

Statement of Current and Future Research Interests

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My primary research interests are in the fields of International Macroeconomics and the Economics of the Environment and Natural Resources. My dissertation consists of three essays employing quantitative open economy models to study international trade transmission, remittance transfers, and the economic impacts of climate change.

International Macroeconomics

My interests in international macro are focused on the economic effects of international linkages. In particular, I am interested in how production linkages (e.g. organization of supply chains) and factor mobility (e.g. migration flows) impact the transmission of domestic shocks and long run growth. I think it is important to identify and investigate international linkages in order to understand how economies are connected across borders, and I believe this issue will become even more important as continuous improvements in technology are producing a world that is increasingly interdependent.

In my job market paper, I examine the role of production sharing and trade in the transmission of the 2008-2009 recession. During the recession, real trade fell roughly three times more than real GDP in the U.S. and Mexico, and by a factor of five in Canada. The fall in output and trade was largely accounted for by manufacturing, and the decline was particularly large in sectors with high levels of production sharing. The sudden and synchronized nature of the fall in output and trade suggest that international linkages played an important role in the transmission of the recession across countries. Motivated by these observations, my paper develops a quantitative small open economy model, where production sharing is represented by a tradable sector that produces a composite good exclusively for the foreign market. I use OECD Input-Output tables and bilateral trade data to calibrate the model to Canada and Mexico. My results suggest that trade transmission can account for 72% of the fall in output in Canada, 19% of the fall in output in Mexico, and two-thirds of the fall in trade for both countries. In the counterfactual experiments I find that production sharing can account for about 40% of the fall in trade. My findings are consistent with the recent empirical literature on the global recession, which argues that trade linkages were important in the international propagation of the shock.

In my second international macro paper, I study how the inflow of remittance transfers impacts the allocation of productive factors across sectors in developing

countries. Remittances are an important source of income for many developing countries. The World Bank estimated that world remittances reached U.S. \$250 billion in 2007, about 2.5% of gross national income in the developing world. I develop an open economy OLG model with free labour mobility and varying tradability of sectors. The model predicts that countries that are net recipients of remittance payments experience a reallocation of productive factors from the tradable sector to the non-tradable sector. I find that the model prediction is consistent with data for a large panel of remittance receiving countries. Controlling for GDP and official aid per capita, the size of the agricultural sector relative to the service sector is about 80% larger in high-remittance countries.

Economics of Natural Resources, Energy, and the Environment

For the past three years I have worked as a research assistant on two different projects investigating the economic impacts of climate change. I am interested in the broader "big picture", studying the consequences of climate change and climate change policy, but also the more technical aspects related to how we go about developing appropriate models to study these issues.

My third paper, with Jim MacGee and Jim Davies, quantifies the net economic impact of climate change and climate change policy on the Canadian economy. We compare the economic costs and benefits from different emission reduction targets on the Canadian economy with their average economic impact in the rest of the world economy. We combine a small open economy model of Canada with the ANEMI model. The ANEMI model is an integrated assessment model developed at the University of Western Ontario that incorporates an energy sector as well as fossil fuel production into a neoclassical growth model. We use the ANEMI framework to develop our baseline analysis of the impact of carbon taxes on the world economy, and to generate paths of carbon emissions, climate, and (relative) prices of fossil fuels which we feed into our small open economy model of Canada. We compare the results from our Canadian economy to those of the ANEMI model for a carbon tax designed to maintain the level of CO₂e below 550 PPM. We find that the economic benefits to Canada of this carbon tax are much smaller (in fact, negative) than they are for the rest of the world. This finding is mainly due to large differences in the calibrated damage function in the Canadian and world model ANEMI economies.

Future Work

In the immediate future, I plan to continue research in international macroeconomics and the economics of energy and the environment, but I am also interested in starting projects in new areas and working with co-authors.

In international macroeconomics I plan to continue my work on trade and production sharing. In particular, I am interested in studying the differences between inter-region versus intra-region production sharing and how they matter for the transmission of domestic shocks. Another research question I am interested in pursuing is related to recent empirical work by Levchenko, Lewis and Tesar (2010) which suggests that production sharing relationships between North-North country pairs and North-South country pairs have different transmission characteristics (Here, North refers to OECD countries, and South to non-OECD countries). Specifically, I would like to investigate how the role of production sharing appears to be much more important for transmission for North-South pairs relative to North-North pairs.

I also plan to further my work in environmental and resource economics. I am particularly interested in the role of energy in macroeconomic models. There is great potential for further work at the intersection of the neoclassical growth model and geophysical models, and I believe that I have lot to contribute in this area. Here, I would like to continue my work with the team at the University of Western Ontario, building on what we have already achieved.

References

- Levchenko, A., L. Lewis, and L. Tesar.** 2010. "The Collapse of International Trade During the 2008-2009 Crisis: In Search of the Smoking Gun." *Forthcoming, IMF Economic Review*.