

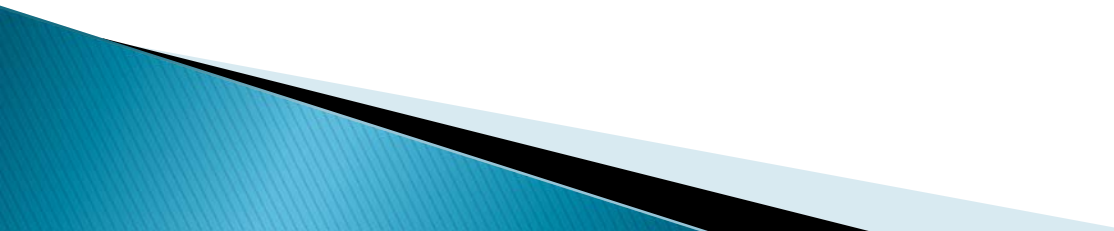
An Investigation into Trade Biases in Agriculture

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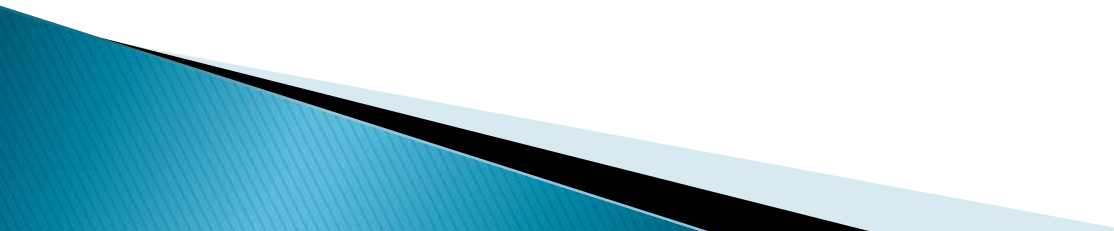
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Introduction

- ▶ Limao & Panagariya (2007)
 - Recent example of modification to “Protection for Sale” (G&H, 1994)
 - Attempt to explain anti-trade bias
 - ▶ Introduces motive of reducing inequality among sectors
 - ▶ We want to assess the validity of this model empirically
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Outline

- ▶ Background of the theory
 - ▶ L&P
 - ▶ Our econometric model
 - ▶ Data and variable calculation methods
 - ▶ Static model results
 - ▶ Conclusion
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Background

- ▶ Grossman & Helpman (1994)
 - Models effects of political weights
 - More weight for industries which spend more on lobbying
- ▶ Touchstone article upon which much of recent research on political economy of trade has been based

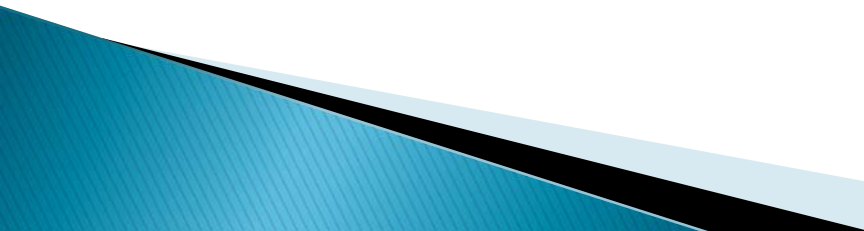
Background (Cont'd)

- ▶ Levy (1999) suggests G&H predicts pro-trade bias
 - Contrary to observed trade policies in agriculture
- ▶ Political weight is based on level of lobbying
 - Greater income share means more lobbyist spending
 - Exporters predicted to have greater income share in G&H framework
 - Want pro-trade bias

The L&P Model

- ▶ Limao and Panagariya (2007)
 - Political weight not based solely on lobbyist spending
 - Weight based on motive to reduce/eliminate income inequality between sectors
 - Import-competing sector predicted to have smaller income share (more often)
 - Government protects import-competing sector to reduce inequality

What L&P model suggests

- ▶ Direction of support is dependent upon what type of policy will reduce inequality
 - ▶ More one-sided support when inequality is greater
 - ▶ Anti-trade bias when import-competing goods have lower income share
 - ▶ Pro-trade bias when exporting goods have lower income share
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Empirical Application

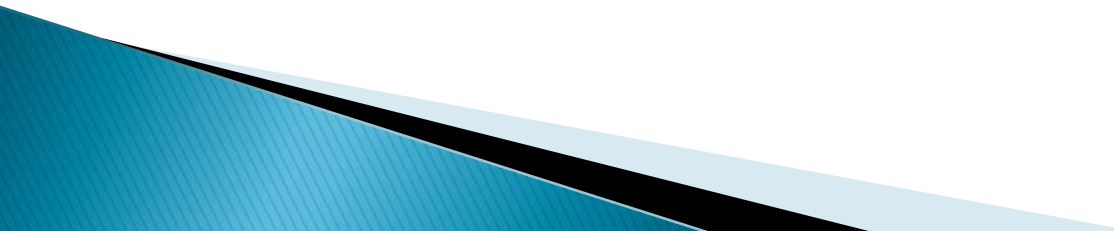
- ▶ Estimate reduced form model
 - Structural model requires many unobservable variables and elasticities
 - Use of panel data allows for control of unobservables
- ▶ Will test correlation between sectoral income inequality and trade bias
- ▶ Agricultural data will be used
 - Tend to observe higher levels of support in agriculture
- ▶ Two sectors are import-competing and exporting
 - Based on trade status as defined in World Bank database

Econometric Model

$$TB_{it} = \alpha_0 + \alpha_1 Ineq_{it} \cdot MSmall_{it} + \alpha_2 Ineq_{it} \cdot XSmall_{it} + \alpha_N X_{it} + \varepsilon_{it}$$

- ▶ TB : level of trade bias
- ▶ $Ineq$: level of inequality between sectors
- ▶ $MSmall$, $XSmall$: Dummies for which sector has smaller income share
- ▶ X : Control variables

Data

- ▶ Core data including TB, inequality, production values, WRI from World Bank database
 - *Distortions to Agricultural Incentives*
 - ▶ Over 70 countries, 6 continents
 - ▶ Data ranges back as far as mid-1950s
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Estimation

- ▶ Starting with static, fixed effects panel model
- ▶ Inequality, many control variables lagged with 5 year moving average
 - Endogeneity concerns

Trade Bias

- ▶ Measures amount of assistance (NRA) to export goods relative to import goods

$$TB_{it} = \left[\left(\frac{1 + NRA_{X_{it}}}{1 + NRA_{M_{it}}} \right) - 1 \right]$$

- ▶ NRAs are weighted averages of assistance to each covered product
- ▶ Capture support through border price controls, direct producer support, and support to inputs
- ▶ Positive when exports are more heavily supported and vice versa

Inequality

- ▶ Measure of relative production value of exporting and import-competing goods, normalized by overall production value

$$INEQ_{it} = \frac{X_{it} - M_{it}}{Val_{it}}$$

- ▶ Greater gap = greater inequality
- ▶ Positive if import-competing goods smaller, vice versa
- ▶ Normalized to control for variability of ag production, and to give a rate of inequality
- ▶ Since only two values being compared, simple measure is sufficient

Summary Statistics

- ▶ Show negative trade bias, positive inequality, on average
 - In line with notions behind the model

Coefficient Hypotheses

Variable	Expected Sign
Inequality when Import-Competing Sector Smaller	Negative
Inequality when Exporting Sector Smaller	Negative
Welfare Reduction Index	Ambiguous
Signatory to WTO/GATT	Ambiguous
Herfindahl Index – Import-Competing Sector	Negative
Herfindahl Index – Exporting Sector	Positive
Share of World Imports	Negative
Share of World Exports	Positive
Signatory to PTAs	Ambiguous, Likely Positive
Time Trend	Positive

Static Model Results

Note: One asterisk denotes significance at 10% level, two asterisks denote significance at 5% level

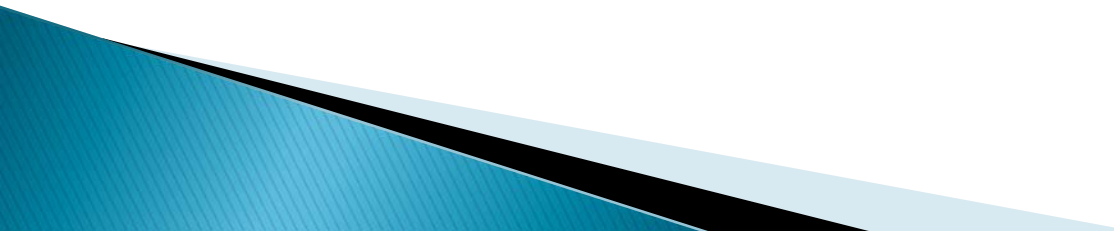
Variable	Coefficients (Standard Errors)
Inequality, M smaller, Developing	-0.164* (0.088)
Inequality, X smaller, Developing	-0.196* (0.113)
Inequality, M smaller, Developed	0.539** (0.205)
Inequality, X smaller, Developed	-0.066 (0.102)
WRI	-0.000 (0.001)
WTO/GATT	-0.094** (0.036)
Herfindahl, Import-Competing	0.137 (0.093)
Herfindahl, Exporting	-0.062 (0.060)
Import Share	3.796** (0.967)
Export Share	-1.415 (1.062)
CAP	-0.119** (0.035)
NAFTA	-0.081 (0.051)
MERCOSUR	0.153** (0.064)
ANDEAN	0.037 (0.063)
ASEAN	-0.095** (0.045)
Year	0.001 (0.001)
Constant	-0.199** (0.087)

Results (Cont'd)

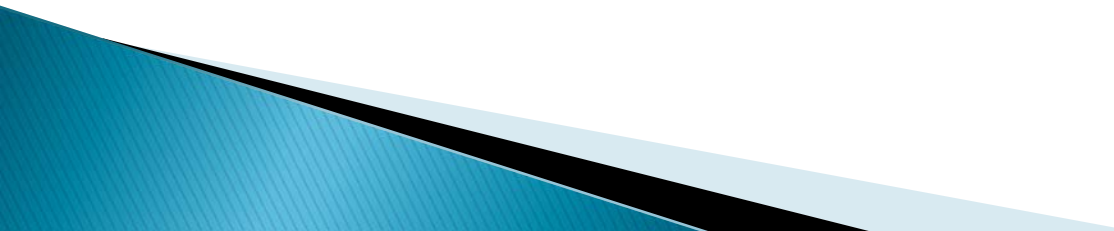
Variable	Result
Inequality, M smaller, Developing	-, Weakly Significant
Inequality, X smaller, Developing	-, Weakly Significant
Inequality, M smaller, Developed	+, Significant
Inequality, X smaller, Developed	-, Insignificant
WRI	-, Insignificant
WTO/GATT	-, Significant
Herf., M Sector	+, Insignificant
Herf., X Sector	-, Insignificant

Variable	Result
Import Share	+, Significant
Export Share	-, Insignificant
CAP	-, Significant
NAFTA	-, Insignificant
MERCOSUR	+, Significant
ANDEAN	+, Insignificant
ASEAN	-, Significant
Year	+, Insignificant

Dynamic Model

- ▶ We suspect the process may be dynamic
 - Intuitively, high correlation between current and past levels of trade bias
 - ▶ Preliminary dynamic empirical results suggest this may be true
 - ▶ Needs to be refined econometrically
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Conclusion

- ▶ Want to empirically assess L&P's work
 - ▶ Test hypothesis that inequality level is negatively correlated with trade bias
 - ▶ Using World Bank panel dataset corresponding to over 70 countries, dating back in some cases to the mid-1950s
 - ▶ Static results provide mixed empirical support for L&P's theory
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