

A Tale of Two Species:  
Revisiting the Effect of Registration Reform  
on Informal Business Owners in Mexico

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PEDL Workshop  
May 19, 2012

# Who are informal business owners?

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- ▶ Most firms in developing countries are informal, i.e. they operate without registering with the government
- ▶ Why? → Traditionally, two different views
  - ▶ Hernando De Soto (1989): viable entrepreneurs are being held back from registering by complex regulation
  - ▶ Victor Tokman (1992): informal business owners try to make a living while they search for a wage job
- ▶ Both views have some theoretical and empirical support

## Heterogeneous informal business owners

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- ▶ Recent research suggests that a mix of both the De Soto and Tokman views is correct
- ▶ When informal business owners are asked why they started a business (Amin, 2009, Maloney, 2004)
  - ▶ Some say to take advantage of a business opportunity
  - ▶ Others can't find a satisfactory job elsewhere
- ▶ De Mel, McKenzie, and Woodruff (2010)
  - ▶ 70 percent of microenterprise owners have personal characteristics similar to wage earners
  - ▶ 30 percent have characteristics like larger firm owners

# This paper

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- ▶ Use context of a business registration reform in Mexico to provide further evidence for two types/species of informal business owners
- ▶ Reform simplified local registration procedures in different municipalities at different times starting in 2002
- ▶ Bruhn (2008) uses difference-in-difference strategy to show that the reform
  - ▶ Increased number of formal business owners
    - ▶ Wage earners start new businesses
  - ▶ Increased employment

# What was the effect of the reform on informal business owners?

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- ▶ Bruhn (2008) finds no effect, on average
  - ▶ But, does not separate informal business owners into different types based on their characteristics
- ▶ In this paper, first use discriminant analysis to classify informal business owners according to their potential for registering vs. becoming wage earners
  - ▶ Approach based on De Mel, McKenzie, and Woodruff (2010)
  - ▶ Tool is used in biology to classify species
- ▶ Then, examine effect of the reform on two separate species of informal business owners (registered business owner types vs. wage worker types)

# Some informal businesses in Mexico



# Labor market survey data

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- ▶ **Mexican National Employment Survey (ENE)**
  - ▶ Quarterly survey between 2000-II and 2004-IV, covering 150,000 households
  - ▶ Panel: Each household surveyed for 5 consecutive quarters
- ▶ **Information on employment status**
  - ▶ Wager worker
  - ▶ Employer or self-employed ← call these “business owners”
    - ▶ Registered with authorities or not
- ▶ **Background characteristics**
  - ▶ 7 ▶ Age, gender, education, marital status, head of household, migrant (doesn't live in state of birth)

# Species classification methodology

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- ▶ For species classification, use data from time period when an individual is first observed
- ▶ Background characteristics differ across wage workers and formal business owners
- ▶ First, keeping only wage earners and formal business owners
  - ▶ Use logistic discriminant analysis to obtain combination of personal characteristics that best separates the two groups
- ▶ Then, take the estimated weights on the characteristics and apply them to the sample of informal business owners
  - ▶ Predicts who belongs to the wage workers species and who belongs to the registered business owner species



# How characteristics predict who is a formal business owners vs. wage worker

	Formal business owners dummy
Age	0.005*** (0.000)
Female	-0.027*** 0.002
Primary education	0.035*** (0.003)
Secondary education	0.045*** (0.003)
High school education	0.055*** (0.003)
University education	0.099*** (0.003)
Married	0.037*** (0.002)
Head of household	0.036*** (0.002)
Migrant	-0.005*** (0.001)
Pseudo R2	0.079
Observations	240,211

# Species classification results

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## Panel A: Formal business owner and wage worker samples

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% of formal business owners correctly classified 65.40

% of wage workers correctly classified 64.10

## Panel B: Informal business owner sample

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% classified as formal business owner 49.38

% classified as wage worker 50.62

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# Pre-reform transition probabilities

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Fraction of informal business owners that is employed in each occupation during the following quarters

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	Species:	
	Formal business owner	Wage worker
Informal business owner	0.551	0.441
Formal business owner	0.118	0.073
Wage worker	0.154	0.228
with contract	0.037	0.049
without contract	0.117	0.179
Not employed	0.137	0.225

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# Identification strategy for reform impact

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- ▶ Difference-in-difference strategy, taking advantage of staggered implementation across municipalities

$$y_{ict} = \alpha + \beta_c + \gamma_t + \delta \text{Reform}_{ct} + \phi \text{EC}_{1999} * t + \varepsilon_{ict}$$

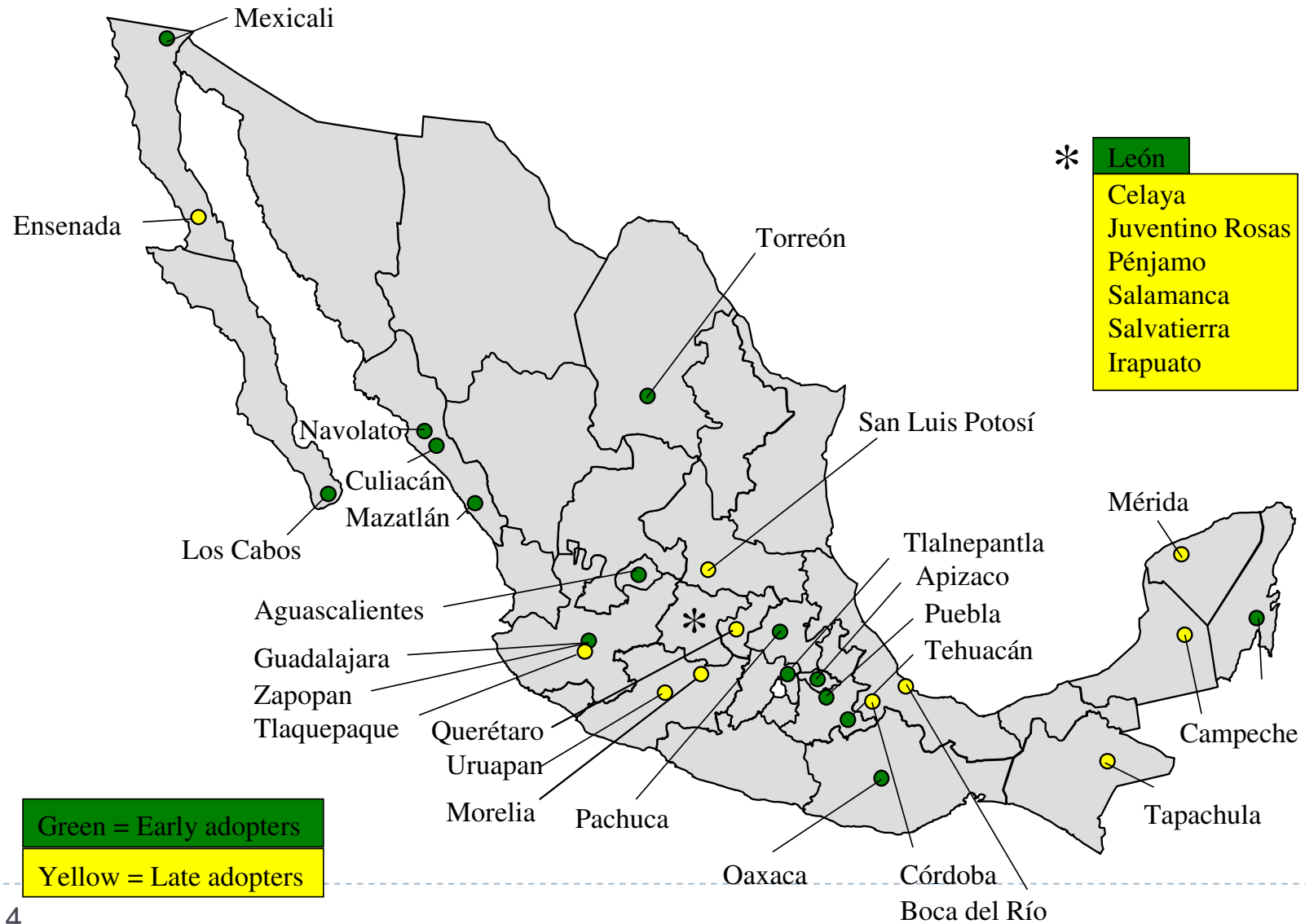
- ▶  $i$  = individual,  $c$  = municipality,  $t$  = quarter
- ▶ Reform = 1 if municipality  $c$  had implemented in quarter  $t$
- ▶  $\text{EC}_{1999} * t$ : Economic Census controls interacted with time trend
  - ▶  $\ln(\text{GDP}/\text{Pop})$ ,  $\ln(\text{Establ.}/\text{Pop})$ ,  $\ln(\text{Fixed Assets}/\text{pop})$ ,  $\ln(\text{Inv.}/\text{pop})$

# Identification assumption

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- ▶ Assume that trends in outcome variables would have been parallel in absence of the reform
  - ▶ Bruhn (2008) performs checks suggesting that this assumption holds in the full sample
- ▶ In this paper, use only informal business owners, broken up into two species groups
  - ▶ Additional check: pre-reform transition probabilities for different species do not display time trends that varied systematically with quarter of reform implementation

# Municipalities included in the study



# Reform impact

$$y_{ict} = \alpha + \beta_c + \gamma_t + \delta \text{Reform}_{ct} + \phi \text{EC}_{1999} * t + \varepsilon_{ict}$$

Change in likelihood of being in each occupation due to the reform			
Species:			
	All	Formal business owner	Wage worker
Informal business owner	0.012 (0.012)	0.023** (0.011)	0.006 (0.019)
Formal business owner	0.001 (0.006)	0.017** (0.008)	-0.013** (0.006)
Wage worker with contract	0.003 (0.003)	-0.004 (0.004)	0.010** (0.005)
Wage worker without contract	-0.003 (0.007)	-0.009 (0.007)	0.001 (0.011)
Not employed	-0.011* (0.006)	-0.023*** (0.008)	-0.001 (0.011)

▶ 15 Statistical significance levels: \*10 percent, \*\*5 percent, \*\*\*1 percent

# Summary of findings and conclusions

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- ▶ Informal business owners from the formal business owner species are more likely to register due to the reform
- ▶ In contrast, informal business owners from the wage worker species are less likely to register, but they are more likely to become formal wage workers due to the reform
- ▶ Provides validation for species classification and supports view of heterogeneous informal businesses owners
- ▶ Registration reform allows individuals to better sort across occupations, thus promoting reallocation of



## A word of caution

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- ▶ Size of the effects is not huge
  - ▶ 13.5 instead of 11.8 percent of informal business owners from formal business owners species register...
  - ▶ 5.9 instead of 4.9 percent of informal business owners from wage worker species become wage workers...  
...during the following quarters due to the reform
- ▶ Entry regulation is only one barrier to formality
- ▶ Some informal business owners may not see a benefit to registering (De Mel, McKenzie, Woodruff, 2012, McKenzie and Sakho, 2010, McCulloch, Schulze, and Voss, 2010)

# Some benefits and costs of formality

<b>Benefits</b>	<b>Costs</b>
<ul style="list-style-type: none"><li>■ Avoid government penalties</li><li>■ Advertise &amp; expand without fear of government intervention</li><li>■ Ability to issue receipts</li><li>■ Legally enforceable agreements with suppliers and customers; more negotiating power, resulting in lower input prices</li><li>■ Access to new and lower cost sources of financing (and government programs)</li></ul>	<ul style="list-style-type: none"><li>■ Initial registration<ul style="list-style-type: none"><li>■ Monetary costs</li><li>■ Admin. + opportunity costs of time and effort</li></ul></li><li>■ Ongoing compliance<ul style="list-style-type: none"><li>■ Taxes, labor and other contributions</li><li>■ Admin. + opportunity costs of time and effort</li></ul></li></ul>