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A Micro-Empirical Foundation for the Political Economy of Exchange Rate Populism

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IMF

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  - Dollar, 1992
    - Significant negative impact of exchange rate misalignment on growth
  - Rodrik, 2006
    - "Undervaluation ... stimulates economic growth"
  - Johnson, Ostry, Subramanian, 2006
    - Avoidance of excessive overvaluation: characteristic of countries that have sustained high growth rates

Motivation

- Latin American countries present polar opposite case:
  - often allowed their currencies to appreciate, or maintained large black market premia
  - achieved lower growth rates
  - more macroeconomic instability

Brazilian and Korean REER Over Time

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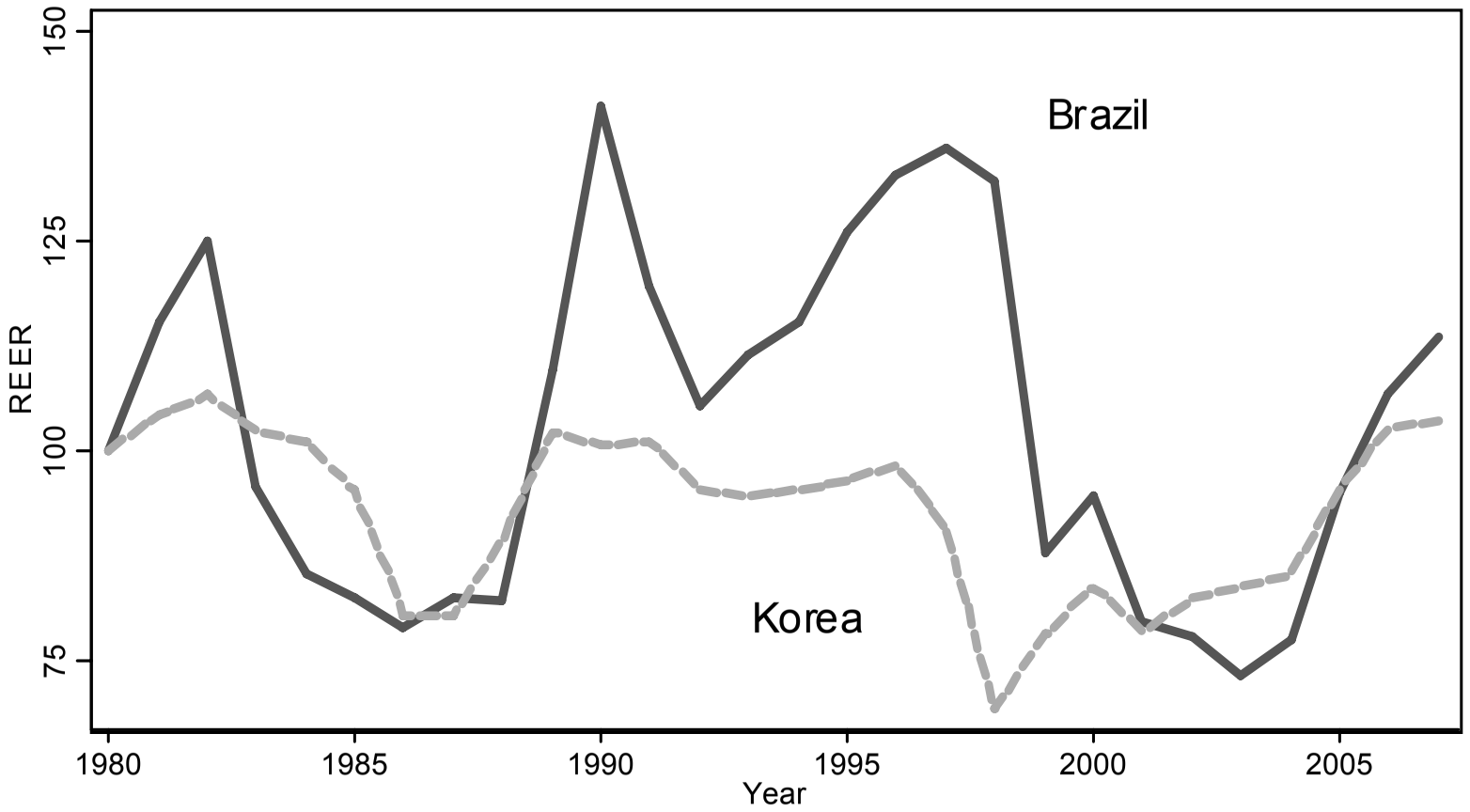
Real Per Capita GDP Growth in 1980-2003 (from PWT):

Brazil: 6.3 percent; Korea: 291.3 percent

Brazilian and Korean REER Over Time



Real Per Capita GDP Growth in 1980-2003 (from PWT):

Brazil: 1/4 percent/year; Korea: 6 percent/year

Why is Latin America Different?

- Macroeconomic Populism (Dornbusch and Edwards, 1990)
  - Ensemble of policies with expansionary and redistributive goals that often leads to appreciation and eventually to a crises (and an IMF program)
- "Popularity" of appreciations widely assumed. But no study has looked at its distributive impact

What is the redistributive impact from appreciation?

In the short-term:

- Consumption pass through channel:
  - Poor people tend to spend more on tradables (particularly food). Inflation pass-through of an appreciation tends to be pro-poor
- Income channel
  - Effect of appreciation on income depends on the exposure of different sectors, price pass-through, distribution of skills and sector of employment

Quantifying Distributional Effects

- What we do: Quantify distributional effects using household-level data from Brazil and Mexico
  - Two main countries in Latin America
  - Different environments:
    - Mexico has more opportunities for labor-intensive manufacturing due to NAFTA and proximity to US
    - Brazil also has a vibrant manufacturing sector, but commodities play a stronger role than in Mexico

Quantifying Distributional Effects

- What we do **not** do:
  - Estimate effect of appreciation on average income
  - Take position on merits of neo-mercantilism

Empirical Strategy

- Combine:
  - pass-through estimate on CPI components
  - consumption basket for different households

  $\Rightarrow$ pass-through effect on consumption
- Analyze:
  - household level data on income, occupation, education, age over time

  $\Rightarrow$ factor income effect (around a given mean)

Empirical Strategy - Interpretation

$$\frac{\mathrm{d}x_0^j}{e^j} = \left(\sum_i s_i^j \frac{\partial \ln p_i}{\partial \ln E} - \sum_m \theta_m^j \frac{\partial \ln w_m^j}{\partial \ln E} \right) \mathrm{d} \ln E$$

- We estimate the compensating variation of a change in exchange rates (more precisely: nominal effective exchange rate, NEER).

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- We estimate the compensating variation of a change in exchange rates.
  - The first term on the rhs is a *consumption effect*: the product of expenditure shares and pass-through coefficients
  - The second term on the rhs is a *factor income effect:* the effect of exchange rates on household income

Consumption pass through effect

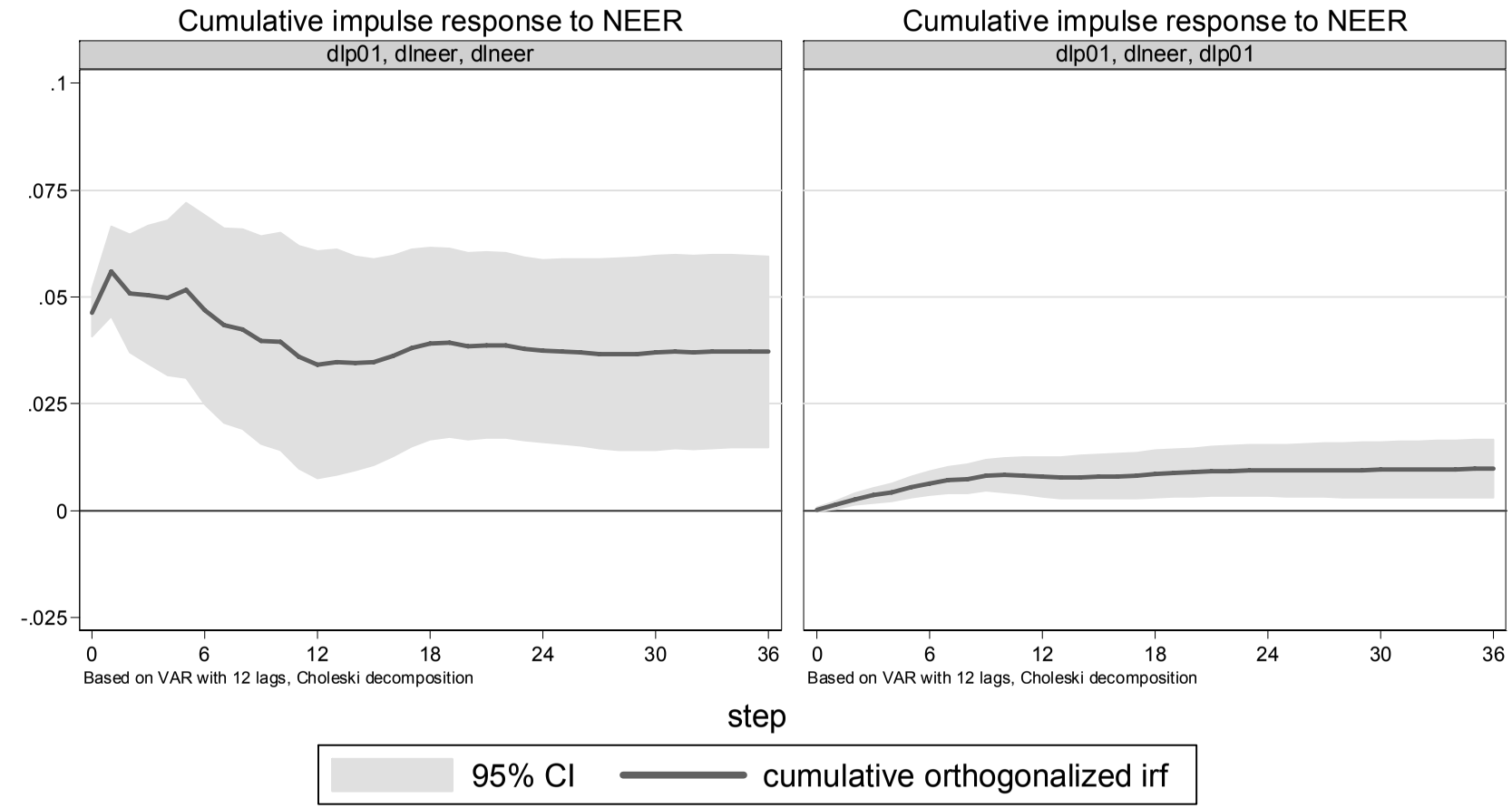
Estimating Pass Through

- We use a VAR to estimate the cumulative impulse response of NEER to prices of 19 groups of goods in Brazil and 17 groups in Mexico
- Pass through estimates larger for tradable goods as expected (pass through for food among the highest)
- Pass through larger in Mexico

Pass-through estimates for Brazil

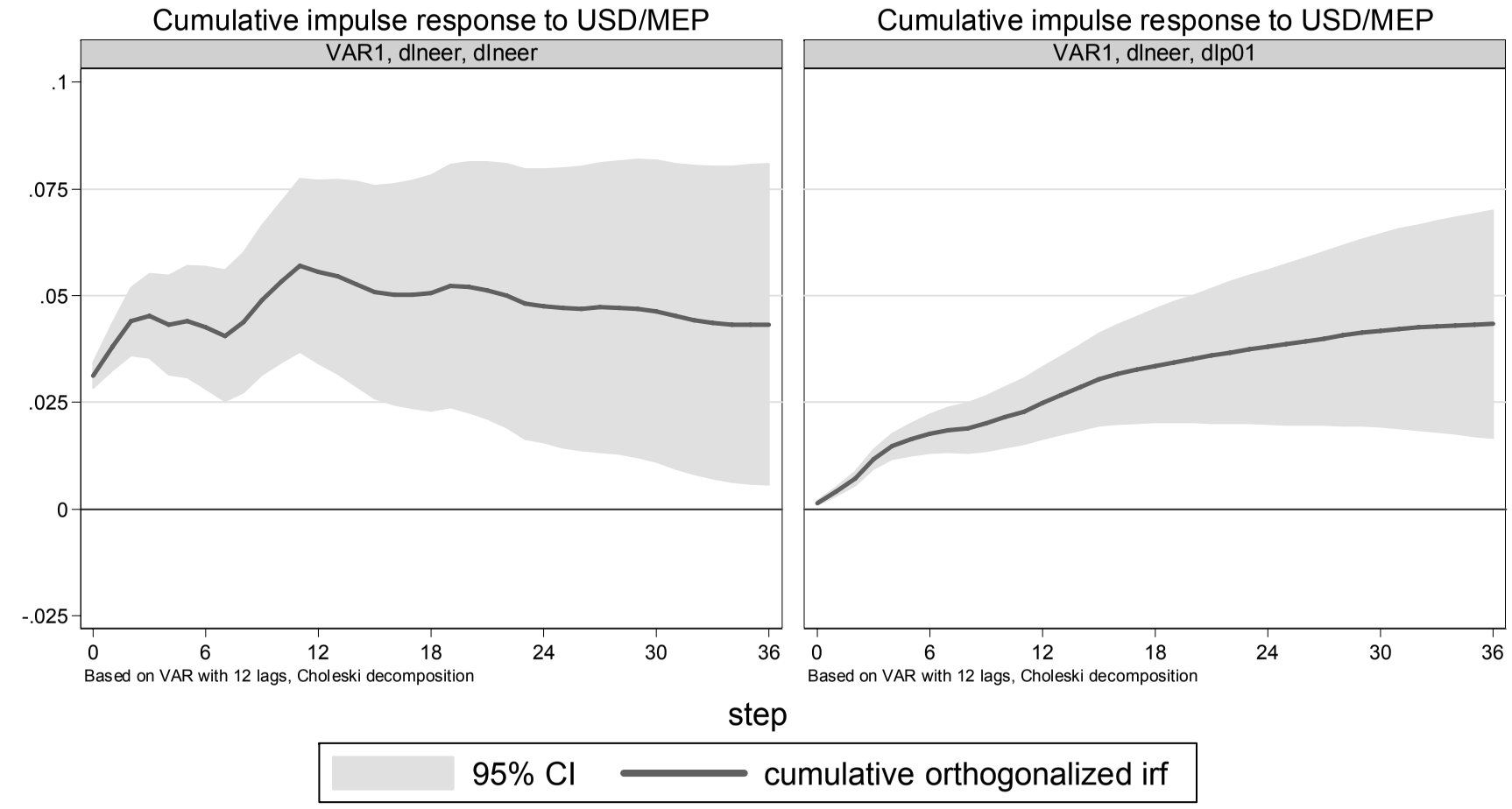
Exchange rate pass-through (in percent)	**%ΔP/ΔE**		**%ΔP**	
	12 months	24 months	12 months	24 months
General Index	14.1	17.1	0.8	0.9
Food at home	26.6	27.1	1.4	1.4
Food outside the home	7.3	6.6	0.4	0.3
Home maintenance and fees	9.3	13.9	0.7	0.8
Fuel and energy	13.9	11.9	1.1	0.5
Furniture	13.7	15.0	0.8	0.8
Electronic appliances	24.1	22.3	1.2	1.0
Repairs and maintenance	3.8	2.0	0.2	0.1
Clothing	-1.5	-0.1	0.0	0.0
Shoes and accessories	0.0	-0.5	0.0	0.0
Jewelry	29.4	31.1	1.6	1.7
Fabrics	15.1	20.2	1.0	1.0
Transportation	20.7	19.7	0.9	0.8
Pharmaceutic and optical products	13.9	15.9	0.8	0.9
Health services	0.1	0.9	0.0	0.0
Personal care and hygiene	21.0	26.4	1.4	1.4
Personal services	-3.8	-6.4	-0.3	-0.3
Recreation and tobacco	6.6	5.7	0.3	0.3
Communication	-6.9	1.4	0.3	-0.2
Education and books	7.7	14.2	0.6	0.9

Estimating Pass Through: Brazil



Graphs by irfname, impulse variable, and response variable

Estimating Pass Through: Mexico

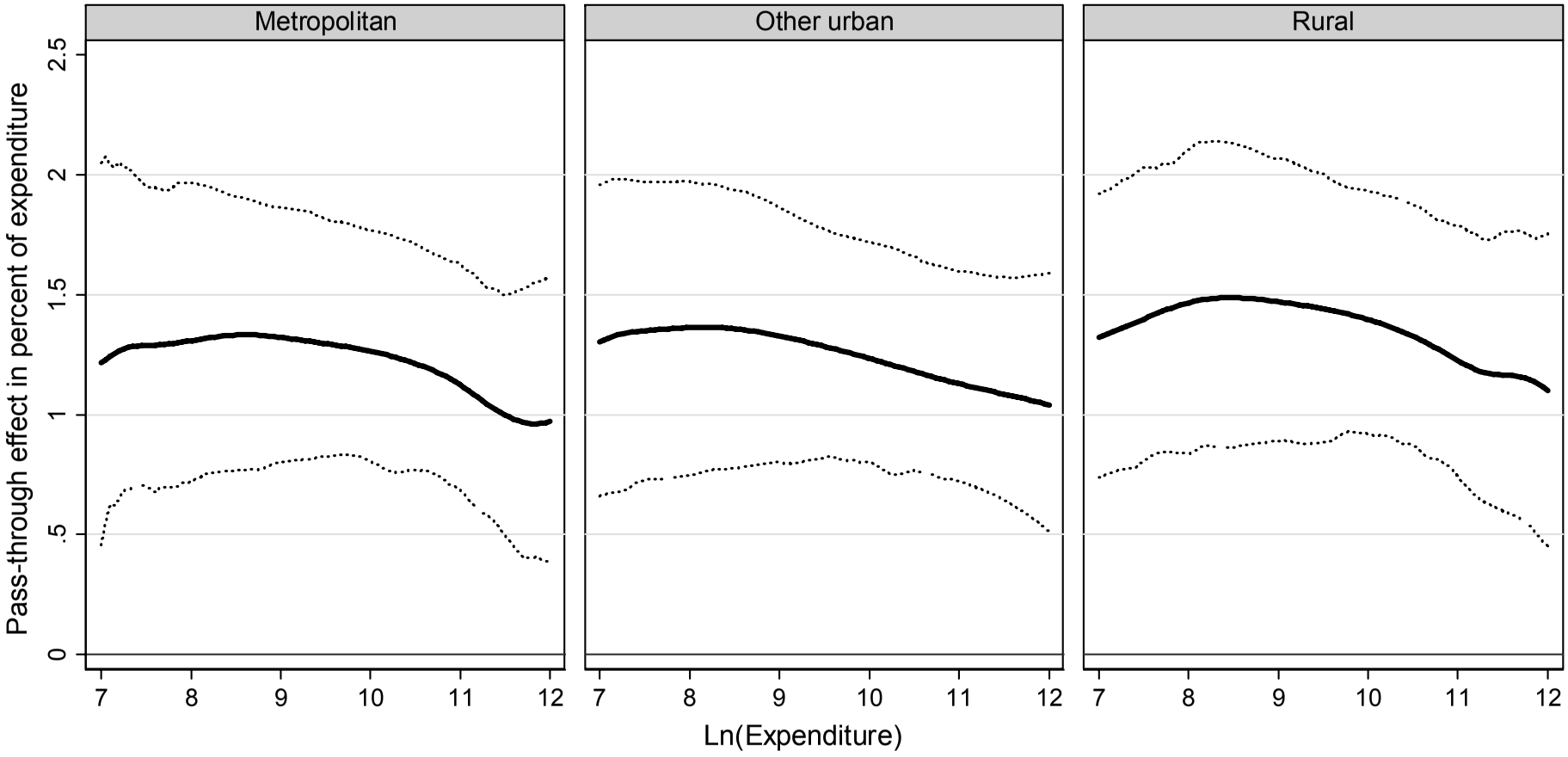


Graphs by irfname, impulse variable, and response variable

Estimating Pass Through for Individual Households/Across Income Distribution

- Using household-level expenditure data we compute share of expenditures in different goods;
- Compute household-specific pass through
- Estimate how pass through varies along expenditure distribution

Brazil: Pass-through effect of a 10 percent NEER appreciation, by location



Factor income effects

Estimating Effects on Income Distribution

- Estimate pass through from NEER to REER
- Group households from repeated cross-section surveys by:
  - Education * Region * Age in Brazil
  - Education * Region * Age * Sector in Mexico
- Regress group average income on aggregate average income and REER, allowing for different coefficients across groups

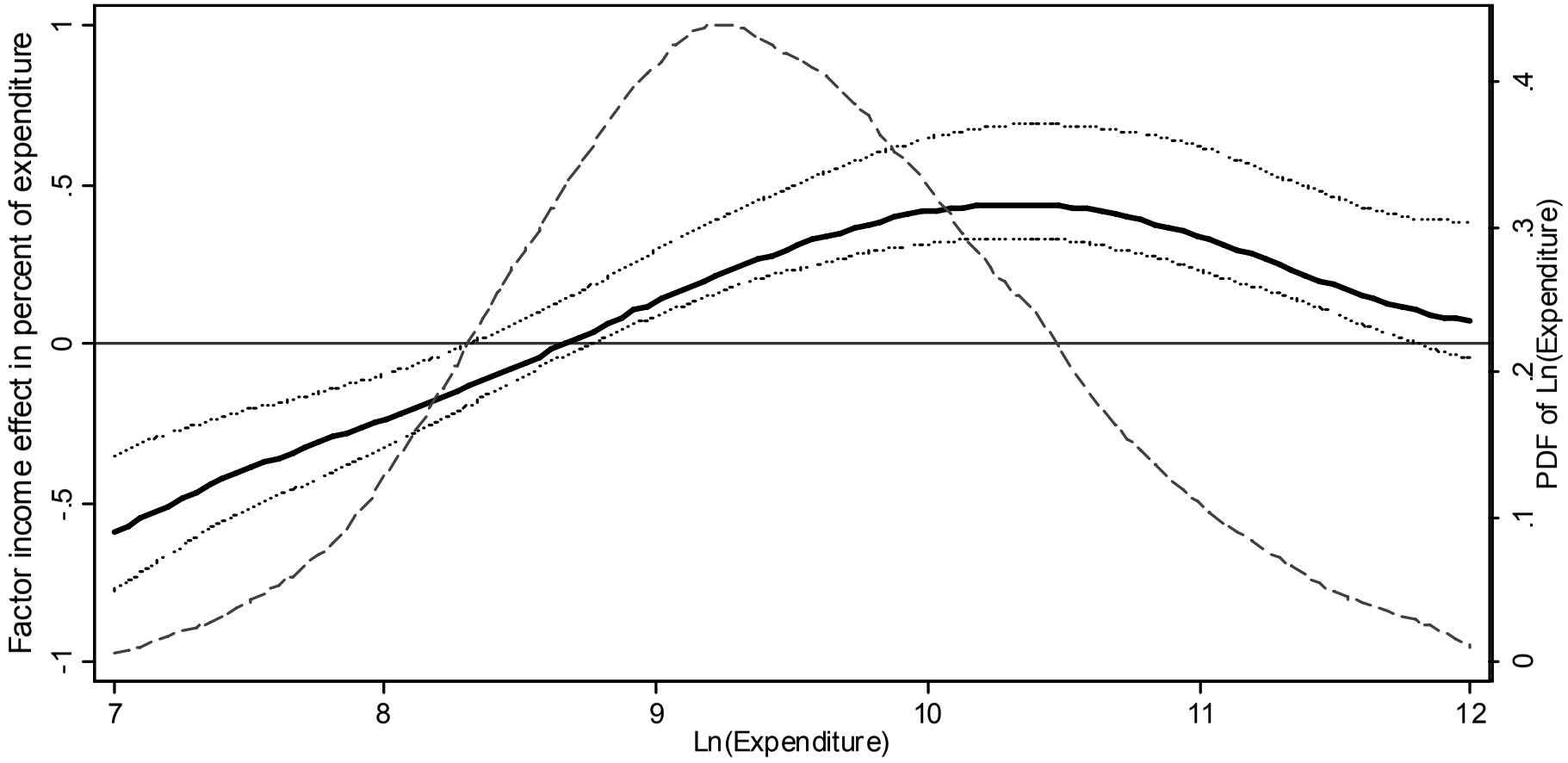
$$y_{mt} = \beta_m y_{.t} + \alpha_m e_t + Z_{mt}\gamma + \mu_m + \varepsilon_{mt}$$

Estimating Effects on Income Distribution

- Estimates provide information on how exchange rate movements affect income relative to the mean in that year

$$y_{mt} - y_{.t} = (1 - \beta_m) y_{.t} + \alpha_m e_t + Z_{mt}\gamma + \mu_m + \varepsilon_{mt}$$

Brazil: Factor income effect of a 10 percent NEER appreciation



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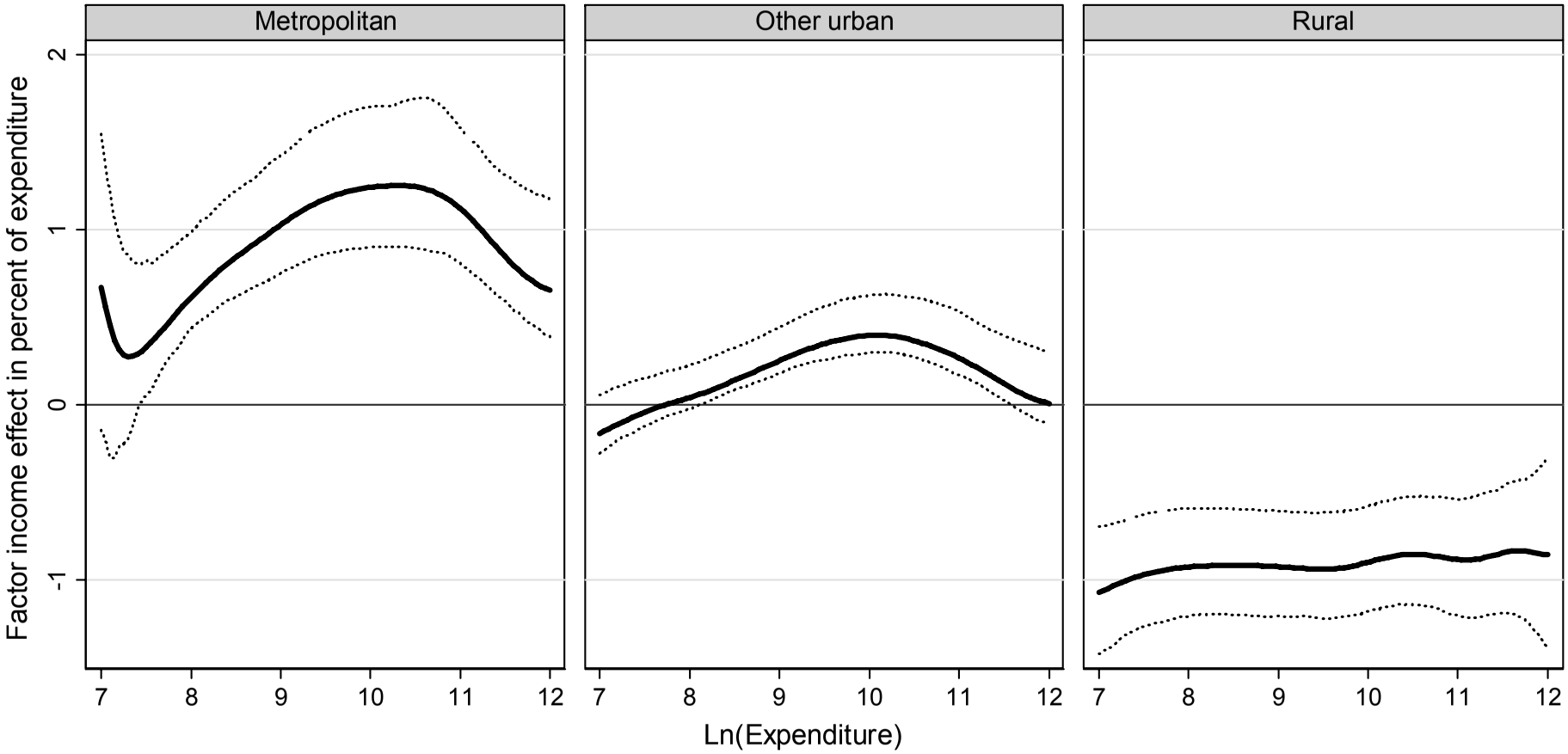
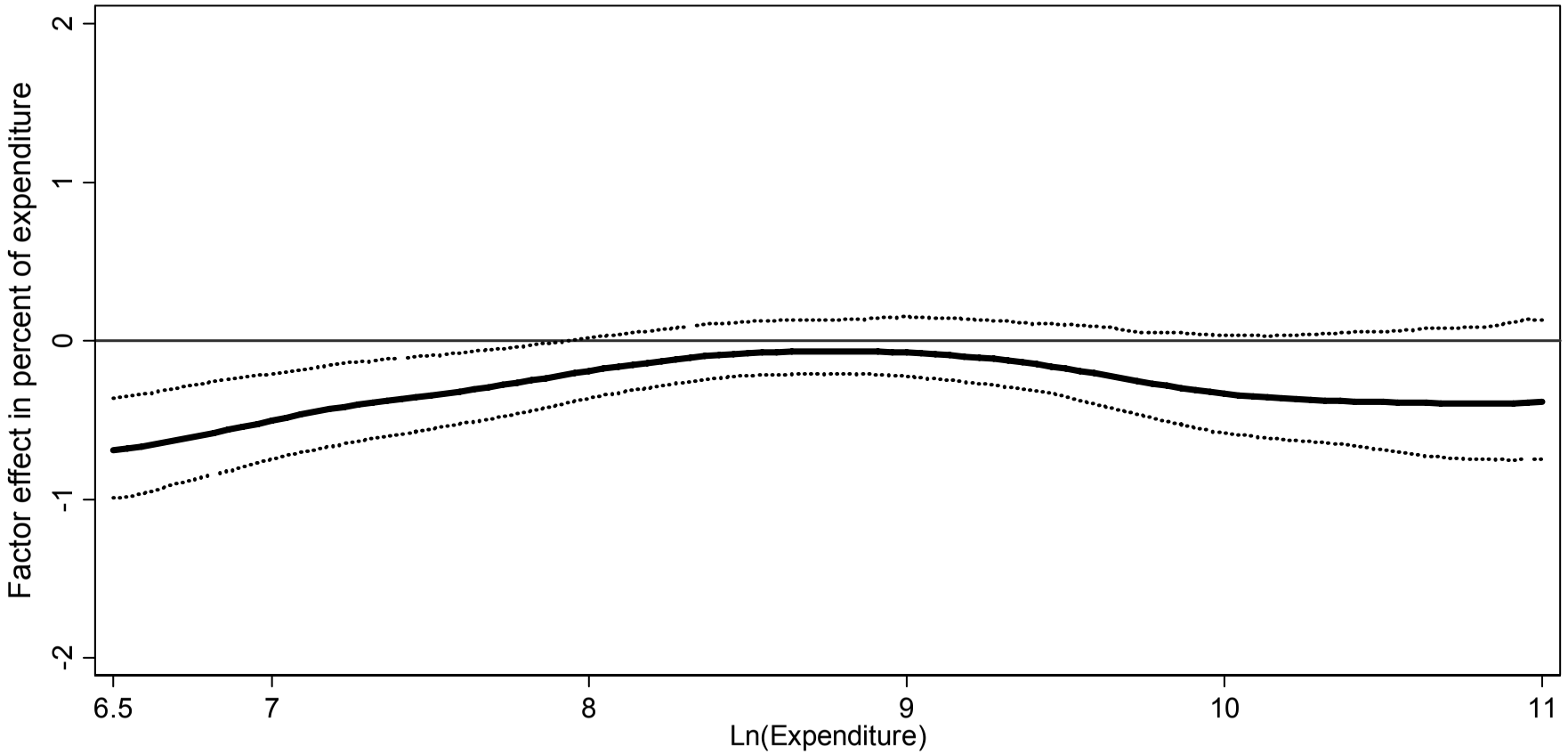
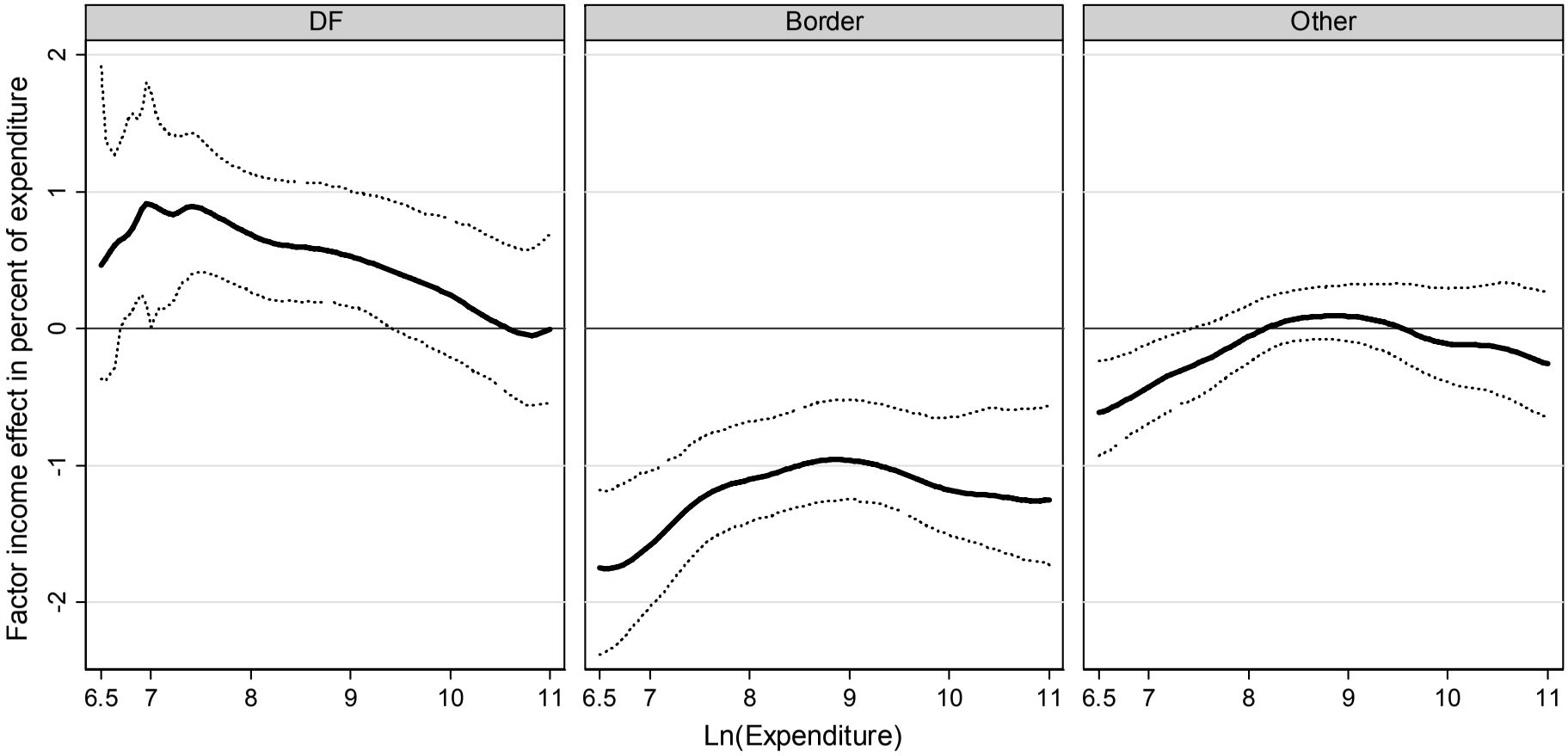


Mexico: Factor income effect of a 10 percent NEER appreciation

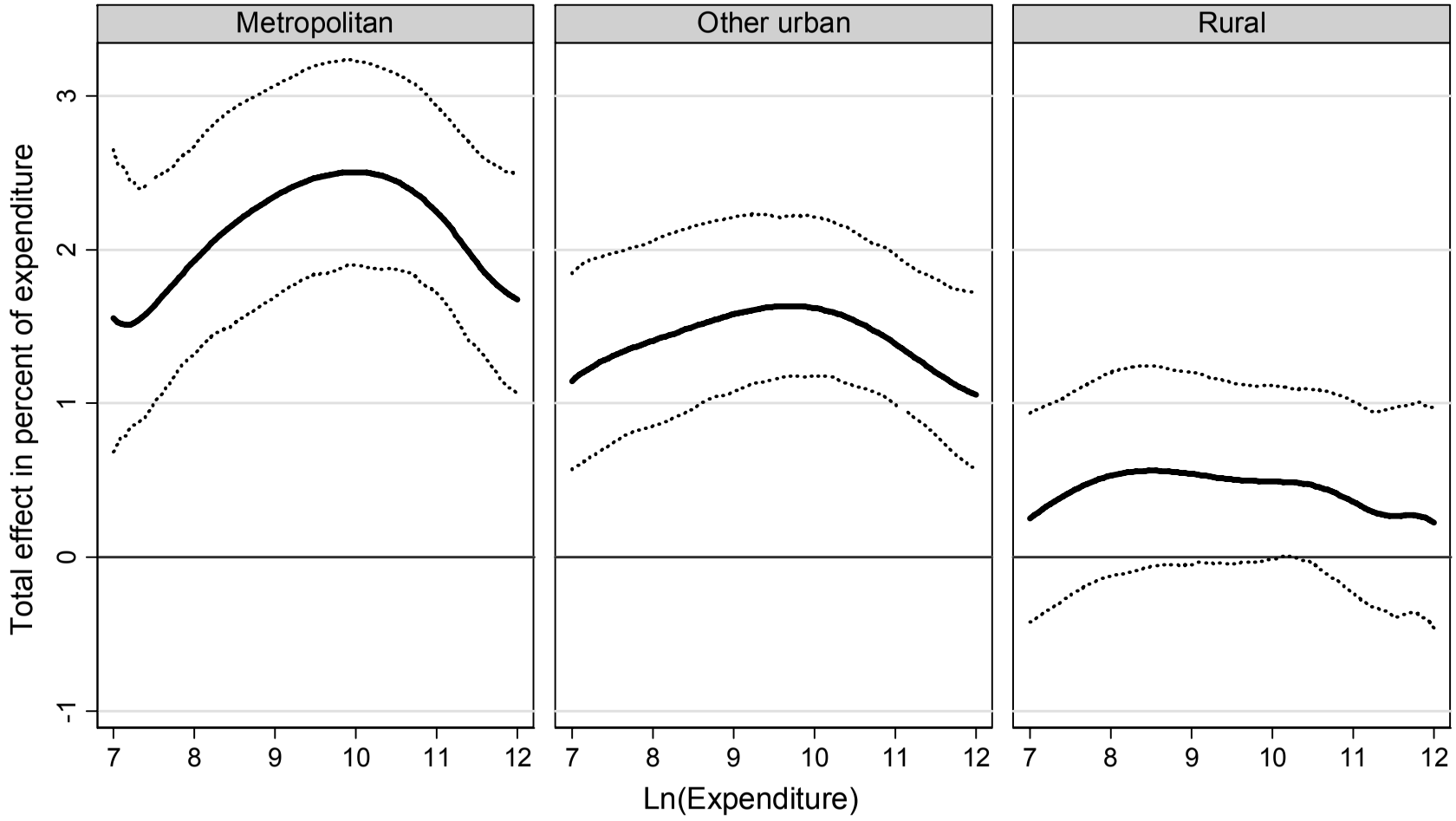


Mexico: Factor income effect of a 10 percent NEER appreciation, by location

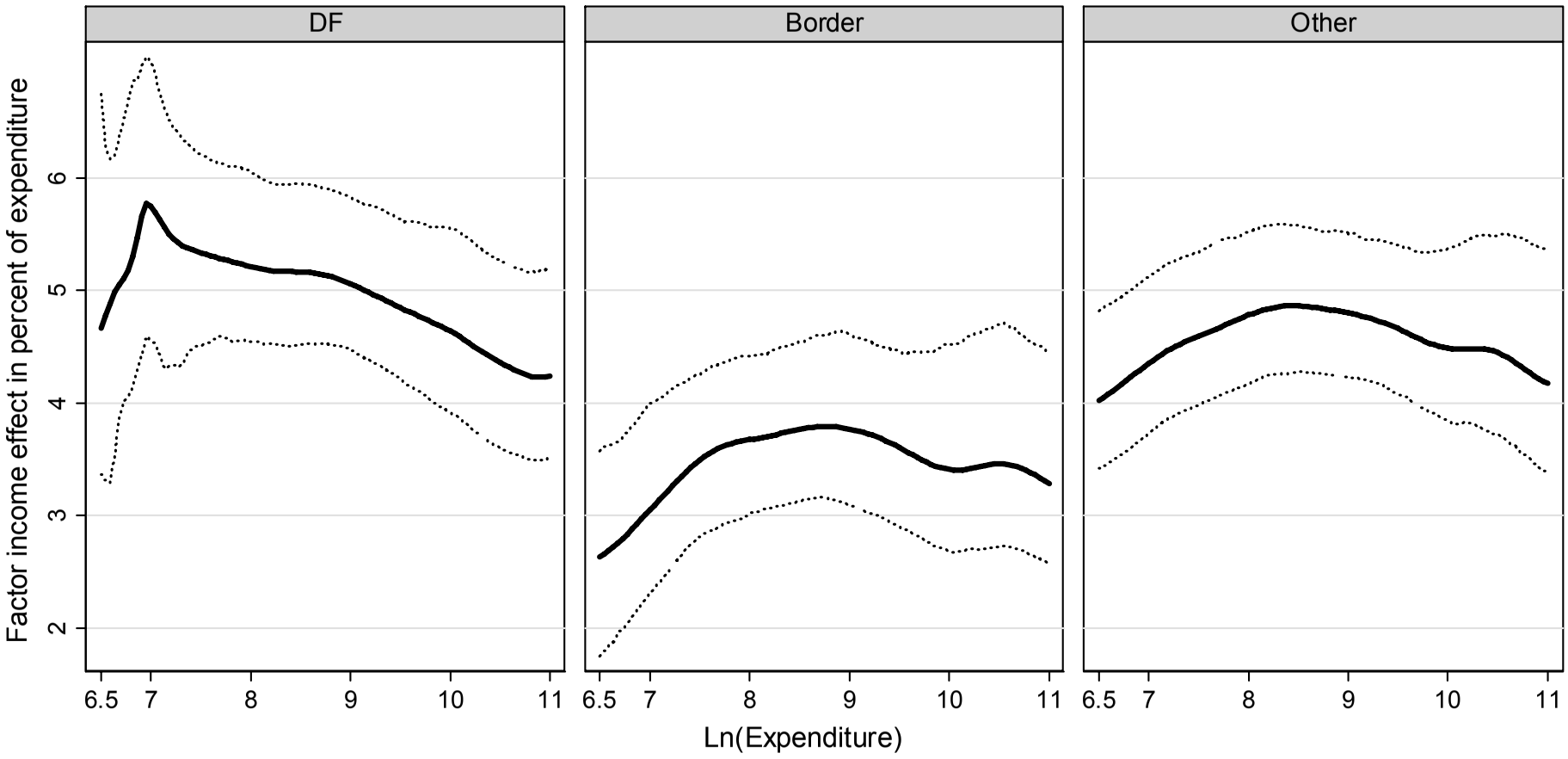


Total effects

Brazil: Total effect of a 10 percent NEER rate appreciation, by type of location



Mexico: Total effect of a 10 percent nominal exchange rate appreciation, by type of location



Conclusion

- Distributional effects are small...
- ... and are dominated by differences in factor incomes response to exchange rates, not consumption.
  - In Brazil, political cleavage between metropolitan (pro-appreciation) and rural areas (against it)
  - In Mexico, political cleavage between the poor from DF (pro-appreciation) and the border states (against it)
- In both countries, appreciations are more favored by households close to the median of the income distribution.