

Labor Market Policies in a Dual Economy

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GRIPS

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Shadow Economy is Big

- Size of **underground** (informal) economy is **large**
- Schneider, et al. (2010) estimate:
 - **World: 33%**
 - **Developing countries: 40%**
 - **OECD: 17%**

Dual Markets

- Formal and informal markets differ in key aspects
 - Compliance with regulations
 - Evasion of taxes and other contributions
- Informal workers face:
 - Higher labor mobility
 - Higher earnings volatility
- Government policies in economies with large informal markets may not achieve desired effects

Mexico

- Mexico is a prime example for our study
 - 30% of production is done by shadow economy
 - 43% of workers employed in informal sector
 - Large flows of workers between sectors
- Government plans to introduce policies to curb informality
 - Unemployment insurance system

Previous Studies

- Labor market policies in **models with risk and asset accumulation**
 - Krusell, Mukoyama and Sahin (2010)
 - Ljungqvist and Sargent (2007), Kitao, Ljungqvist and Sargent (2008)
- No informality \implies Applicable to economies with dual markets?
- Labor market policies in **models with informality**
 - Albrecht, Navarro and Vroman (2009)
 - Bosch and Esteban-Pretel (2012)
- No risk or asset accum. \implies No self-insurance, hard to evaluate welfare

Objectives of this Paper

- (1) Build model that captures features of state-of-the-art structural macro models, but within a dual economy
- (2) Study the effects of labor market policies on unemployment, worker flows and welfare

What We Do

- Build **model**
 - Life-cycle model with job search and dual economy
 - Incomplete markets, risk aversion and asset accumulation
- **Calibrate** parameters to match **Mexican** data
 - Use micro data on wages, flows and assets
- Simulate 3 **policies** and study their effect on labor market.
 - Consumption vs labor income **taxes**
 - Introduction of **UI system**
 - Change in **severance payment**

Overview of Model

- Search-Island Model
 - 2 islands/sectors: Formal and Informal
 - Workers and firms meet
 - Wages determined competitively in the spirit of Lucas & Prescott (1974)
 - Inter-sectoral flows: $(I \rightarrow F)$ and $(F \rightarrow I)$
 - Taxation, firing costs on formal jobs
- Incomplete markets and indivisible labor

Government

- Imposes taxes on:
 - Consumption: τ_c
 - Labor: τ_L
- To finance
 - Government expenditures
 - UI benefits when introduced

Firms

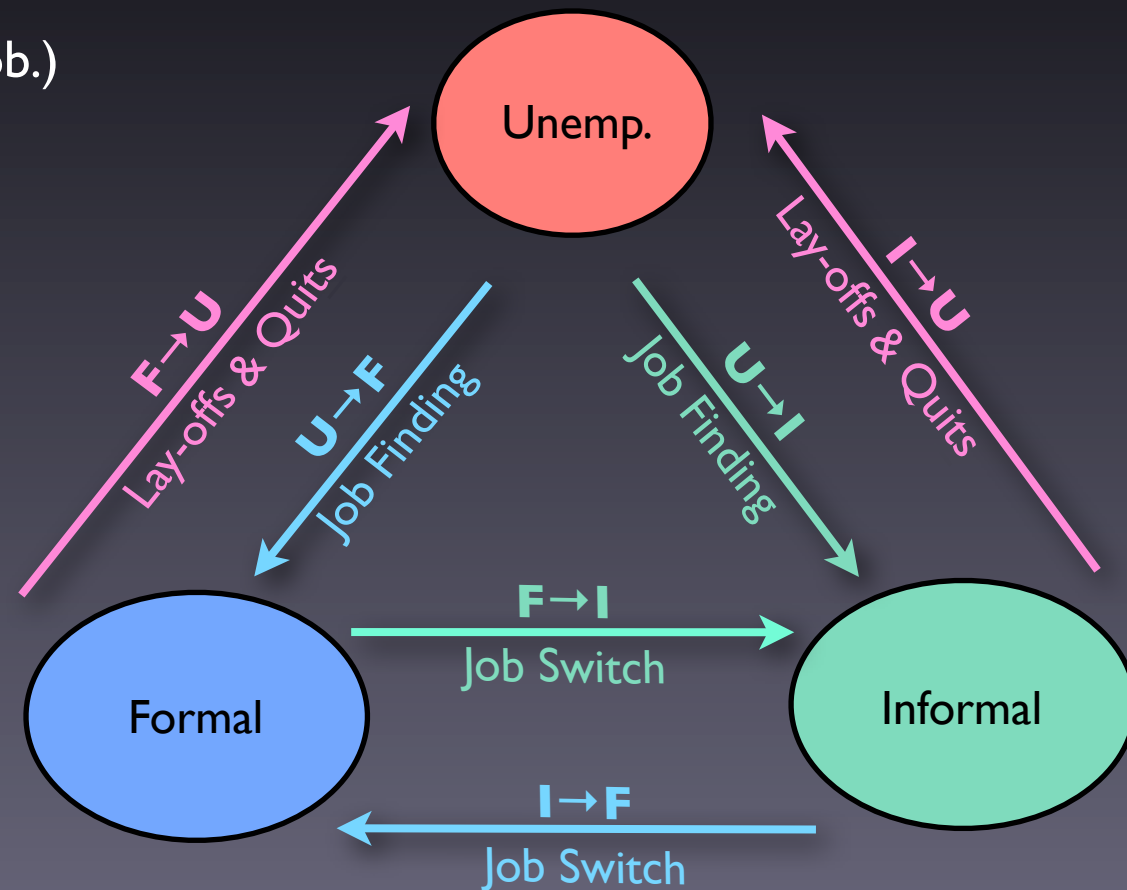
- As in Lucas and Prescott (1974), but with 2 sectors
 - Firms locate in Formal or Informal sector/island
 - Operate in a competitive market within the island
- Produce using labor (n), capital (k) and firm's productivity (z)
 - Prod z : varies exogenously over time.
- Pay job opening cost, μ_s for $s \in \{F, I\}$
- Formal sector firms pay firing cost, if destroy the match
- Choose:
 - Choose k to max profits
 - Decide whether or not to continue in market

Workers

- Working age (Form., Inf., Unemp) and Retired
- Every period a worker:
 - Faces retirement and death
 - Is laid-off with prob. q_s for $s \in \{F, I\}$
 - Receives offer with exogenous prob. π^U_s and π^E_s for $s \in \{F, I\}$
- States:
 - Employed: $x_E(a, h, s, \varepsilon)$
 - a : assets
 - h : human capital
 - s : sector
 - ε : worker's idiosyncratic productivity
 - Unemployed: $x_U(a, h)$
- Choose:
 - All choose: consumption, savings
 - Employed choose: quit or stay, accept or reject offer from other sector
 - Unemployed choose: accept or reject offer

Timing and Flows

- Firm decides **lay-offs** after observing z' :
 $F \rightarrow U$ & $I \rightarrow U$
- Workers receive new offers (exog prob.)
 - Depending on indiv. states $x_E(a, h, s, \varepsilon)$ or $x_U(a, h)$ decides:
 - Stay in current status
 - Move to sector $s \in \{F, I\}$:
 - From unemployment:
 $U \rightarrow F$ and $U \rightarrow I$
 - From other sector:
 $I \rightarrow F$ and $F \rightarrow I$
 - Quit: $F \rightarrow U$ and $I \rightarrow U$



Data

■ Micro Data

- ENEU-ENOE

- Household employment survey - equivalent to CPS
- Contains Informality information
 - Use it to construct labor market flows data

- ENIGH

- Income and expenditure survey
 - Use to construct asset data

■ Aggregate Data

- Bank of Mexico

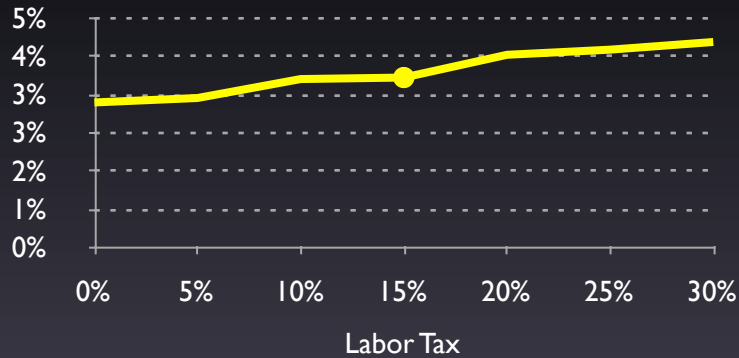
- Interest rate and inflation data

Calibration Targets

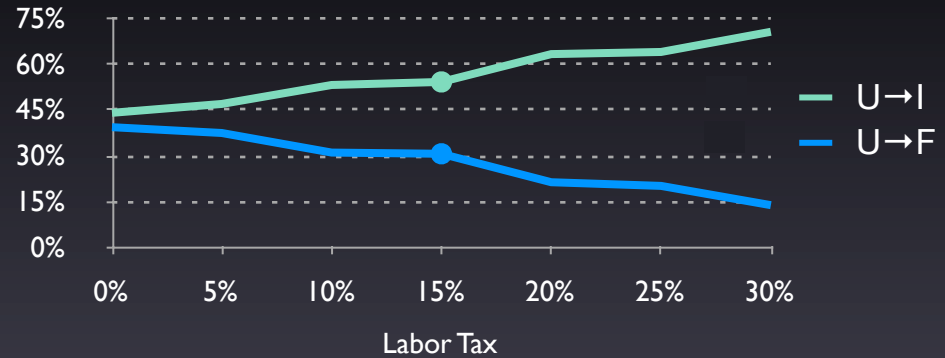
- Unemployment rate
- Share of Formal employment
- Flow Rates:
 - Separation Rates
 - Inter-sectoral Flows
- Fraction of separations which are quits/layoffs
- Formal-Informal Wage differential
- Asset to earnings ratio

Tax Policy

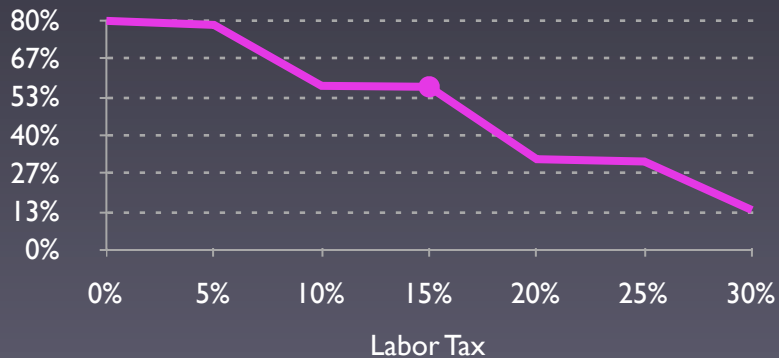
Unemployment Rate



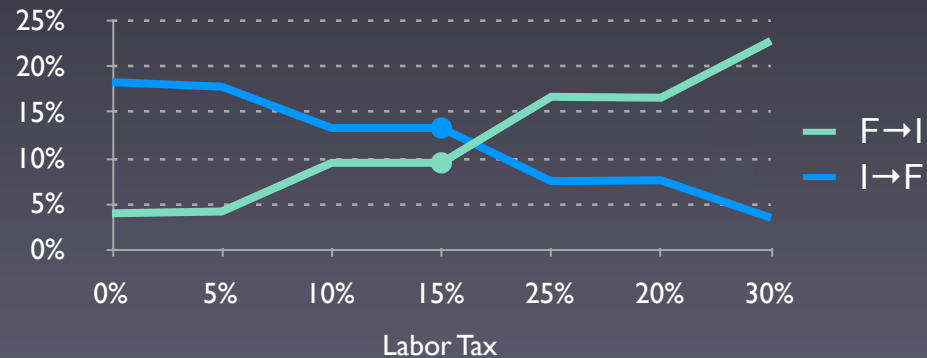
Hazard Rates



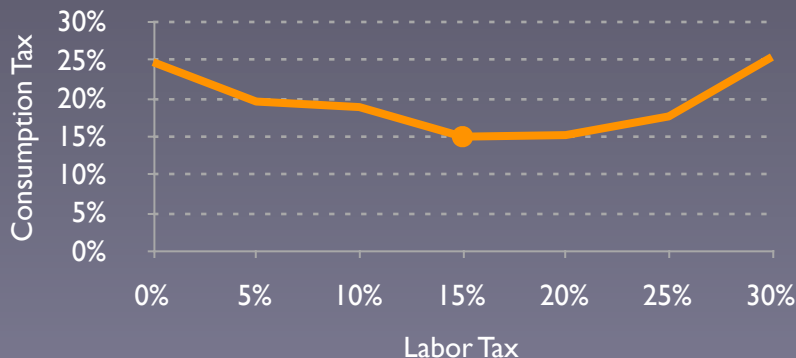
Share of Formality



Intersectoral Flows



Labor vs Cons Tax

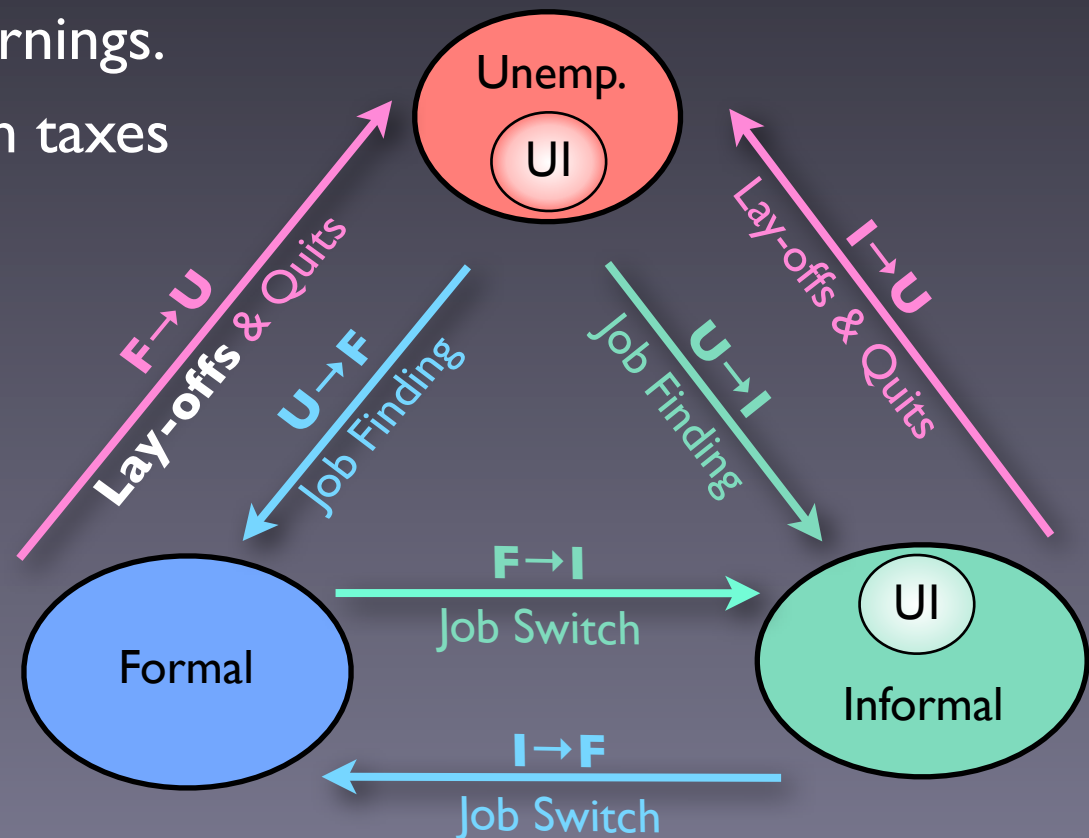


- Increases in labor taxes produce:
 - Higher unemployment, but small change
 - Redistrib. of workers between sectors
 - Lower flows into formality
 - Higher flows into informality
 - Lower Formality
- Higher cons. taxes

Unemployment Insurance System

■ Unemployment Insurance:

- **Formal** workers who are fired collect UI benefit.
 - Worker who quits job cannot collect.
- Informal workers can collect UI benefits.
- UI benefits have limited durations.
- Benefit is a fraction of earnings.
- Financed via consumption taxes



Unemployment Insurance

<i>Duration of Benefits</i>	0m	6m	2y
Unemployment Rate	3.71%	3.84%	4.12%
Formality Share	56.93%	56.63%	54.73%
UI recipients (% of labor force)	-	1.26%	4.86%
- Unemployed (% of all UI recipients)	-	59.87%	25.34%
- Informal workers (% of all UI recipients)	-	40.13%	74.66%
Hazard U to E	84.84%	83.19%	78.42%
- U to I	54.17%	54.94%	55.59%
- U to F	30.67%	28.25%	22.83%
- no benefits	-	30.58%	30.96%
- with benefits	-	18.68%	3.70%
Intersectoral flow rates			
- F to I	9.52%	9.51%	9.52%
- I to F	13.25%	13.18%	12.31%
- no benefits	-	13.25%	13.27%
- with benefits	-	7.49%	1.74%
Consumption Tax	15.00%	15.71%	18.78%
Welfare	-	-0.01%	-0.74%

- Increase in unemployment and drop in formality
- Drop in flow into formality - Big difference with and without benefits
- Decrease in welfare

Severance Pay

Severance Pay	0m	4m	8m
Layoff prob	1.27%	1.22%	1.17%
Wage F relative to Benchmark	1.63%	-	-1.54%
Unemployment Rate	3.71%	3.71%	3.72%
Formality Share	56.83%	56.93%	56.99%
Job separation rates			
- F to U	1.93%	1.89%	1.84%
- I to U	3.48%	3.49%	3.52%
Hazard U to E	85.31%	84.84%	84.11%
- U to F	30.83%	30.67%	30.41%
- U to I	54.48%	54.17%	53.69%
Intersectoral flows			
- F to I	9.53%	9.52%	9.53%
- I to F	13.25%	13.25%	13.24%
Welfare	-0.21%	-	-0.01%

- Increasing severance pay produces:
 - Decrease in layoff prob., but depresses formal wages
 - Small increase in unemployment and increase in formality
 - Decrease in welfare, but lower than removing the payment.

Conclusions

- Build structural life-cycle **model** with unemployment and dual markets.
- Dual sector economies may behave differently to single market ones:
 - Redistrib. of workers: Inform. absorbs part of changes expected in unemp.
- Study effects of **3 policies**:
 - Consumption vs Labor **taxes**:
 - Cons. taxes
 - Less distortionary
 - Lower unemployment and higher formality
 - Introduction of **UI**:
 - Increase unemployment and reduce formality
 - Larger flows into informality
 - Decrease welfare
 - **Severance pay**:
 - Increases in unemployment and formality
 - Decrease welfare