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QUALIFICATION SUMMARY & CORE COURSEWORK

- ❖ Mathematics for Economists
- ❖ Microeconomic Series
- ❖ Macroeconomic Series
- ❖ Monetary Economics
- ❖ Econometrics Theory Series
- ❖ Time-Series Econometrics
- ❖ Development Economics
- ❖ Panel Data Econometrics
- ❖ Labor Economics
- ❖ International Economics

Tools: Stata, SAS, R

EDUCATION & AWARDS

Department of Economics, University of Delaware

- Ph.D., Econometrics and quantitative economics （STEM）, Ph.D. Dissertation Defense before July 15th, 2019.
- GPA: 3.35
- Expected Graduate Term: Spring Semester 2019

Department of Economics, University of Oregon

- Master of Science - 2009
- GPA: 3.78

School of Management, Fuzhou University

- Bachelor of Finance - 2003
- The second prize scholarships: Spring Semester in 2011, Fall Semester in 2010
- The third prize scholarships: Spring Semester in 2010, Fall Semester in 2011, Spring Semester in 2012, Fall Semester in 2012.

EXPERIENCE

Fujian Economy & Cooperation Group, China

- Investment Assistant (2003-2005)

Industrial and Commercial Bank of China

- Internship (July 2002—Sep 2002, July 2003—Sep 2003)

Pacific Harbor Company, Portland, Oregon

- Internship (Mar 2009—April 2010)

SELECTED PROJECTS in ECONOMETRICS

Typical Time Series Projects:

ARIMA and VAR Modeling of nominal exchange rate of G7 to US dollar from 1972Q1 to 1992Q3 of G7 and United States.

ARIMA Modeling for US Monetary Base from 1959Q1 to 2006Q3

Cointegration Analysis of Wage and Labor productivity for Annual UK data from 1855 to 1987.

GARCH Modeling for INDEXNASDAQ in 2016

Typical Panel Data Projects:

Factors Influencing on Industrial Cluster Competitiveness: A Case Analysis from Electronic Industrial Clusters in China.

Use the fixed effect model and random effect model to observe the shock in investment effect on profit.

Estimate an exponential model and a Weibull model to estimate an accelerated failure time model for the duration of time it took for a supermarket firm to adopt optical scanner technology.

Use Logit and Probit model to estimate a wage equation with data from Nicaragua and test for and control for selectivity bias using Heckman's two step estimator.

Use and compare the results of OLS, Tobit with censored variables, Probit with censored and truncated variables, Tobit against censored and truncated specifications to estimate an equation for weekly hours of work of US.

Dissertation Summary/Job Market Paper

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Job Market Paper

Trade Openness and Economic Growth: An Empirical Analysis of NAFTA:

System GMM Estimation and Panel Vector Autoregression Analysis with Instrumental Variables Combining Difference in Difference for a Dynamic Panel Dataset of North American Countries, and International Transmission of a Shock to Trade Openness Across NAFTA

Hong Guo

My dissertation investigates empirically the notion that trade openness resulting from deregulation and reduced tariffs required by the North America Free Trade Agreement (NAFTA) promotes the acceleration of economic growth. Methodologically, I employ a two-step instrumental variable (IV) method in which NAFTA adoption is considered as an instrumental variable for trade openness. I use the difference-in-difference (DID) captured by NAFTA adoption in the first step and in the second step I take the system generalized method of moments (GMM) and the Panel Vector Autoregression (VAR) to estimate a dynamic panel dataset. Finally, I conduct a series of the Vector Autoregression model (VAR) to analyze the effect of a shock to trade openness of one of NAFTA countries on the GDP growth rates of the other NAFTA member countries.

As for data of each variable, real GDP annual growth rate and GDP per capita data from 1980 to 2016 are from the World Economic Outlook (WEO) dataset of the International Monetary Fund (IMF). Trade openness from 1980 to 1996 is captured by international trade value percentage (ITVP) of GDP each year, which can be found in World Bank Dataset. Physical capital growth corresponds exactly to gross capital formation growth rate. Gross capital formation growth rate from 1980 to 2016 is also from World Bank (WB) dataset. Expected mean years of schooling from 1980 to 2016 is from the UNESCO Institute for Statistics 2017 in the United Nations. Population annual growth rate data across countries derived from the total population of each country are downloaded from the World Bank (WB) dataset website. So the whole dataset includes 10 panels, each of which covers 37 years. That is a dynamic panel dataset.

I consider the GDP growth rate of sample countries as the dependent variable and consider the trade openness index, capital accumulation, population growth rate, and initial GDP per capita as explanatory variables. In order to overcome the problem of omitted variables, I used NAFTA as an instrument variable which is also treated as a tool for difference in difference. I first try to demonstrate the effectiveness of DDIV. First, I make a serial correlation test to decide that the predetermined terms should be added into each variable. Then I make a panel data

heteroskedastic test and the result shows that heteroskedasticity exists, so I need to use GMM or GLS estimation. Moreover, I used a series of dynamic panel data unit root tests to make all the data stationary by differencing or detrending.

After completing all the tests, I first make a system GMM estimation without DDIV and the results show the positive effect of trade openness in GDP growth in the simultaneous time at the 5% level of statistical significance.

Besides, I make a system GMM estimation with DDIV. First, I run a Hausman test to determine random effect should be added into my model. Then, I set up a test for the parallel trend assumption for DID and verify that the control group and benefit group share a common trend. On the other hand, I use the Arellano estimator to test the endogeneity of IV. The results do not give support for the endogeneity of IV. Therefore, DDIV might be a practicable method for the system GMM estimation in a dynamic panel dataset.

Moreover, I compare system GMM estimator without DDIV and system GMM estimator with DDIV, both of which display similar conclusions: trade openness at time t is positively relative to current GDP growth at time t at the 5% level of statistical significance whereas the lagged trade openness at time t-1 is negatively related to current GDP growth at time t at the 10% level of statistical significance. The results from the system GMM estimation with DDIV demonstrate that a positive increase in trade openness at current time t will raise the GDP growth rate at current time t by 0.085 percentage points with a 5% level of statistical significance while a positive increase in lagged trade openness at time t-1 will reduce the GDP growth rate at current time t by 0.084 percentage points with a 10% level of statistical significance. Such an effect will die out after five years. Also, we can find that most of coefficient estimators by the system GMM estimation with DDIV has smaller p-values, which implies the possibility of modeling significance. Notwithstanding, we do not find a narrower range of most of the robust standard errors. Finally, the coefficient estimator of DID is negative without statistical significance. We do not find cogent evidence to support that compared to seven Central American countries,

joining in NAFTA increases the trade percentage of GDP of NAFTA member countries more.

Moreover, the panel VAR model has a preferred lag order 1 for my dynamic panel dataset, which gives me an opportunity to compare the results between the system GMM estimation and the panel VAR model. The empirical result of the panel VAR model shows that when the trade percentage of GDP increases by one percentage point at the lagged time t-1, the GDP growth rate decreases by 0.017 percentage points at the current time t at the 10% level of statistical significance. Such a result further verifies the second conclusion achieved by the system GMM estimation: the negative effect of the lagged trade openness at time t-1 on the GDP growth rate at time t at the 10% level of statistical significance. However, the negative effect is much less than the positive effect of the trade openness on the GDP growth rate at the simultaneous time achieved by the system GMM estimation with DDIV.

Additionally, I make an estimate for international transmission of a shock to trade openness of one of NAFTA countries. First, I conduct a VAR analysis within each member country of NAFTA. Then I conduct a series of Granger-causality tests for GDP growth rates between member countries of NAFTA. There are two Granger-causality relationships across the GDP growth rate of member countries of NAFTA: First, the GDP growth rate of Canada and Mexico Granger-causes the US GDP growth rate. Second, the GDP growth rate of Mexico and US Granger-causes the Canada GDP growth rate. On the basis of VAR analysis of each member country and Granger-causality across member countries, I calculate the effect of a shock to trade openness of one of the countries on the GDP growth rate of the other countries. The results are mixed. First, the effect of the increase of Mexico's trade openness in United States and Canada GDP is negative initially and then turns positive. On the other hand, the effect of the increase of Canada's trade openness in US GDP is positive initially. Such a result implies that Mexico benefited more from NAFTA than the US and Canada especially in the short run.

Furthermore, I compare the empirical results from system GMM with DDIV and panel VAR with DDIV to the results achieved from the previous researches about the relationship

between trade openness and economic growth. First, our empirical results from the dynamic system GMM with DDIV show a positive effect of trade openness in GDP growth at the simultaneous period, which is accordance with the results from the mainstream of researches. Second, the dynamic system GMM with DDIV shows the effect of trade openness in GDP will die out in around five years, which supports the results by Hinojosa and Robinson (1992).Third, the results from panel VAR with DDIV shows one percentage point increase in GDP growth rate at time t-1 will increase trade percentage of GDP at time t by 0.67 percentage points, which implies GDP growth has a clear positive role in the increase of trade openness. Such a conclusion from panel VAR model is consistent to the results by Cavazos and Thompson (2007). Finally, the VAR analysis based on the shock international transmission between NAFTA member countries shows the effect of the increase of Mexico's trade openness in United States and Canada GDP is negative initially and then turns to be positive. On the other hand, the effect of the increase of Canada's trade openness in US GDP is positive. Such a result implies Mexico benefits from NAFTA more than United States and Canada especially in the short run, which is consistent to the results obtained by the mainstream of the research.

Eventually, I want to emphasize that my dissertation has some new empirical results. First, because I perform a system GMM estimation with DDIV for a dynamic panel dataset and then I introduced predetermined terms for all the variables according to the results of autocorrelation tests for a dynamic panel dataset, I get a result across two periods of time. The lagged trade openness at time t-1 has a slightly negative effect on GDP growth rate at the current time t. In quantitative terms, an increase on trade openness at the lagged time t-1 will decrease GDP growth rate by 0.084 percentage points at time t at the 10% level of significance. Second, I creatively introduce DDIV into the system GMM estimation for a dynamic panel dataset. The result of DID shows that NAFTA did not increase the trade percentage of GDP of NAFTA members more compared to seven Central America countries. Third, I do not find that the panel VAR with DDIV was applied to analyze the effect of trade in economy in the previous research. The panel VAR estimators show an increase on trade openness at the lagged time t-1 will decrease GDP growth rate by 0.017 percentage points at time t at the 10% level of significance, which is a support for the conclusion obtained from the system GMM estimation with DDIV.

Fourth, I have not found an analysis of the international transmission of a shock to trade openness of one of NAFTA members across the other NAFTA members in published papers. The empirical result that a shock to Mexico's trade openness will have a slightly negative effect on Canada and US GDP growth rate in the short run suggests Mexico might benefit more under NAFTA in the short run. I contribute a new methodology to support the conclusions obtained by current mainstream research.