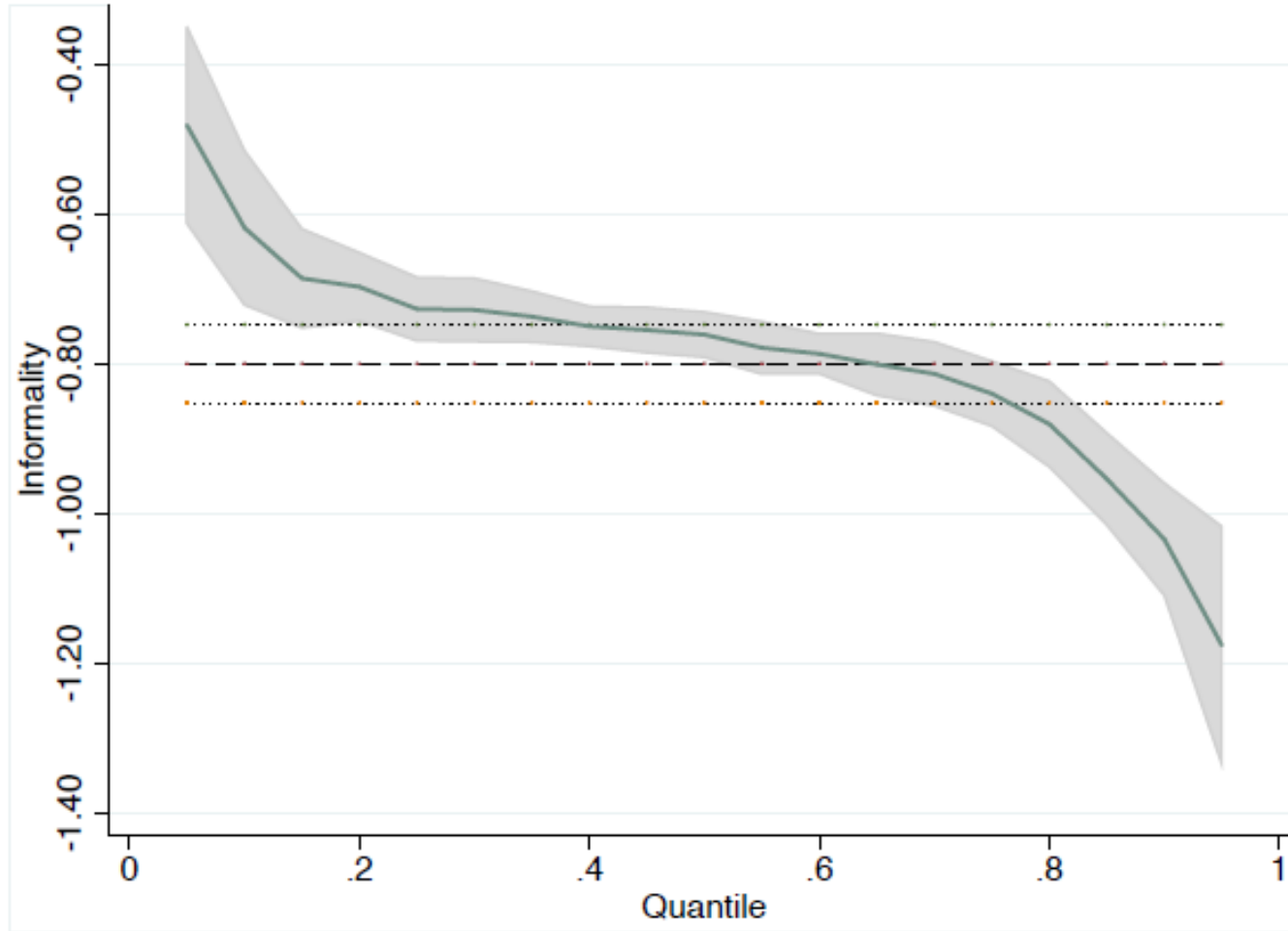
Quantile regressions

From Figures 1 and 2, we can infer that there are important differences in productivity and on the effects of informality between the first and last deciles. We then extend the analysis using quantile regression model to evaluate differences in the coefficient of informality variable. More precisely, we estimate the following specification:

$$TFP_{i,s,t} = \alpha\tau Informality_{s,t} + X_{i,s,t}\beta\tau + \eta_{i,s} + \varepsilon_{i,s,t} \quad (4)$$

where $\alpha\tau$ and $\beta\tau$ are the parameters that characterizes the conditional quantile. We estimate the model under the restriction that the τ -th conditional quantile ($\tau \in (0, 1)$) of TFP given $X = x$ is $x'\beta\tau$. There are however some econometric issues to estimate

Neg effects of informality largest when TFP is high



Source: Dougherty
and Escobar (2015b)

Conclusions

- Measured effects of informality on TFP are even higher when estimated at the firm level and for informal firms
- Productivity (TFP) differs a lot
 - Large Mexican firms do well in comparison
 - But *informality* gets in the way, reducing TFP
 - Especially in the most efficient sectors

=> *Mexico isn't China yet!*

Grazie!

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Comparison of informality rates

Informality measures using various concepts for the mid-2000s

