Discussion of

# "Commodity Prices, Growth and Productivity: A Sectoral View"

by

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# Bigger Picture

- Dutch disease
  - ➢ After a commodity boom, some segments of the economy of commodity exporters become less competitive in the global market which results in a contraction in those sectors and a lack of TFP progress
  - ➢ Depletion of resources may eventually limit growth unless TFP results in more efficient use of resources

- While the mechanism of this phenomenon is well understood, empirical evidence for its relevance is mixed.

# What Does the Paper Do?

- Quantifies the effects of temporary and permanent copper price shocks on measures of productivity and growth

- Exploits the heterogeneity of sectoral responses to assess the relevance of Dutch-disease concerns for Chile

- Decomposes the estimated effect on TFP into a reallocation component and "true" productivity changes

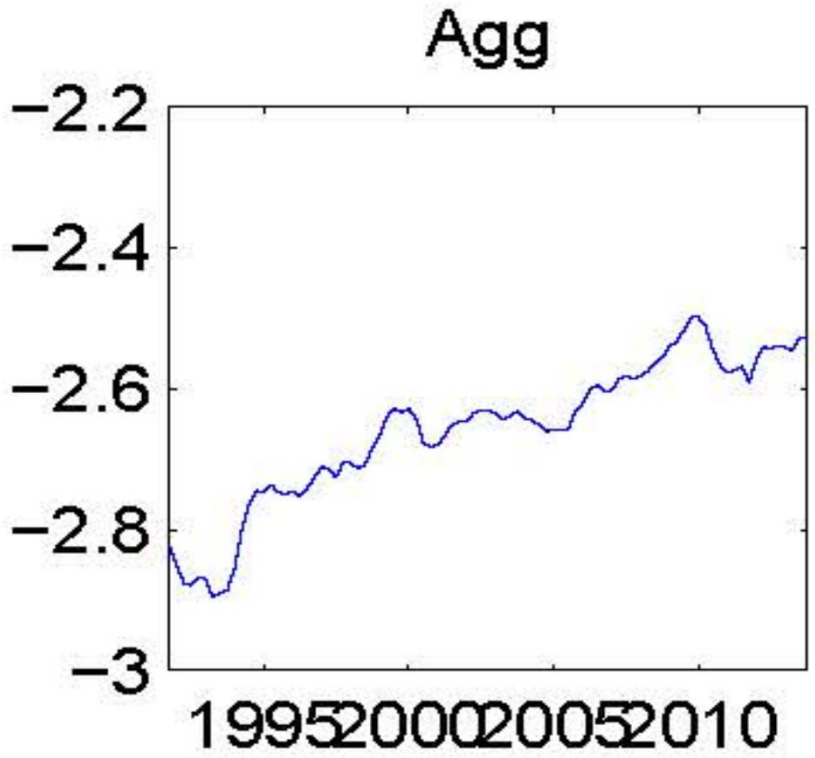
- Finds that manufacturing output increases, but TFP declines after a shock that raises copper prices

# TFP Measures

- Previous studies have computed sectoral TFP measures for Chile
  - ➢ What are the differences in methodology?
  - ➢ How much do the constructed measures differ from previous approaches?
  - ➢ How sensitive are the results to alternative measures of TFP?

# TFP Measures

- Off-the-shelf measure for aggregate TFP for Chile from Feenstra, Inklaar and Timmer, "The Next Generation of the Penn World Table" (AER 2015)

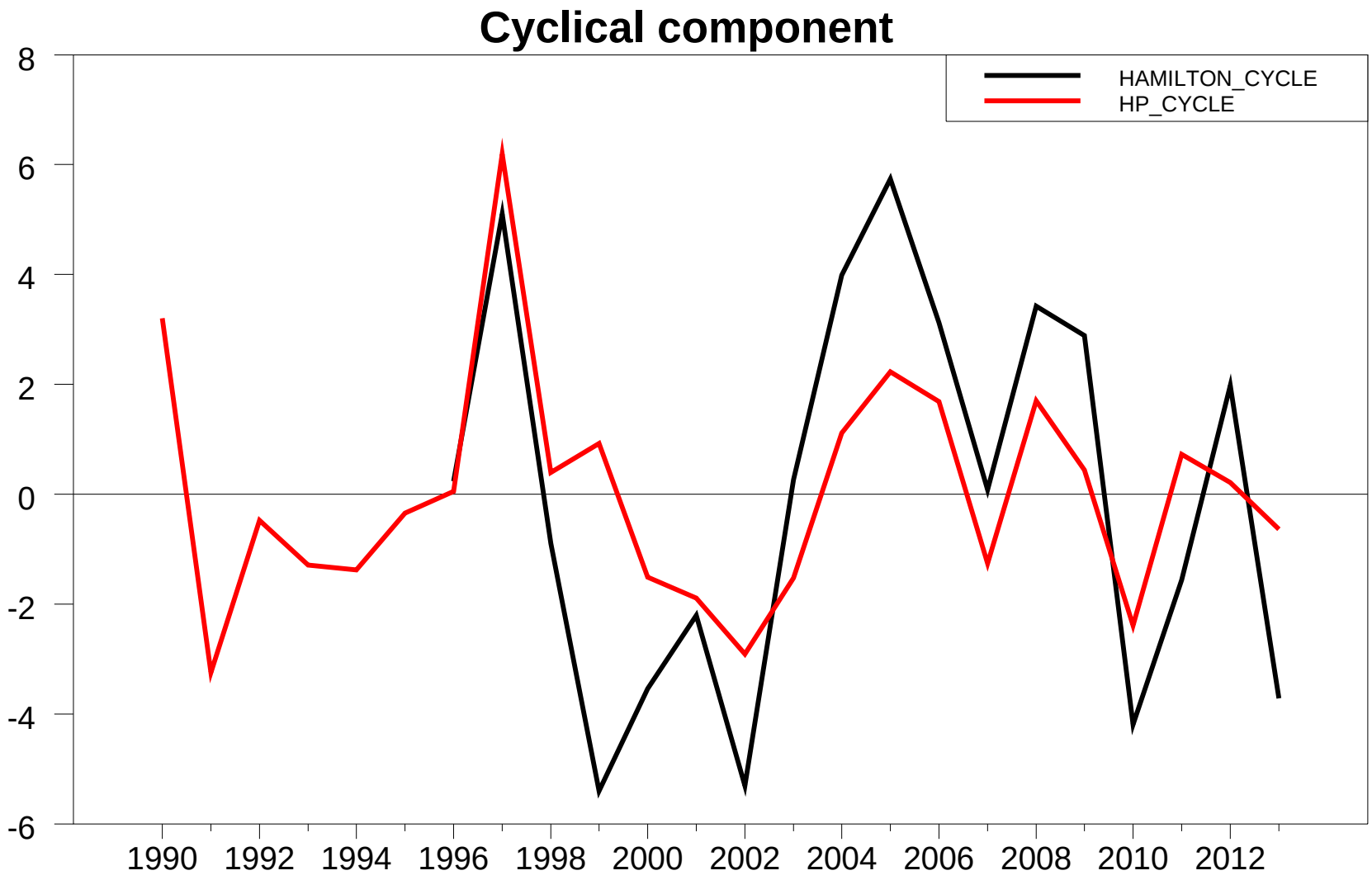



# TFP Measures

- For some of the components in the computation of TFP, the authors use an HP filter for trend-cycle decomposition
- James Hamilton, "Why You Should Never Use the Hodrick-Prescott Filter"
  - HP-filtered series is a linear function of future variables that are not knowable at date *t*
  - Dynamics of resulting series primarily reflect the filter, not the true data-generating process
  - Maximum likelihood estimate of smoothing parameter $\lambda$ is typically much smaller than usual assumed values
  - This paper: HP assumes $\lambda = 6.25$, actual MLE = 0.6

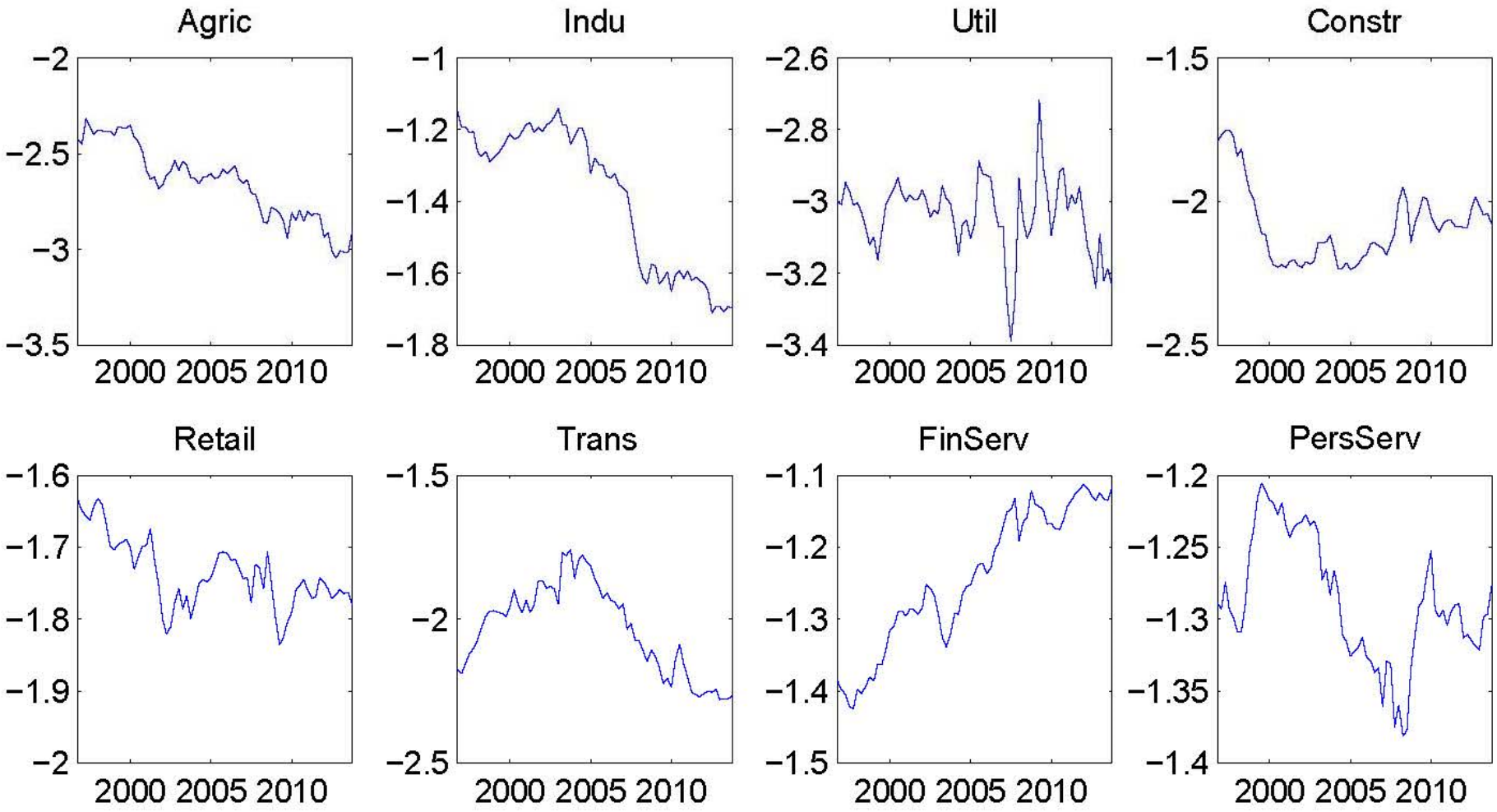
    ⇨ HP over smooths by order of magnitude

# Energy Consumption Data



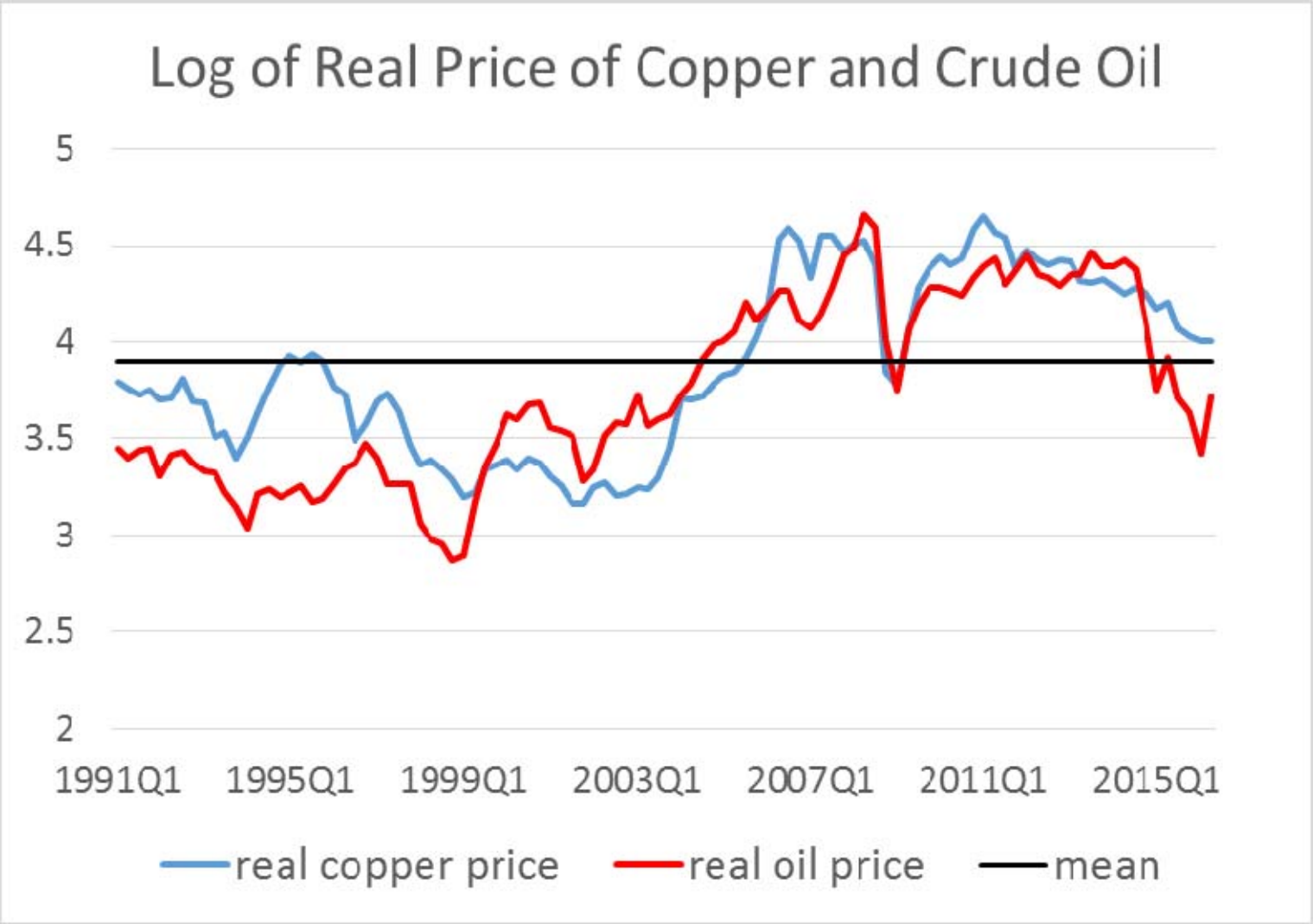
# Shares of Nominal GDP: Units?

Figure 5: Shares of nominal GDP (as a percentage of GDP excluding Mining and Utilities)



# World Price of Copper

- Break in 2005? ⇨ Comparison with real oil price



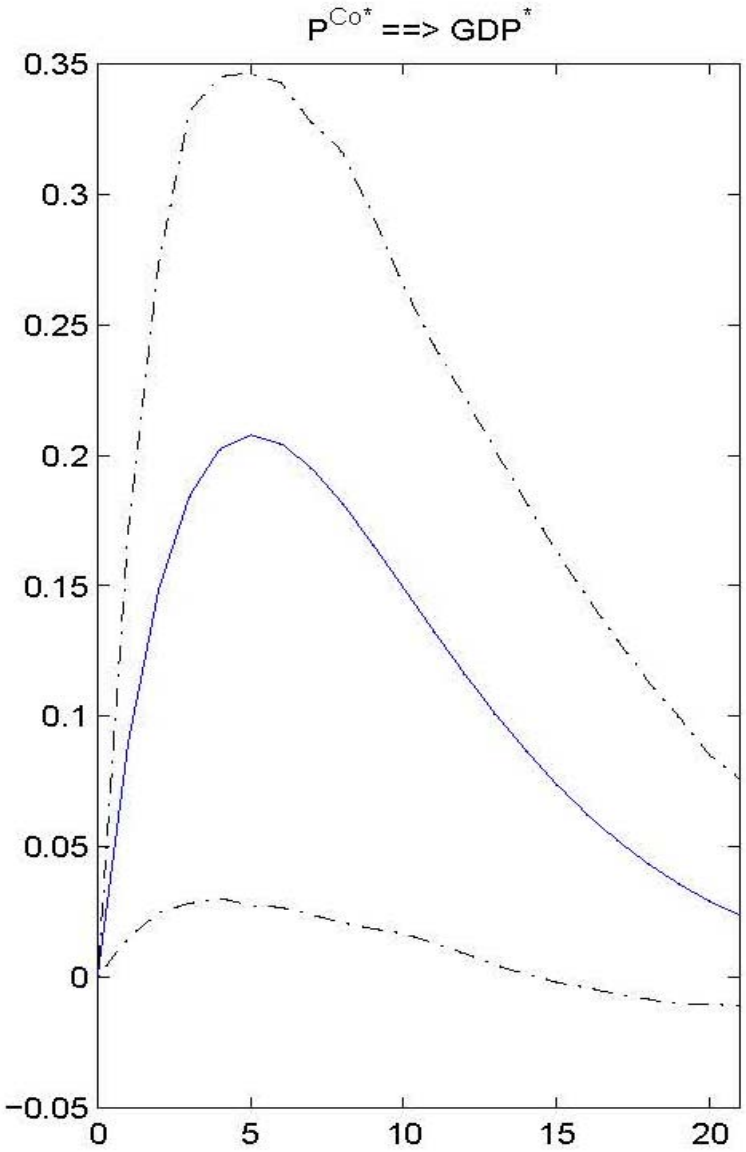
# World Price of Copper

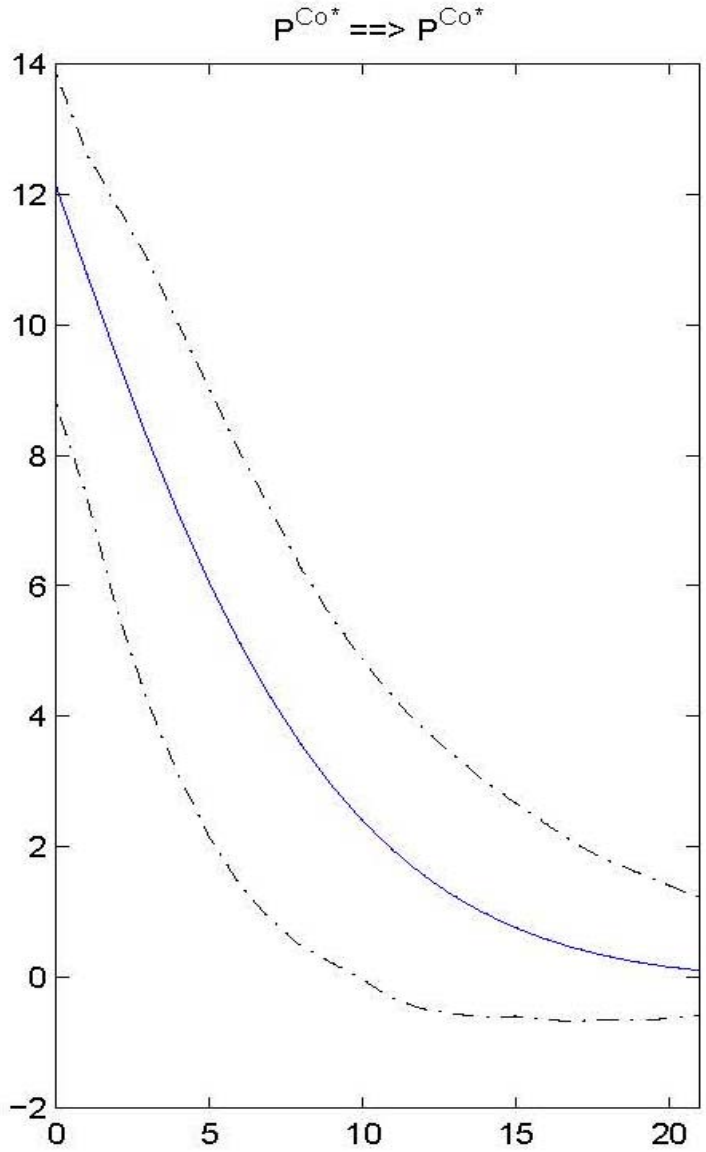
- Structural break in 2005:
  - Why would the break be deterministic?
  - What's the economic story behind the break?
  - Deterministic structural break tests are prone to rejecting when there are persistent transitory dynamics (Kilian and Ohanian, MD 2002) and the sample is small.
  - If there were important breaks, then a linear model such as a VAR would not perform well in out-of-sample forecasting.
    ⇨ Baumeister and Kilian (JBES 2012) show that VAR model produces accurate forecasts for real price of oil.

# Global Demand for Copper

- Sources of copper price shock matter for economic consequences: separate price changes driven by global economic activity from price changes that are specific to the copper market
- Proxy: trade-weighted GDP of Chile's trading partners
  - Main trading partners: China, US, Brazil
  - Why only trading partners? Why is this the relevant metric?
  - Use more inclusive measure of global real economic activity
- Identification assumption: no response of trading partner's GDP to global copper price shock within the quarter

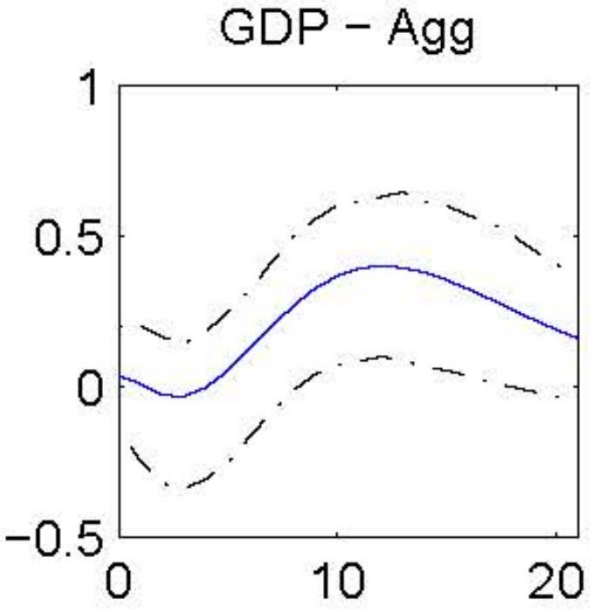
# Responses of International Variables to Temporary Copper Price Shock



# Responses of International Variables to Temporary Copper Price Shock

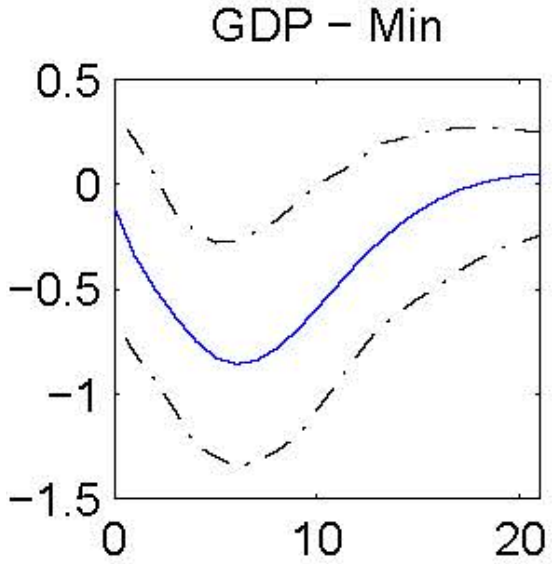
- Both real copper prices and economic activity in Chile's trading partners increase
  - ➢ Author's explanation for positive effect: trading partners are also commodity exporters and thus experience stimulus just as Chile because commodity prices comove
  - ➢ BUT response of GDP in Chile is quite sluggish
  - ➢ What happens after a shock to global activity to those two variables? Look similar? Shocks properly identified?



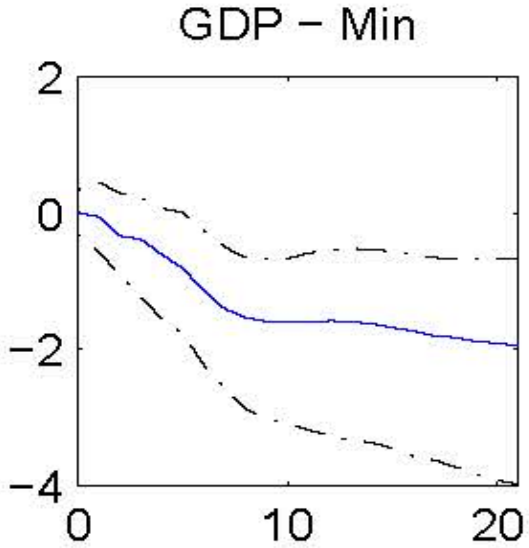
# Sectoral Evidence

- Decline in mining sector GDP after both temporary and permanent increase in copper prices

Temporary shock




Permanent shock

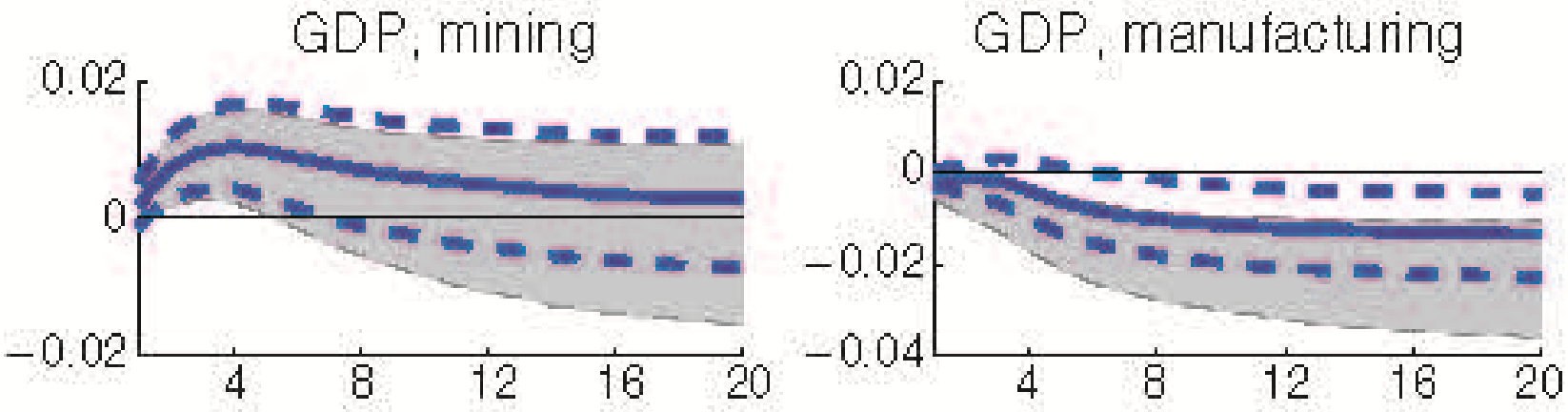



- Where is the boom?
- Reverse causation?
- BUT: Why would other sectors benefit?

# Sectoral Evidence for Canada

- Charnavoki and Dolado (AEJ Macro 2014)

Responses to a real commodity price shock




- What explains the difference?

# Conclusion

- Interesting paper
- Sectoral approach very promising to better understand and interpret aggregate findings and to assess who wins and who loses
- Main challenges:
  - Are the empirical results robust to changes in the data?
  - Is the model well specified and identified?
  - Can we draw general lessons for commodity-exporting countries or is Chile a special case?