

# Expansion Abroad and the Domestic Operations of U.S. Multinational Firms

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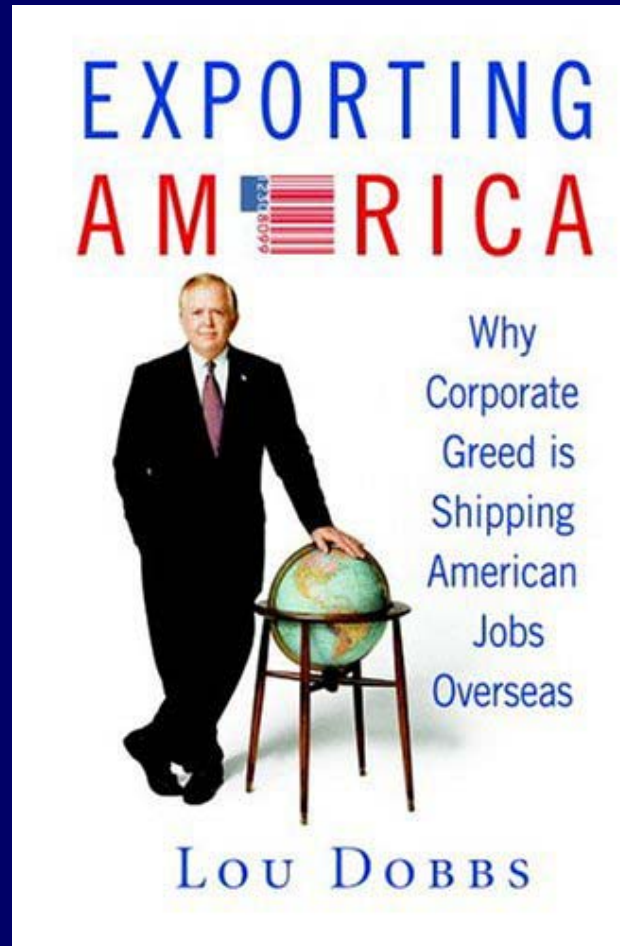
“Domestic Effects of Foreign Direct Investment”

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# Outline of Presentation

- The conventional wisdom.
- A framework for thinking about outsourcing.
- Broad Facts about multinationals altogether.
- Econometric Analysis of the individual firms.
- Conclusions.

# The Conventional Wisdom



# The Conventional Wisdom

- Outsourcing (esp. of services) is fundamentally different from other faces of globalization.
  - “We are concerned that the United States may be entering a new economic era ... the case for free trade is undermined by changes in the global economy” --*New York Times* Op-Ed 1/6/04
- The magnitudes and consequences of this rising process are both obvious and dire.
  - 3 MILLION IT-related jobs will be “exported” by 2015.
  - The outsourcing of IT and similar “golden goose” sectors can only harm the overall U.S. economy.
  - The political response to this process is well underway: think of The American Jobs Creation Act of 2004, H1-B Visa caps.

# A Framework for Outsourcing

- Consider a U.S.-based software producer.
  - Suppose that in response to a fall labor costs abroad, it decides to relocate some of its programming activities to India.
  - What happens to labor demand in the firm's U.S. operations?
    - *Substitution effects*: If U.S. labor and Indian labor are price substitutes in the firm's cost function, then a fall in Indian labor costs leads to a decrease in U.S. labor demand. But what if Indian and U.S. labor are price complements, not price substitutes?
    - *Scale effects*: If falling labor costs in India lead to an expansion in firm scale, then demand for U.S. labor may rise (even if U.S. labor and Indian labor are price substitutes).
    - *Scope effects*: If falling labor costs in India lead to an expansion in firm scope (holding scale constant), then U.S. labor demand may fall or rise depending on the labor intensity of the new lines of activity.

# From Framework to Data

- This simple theoretical framework makes clear that we need data. This doesn't mean anecdotes. It means data on all U.S. multinationals.
- Fortunately, we have such data: through the legally mandated annual surveys of the U.S. Bureau of Economic Analysis, Department of Commerce.
  - Earlier this year I did a study assembling some broad facts from the publicly available BEA aggregates.
  - In joint work with Fritz Foley, Raymond Mataloni, and Gordon Hanson we are examining the BEA's firm-level data.

## Broad Facts: Counting Jobs

- Take at face value widely heard predictions: e.g., each year 300,000 US IT jobs are being “destroyed” by multinationals’ outsourcing.
- During this time the U.S. economy will “destroy” how many jobs annually?
  - *Over 40 million!*
- During this time the U.S. economy will “create” how many jobs annually?
  - *Over 40 million!*
- Careful to distinguish *gross* changes from *net*.

## Broad Facts: Exporting Jobs?

- We can count net jobs that U.S. multinationals create abroad in all their foreign affiliates and in their U.S. parents. What do we see?

<u>Year</u>	<u>Affiliate Jobs</u>	<u>Parent Jobs</u>
1991	6,878,200	17,958,900
2001	9,775,600	23,450,200
91-01	+2,897,400	+5,491,300



## Broad Facts: Exporting Jobs?

- But what if we compare employment growth in U.S. parents with that in the U.S. economy? Which has grown faster?

<u>Year</u>	<u>U.S. Payroll Jobs</u>	<u>Parent Share</u>
1991	108,374,000	16.6%
2001	131,826,000	17.8%
91-01	+23,452,000	+1.2%

## Broad Facts: Exporting Jobs?

- One additional important fact: jobs in U.S. parents tend to pay more than do comparable jobs in their domestic counterparts.
- The same is true for U.S. affiliates of foreign companies—i.e., “insourcing” companies.
- All else equal, this fact suggests Americans should prefer working at globally engaged firms. Do they?

## Broad Facts: Exporting Jobs?

- For every one job U.S. multinationals created abroad in their foreign affiliates they created nearly two U.S. jobs in their parent operations.
- This rate of job growth in U.S. parents has exceeded that of the rest of the U.S. economy.
- These patterns suggest that higher employment in affiliates tends to stimulate, not slow, employment growth in parents.

# Preview of Econometric Results

- *The global operations of U.S. multinationals are not what is suggested by the multinationals-export-jobs hypothesis.*
  - Expansion in the scale of activities by foreign affiliates *raises* demand for labor in U.S. parents.
  - Substitutability or complementarity between parent and foreign labor appears to depend on the skill composition of foreign labor.
  - Reductions in host-country corporate tax rates do *not* appear to reduce parent labor demand. If anything, reductions in host-country corporate tax rates tend to *increase* parent labor demand.

# The Detailed BEA Data

- We use data on non-bank US parent firms and their majority-owned foreign affiliates in 1982, 1989, 1994, and 1999.
  - These data come from benchmark surveys of all U.S.-based MNEs, which are conducted approximately every five years. For some analysis we are using all the annual surveys as well.
- We examine changes in parent and affiliate operations over various time periods, e.g., 1989-94 and 1994-99.
  - We include in our analysis affiliates whose main line of business matches that of the parents, with all in manufacturing--because this comes closest to much of the “exporting jobs” allegations.
  - We distinguish between total labor demand and R&D labor demand to try to separate substitution, scale, and scope.
  - We analyze periods separately, which allows for, e.g., very different business-cycle patterns (recession then boom).

# Empirical Framework

- Using a cost-minimization framework, we derive a parent's demand for labor—either for all kinds in total or for R&D labor in particular.
  - We estimate *changes* in parent labor demand, in part to use data structure to control for unobserved firm characteristics.
  - According to theory, changes in parent labor demand will be a function of changes in variables including:
    - Parent wages, capital stock and output.
    - Parent tariffs and transport costs it faces for imports.
    - Affiliate host-country wages for low-skilled and high-skilled labor.
    - Affiliate host-country corporate taxes.

# Empirical Issues

- Parent exposure to foreign wage changes
  - Our raw foreign-wage data come from the United Nations.
  - We construct changes in each parent's affiliate wages as a weighted average of wage changes across all the host countries in which that parent operates affiliates. Done twice: more- and less-skilled labor.
  - Different parents face different changes in affiliate wages to the extent that they operate different worldwide configurations of affiliates.
- Parent exposure to foreign tax, U.S. trade-barrier changes
  - Our raw tax data come from University of Michigan: statutory maximum marginal corporate income tax rates.
  - Our raw trade-barrier data come from the NBER.
  - Changes in these variables constructed analogous to wage changes.
- Sample selection
  - We don't observe changes in labor demand for parents that die, sell their Mofas, or are bought by other parents.

# Summary of Empirical Strategy

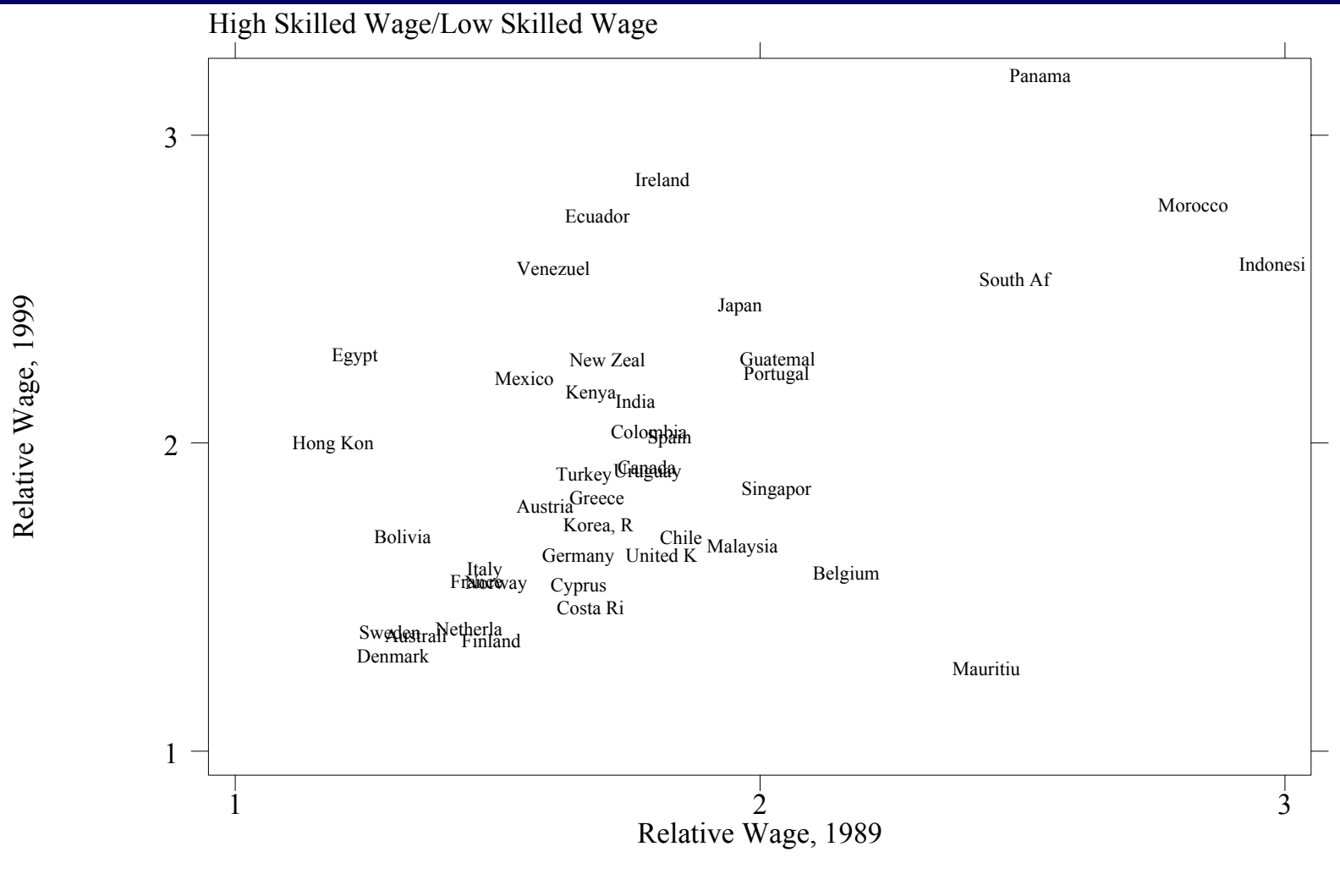
- Regress change in U.S. parent employment (overall or R&D employment) on
  - Change in parent wage, capital, and sales
  - Change in average affiliate wage for more-skilled labor
  - Change in average affiliate wage for less-skilled labor
  - Change in average affiliate trade costs
  - Change in (1-average affiliate corporate tax rate)
  - Change in affiliate sales, and change in host-country GDP
  - Full set of industry dummy variables (to control for, e.g., technological change or demand shifts)
- Changes are measured in logs, so coefficient estimates can be interpreted as elasticities of interest.



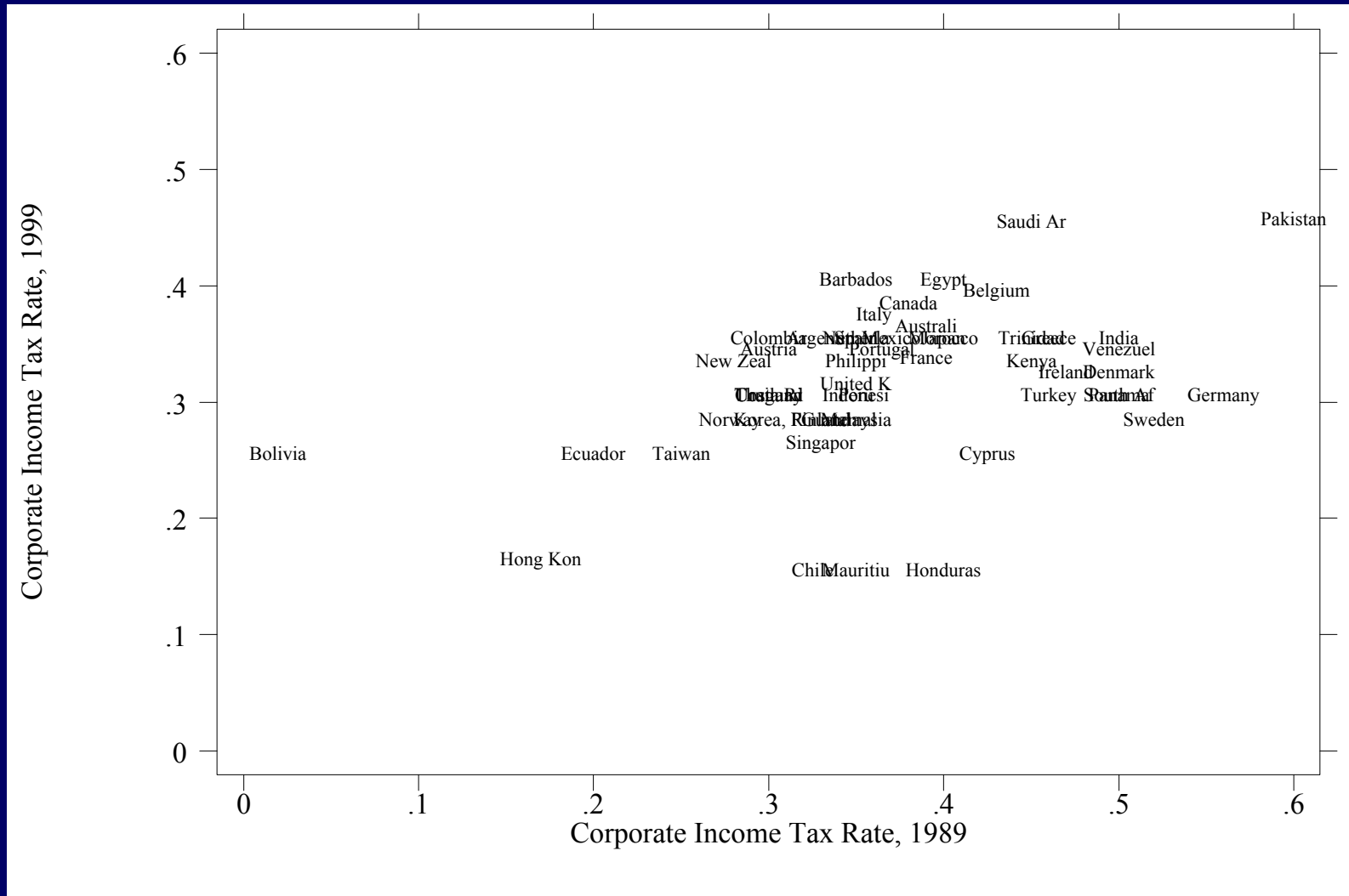
# Sample Means, Changes in Variables

Variable (Percent Change)	1989-1994 Panel	1994-1999 Panel
Parent Total Employment	-0.057	0.082
Parent R&D Employment	0.077	0.085
Parent Wage	0.233	0.171
Affiliate More-Skilled Wage	0.154	0.050
Affiliate Less-Skilled Wage	0.121	0.041
Parent Trade Costs (1 – Host Country Tax Rate)	-0.004	-0.011
Affiliate Sales	0.235	0.589
Parent Capital Stock	0.249	0.382
Parent Sales	0.212	0.305

# Changes in Host-Country Wages



# Changes in Host-Country Tax Rates



## Estimation Results: 1989-1994

- A 10% increase in affiliate sales *increases* parent total labor demand by about 0.3%.
  - Not a large impact, but note that it is not negative.
- A 10% fall in affiliate more-skilled wages raises parent total parent labor demand by about 3%.
  - Parent and affiliate more-skilled labor are *complements*.
- A 10% fall in affiliate less-skilled wages lowers parent total labor demand by about 3%.
  - Parent and affiliate less-skilled labor are *substitutes*.

# Estimation Results, 1989-1994

- *Decreases* in tax rates in host countries for affiliates are associated with *increases* in parent total labor demand.
  - This is not precisely estimated—but note that the estimated link is not a *decrease* in demand.
- Decreases in trade costs between parents and affiliates are associated with decreases in parent total labor demand.
  - This is also not precisely estimated, but is as expected (given our results for less-skilled labor).
- Parent determinants of own total labor demand are precisely and sensibly estimated.
  - For example, 10% rise in parent wages lowers parent labor demand by about 3% (very consistent with other studies).

## Estimation Results: 1982-1999

- A 10% fall in affiliate wages raises parent total labor demand by about 2% when affiliate output is not controlled for.
  - Parent and affiliate labor are *complements*
- A 10% fall in affiliate wages raises parent total labor demand by about 1% when affiliate output is controlled for.
  - Parent and affiliate labor are *complements* even when the scale effect is directly controlled for

# Conclusions

- Both the broad facts and the econometric analysis contradicts the idea that the global operations of US multinationals are solely about “exporting jobs.”
  - Expansion in the scale of activities by foreign affiliates *raises* demand for labor in U.S. parents.
  - Substitutability or complementarity between parent and foreign labor appears to depend on the skill composition of foreign labor.
  - Reductions in host-country corporate tax rates do *not* appear to reduce parent labor demand. If anything, reductions in host-country corporate tax rates tend to *increase* parent labor demand.

# Future Extensions

- Tasks Yet To Be Done
  - Investigate variation in results across time periods.
  - Include Mofas in upstream/downstream and unrelated industries (to better account for scope effects).
  - Introduce controls for extent of input processing by Mofas (to better identify vertical production networks).
  - Account for sample selection due to exit of parents and also due to which parents have a presence in different country types.
- We expect these extensions to provide an even richer picture of multinationals' operations.



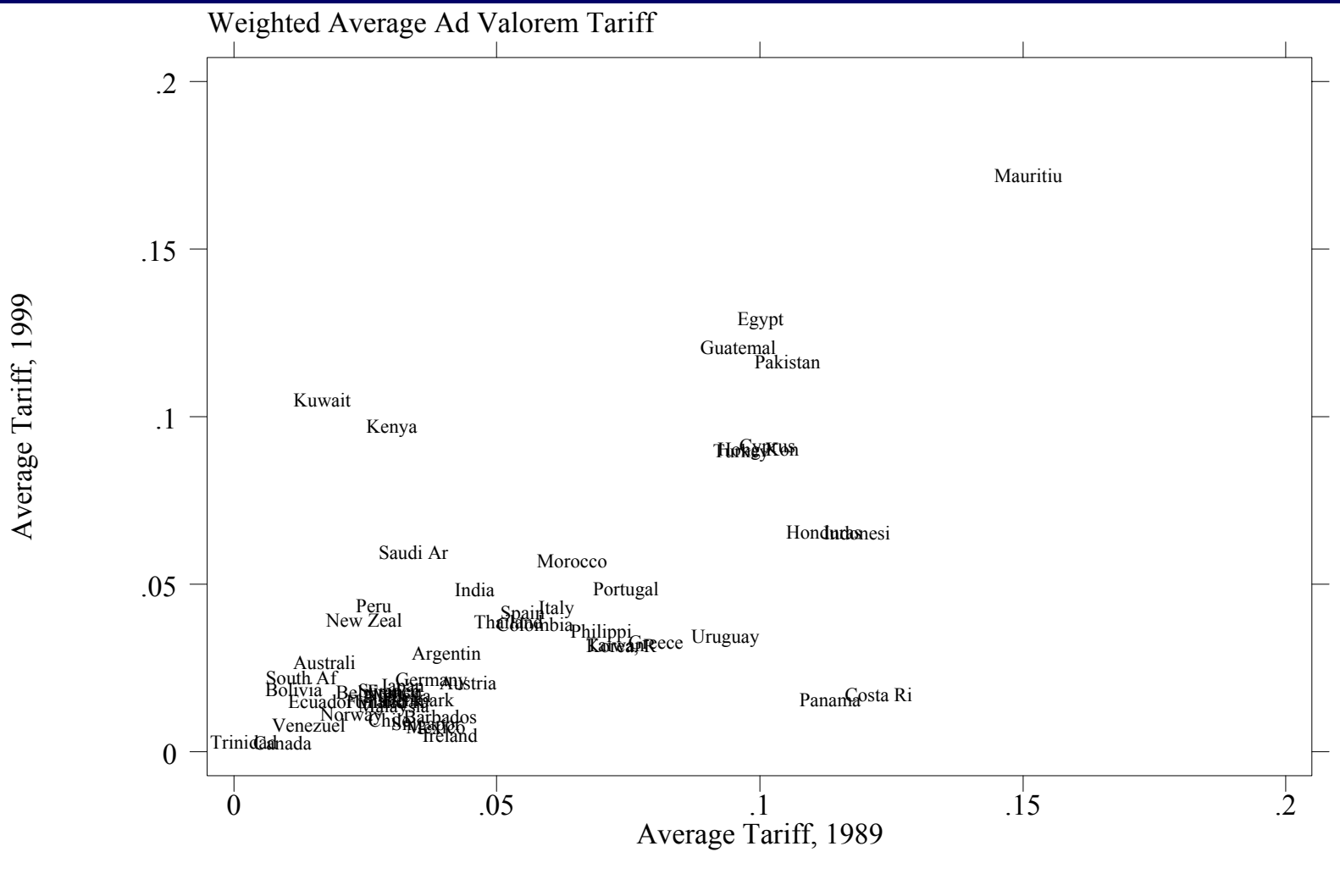
# Summary of Empirical Strategy

- We estimate the responsiveness of changes in parent labor demand to changes in wages, trade costs, tax rates, and other variables.

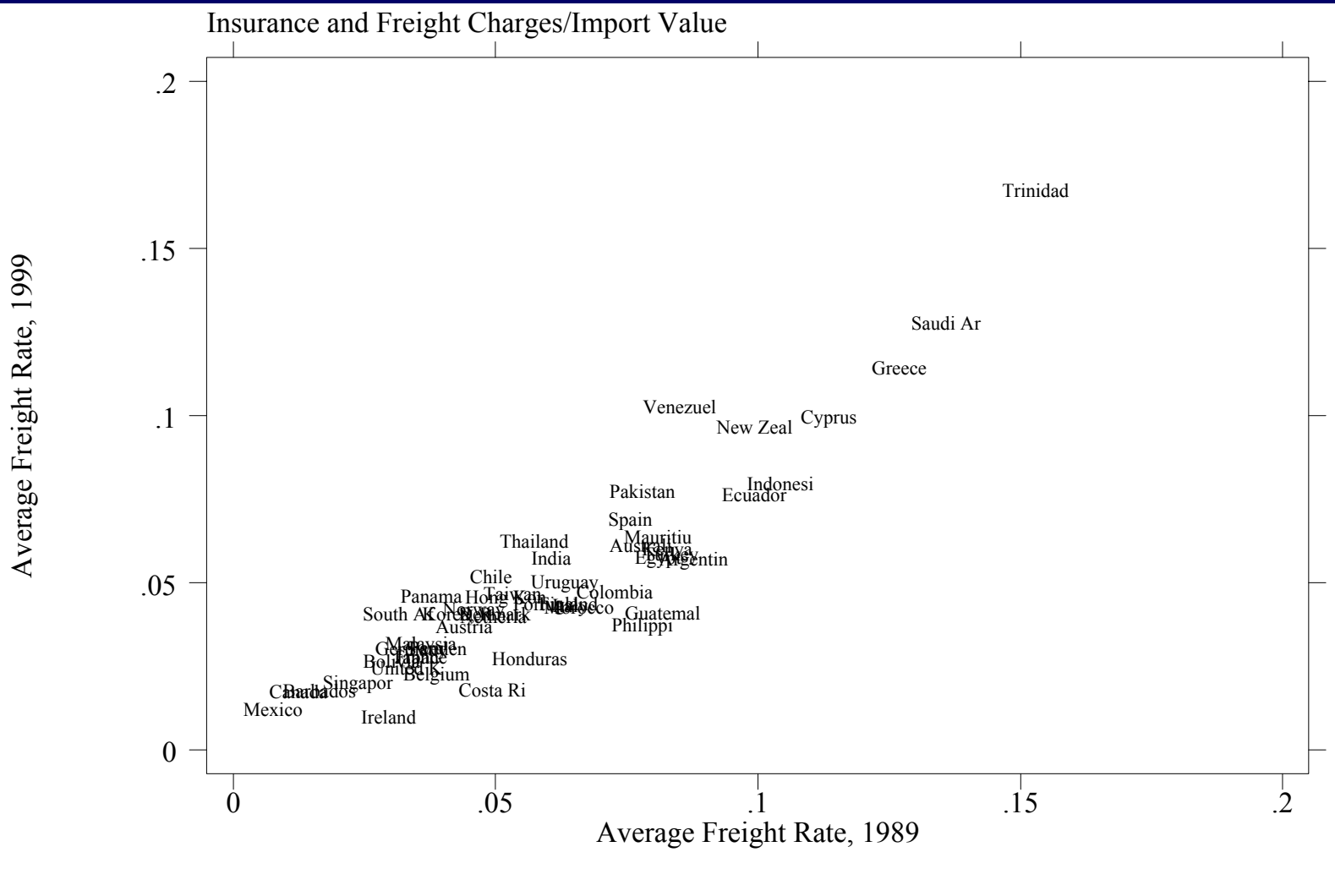
$$\begin{aligned} \Delta \ln L_{pit}^j &= \alpha_{it} + \beta_{jj} \Delta \ln W_{pit}^j + \beta_{jh} \Delta \ln W_{pit}^h + \beta_{jl} \Delta \ln W_{pit}^l \\ &+ \beta_{jm} \Delta \ln(1 + tc)_{pit}^m + \beta_{j\tau} \Delta \ln(1 - \tau)_{pit} + \phi_{jy} \Delta \ln Y_{pit} + \gamma \ln X_{pit} + \varepsilon_{pit} \end{aligned}$$

- This equation is estimated four times: two time periods, each with two types of parent labor.

# Changes in Host-Country Tariffs



# Changes in Host-Country Trans. Costs



# Estimation Results, 1989-1994 Panel

Regressor	Specification (1)	Specification (2)
$\Delta$ Affiliate Sales	0.029 (0.014)*	0.033 (0.015)*
$\Delta$ Affiliate More-Skilled Wage	-0.385 (0.141)**	-0.303 (0.144)*
$\Delta$ Affiliate Less-Skilled Wage	0.300 (0.140)*	0.269 (0.139)*
$\Delta$ (1-Host-Country Tax Rate)	0.571 (0.472)	0.471 (0.470)
$\Delta$ Parent Trade Costs	0.703 (0.592)	1.400 (0.708)*
Controls	Industry	Industry
No. Observations	571	571
Adjusted R-Squared	0.652	0.658