

NAFTA through a Product Space Lens

Belinda Román, PhD

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ROMÁN
economics

Belinda Román, PhD

210-589-5204

belinda@romaneconomics.com

www.romaneconomics.com

Key Ideas

- A country is what it produces
 - Production reveals something
- Future opportunities for growth and development derive from what a country produces
- Complexity is important for future opportunities
- Network theory can be used in this type of analysis

Theoretical Framework

- Orthodoxy – Comparative Advantage
- Hechscher – Olin extension
- Hausmann and Hidalgo (2011)
- Revealed Comparative Advantage (Balassa 1965)

Data and Its Interpretation

- NAFTA area exports by country and in total
- NAICS
 - 3-digit level
- Revisions in 2002 and 2006, and 2012
- Years 2000 - 2012

Sample NAICS Codes

Table 1 – Three-Digit Codes Attribute and Industry

3-Digit NAICS Code	Industry
111	Agricultural Products
112	Livestock and Livestock Products
113	Forestry Products
114	Fish, Fresh, Chilled, or Frozen and Other Marine Products
211	Oil And Gas
212	Minerals and Ores
311	Food and Kindred Products
312	Beverages and Tobacco Products
313	Textiles and Fabrics
314	Textile Mill Products
315	Apparel and Accessories
316	Leather and Allied Products
321	Wood Products
322	Paper
323	Printed Matter and Related Products, Nesoi
324	Petroleum and Coal Products
325	Chemicals
326	Plastics and Rubber Products
327	Nonmetallic Mineral Products
331	Primary Metal Manufacturing

Calculating RCA

$$\frac{\left\{ \begin{array}{l} \sum \text{3-Digit NAICS}_{\text{Export-Country}} \\ \hline \sum \text{All 3-Digit NAICSC}_{\text{All Exports-Country}} \end{array} \right\}}{\left\{ \begin{array}{l} \sum \text{3-Digit NAICS}_{\text{Export Regional}} \\ \hline \sum \text{All 3-Digit NAICSC}_{\text{All Exports Regional}} \end{array} \right\}} = \text{RCA}_{\text{Country NAFTA}}$$

All values in U.S. Current Dollars

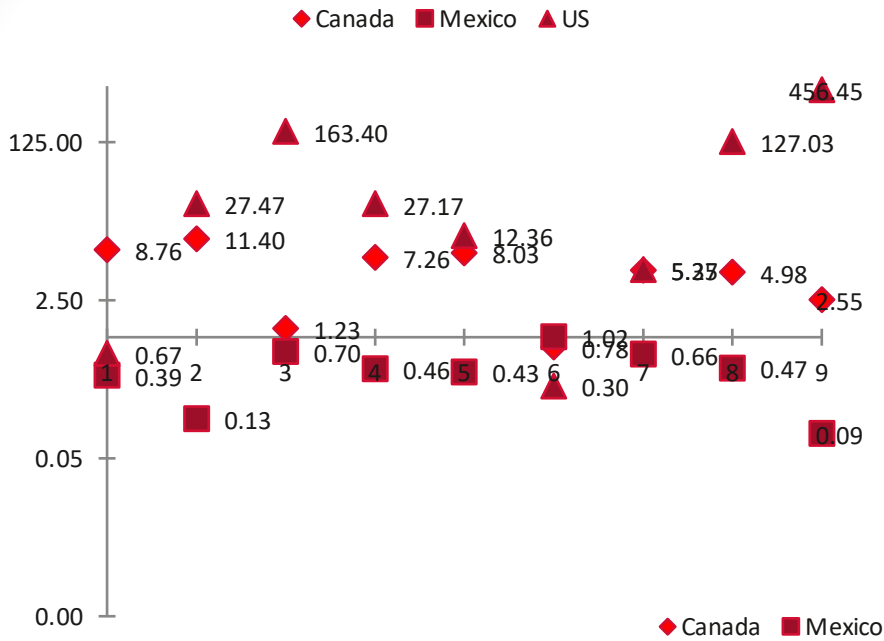
RCA for US

Revealed Comparative Advantage	Column1	Column2	Column3
US	2000	2006	2012
'11'	0.6725	1.0007	0.9998
'112'	27.4655	0.9450	0.7047
'113'	163.4017	0.9858	1.1481
'114'	27.1679	0.9885	1.0046
'211'	12.3637	0.8296	0.4898
'212'	0.2986	1.0014	1.0001
'311'	5.3462	0.9992	1.0008
'312'	127.0318	0.2982	0.6337
'313'	456.4508	0.3938	1.6121
'314'	0.3050	1.0009	1.0002
'315'	2.1557	1.0006	0.9995
'316'	0.9681	0.9999	0.9980
'321'	2.9940	1.0010	1.0028
'322'	2.1880	1.0009	1.0011
'323'	7.2700	1.0004	1.0043
'324'	90.3254	0.9290	1.1295
'325'	13.1904	0.9782	1.0293
'326'	34.9757	0.9479	1.0058
'327'	2.7964	0.9991	1.0000
'331'	1.8746	0.9998	0.9998

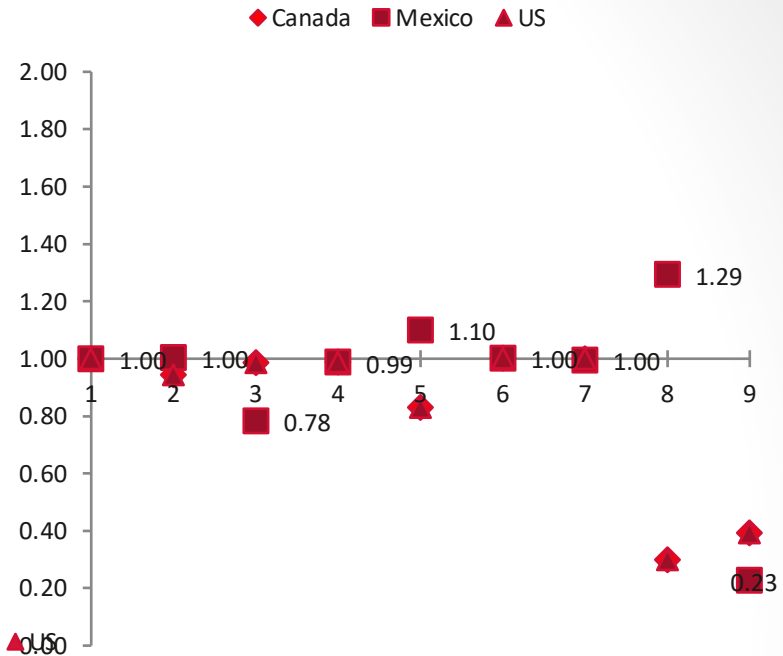
Results

- Three screen shots
- Graphs show points at which $RCA \geq 1$
- Yearly comparisons
 - 2000
 - 2006
 - 2012

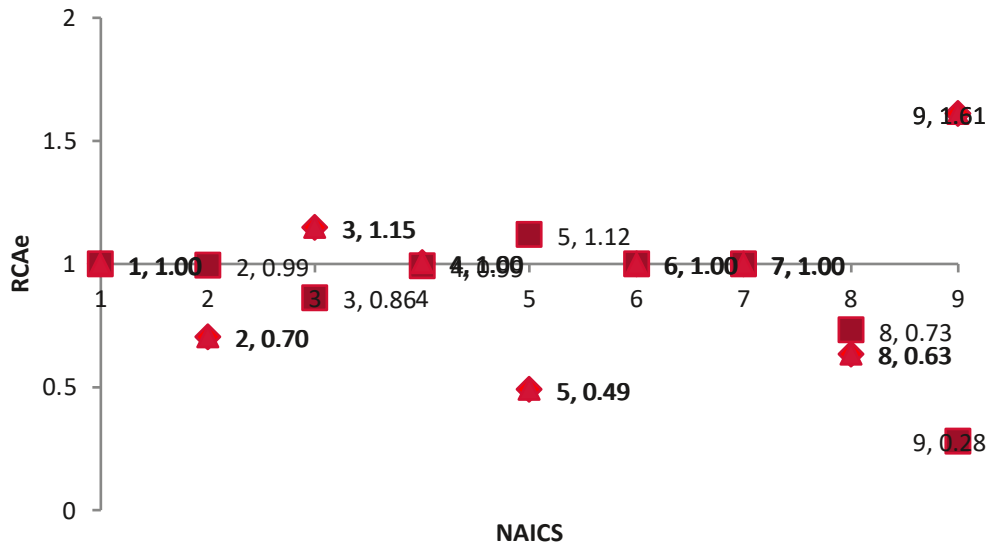
2000



2005



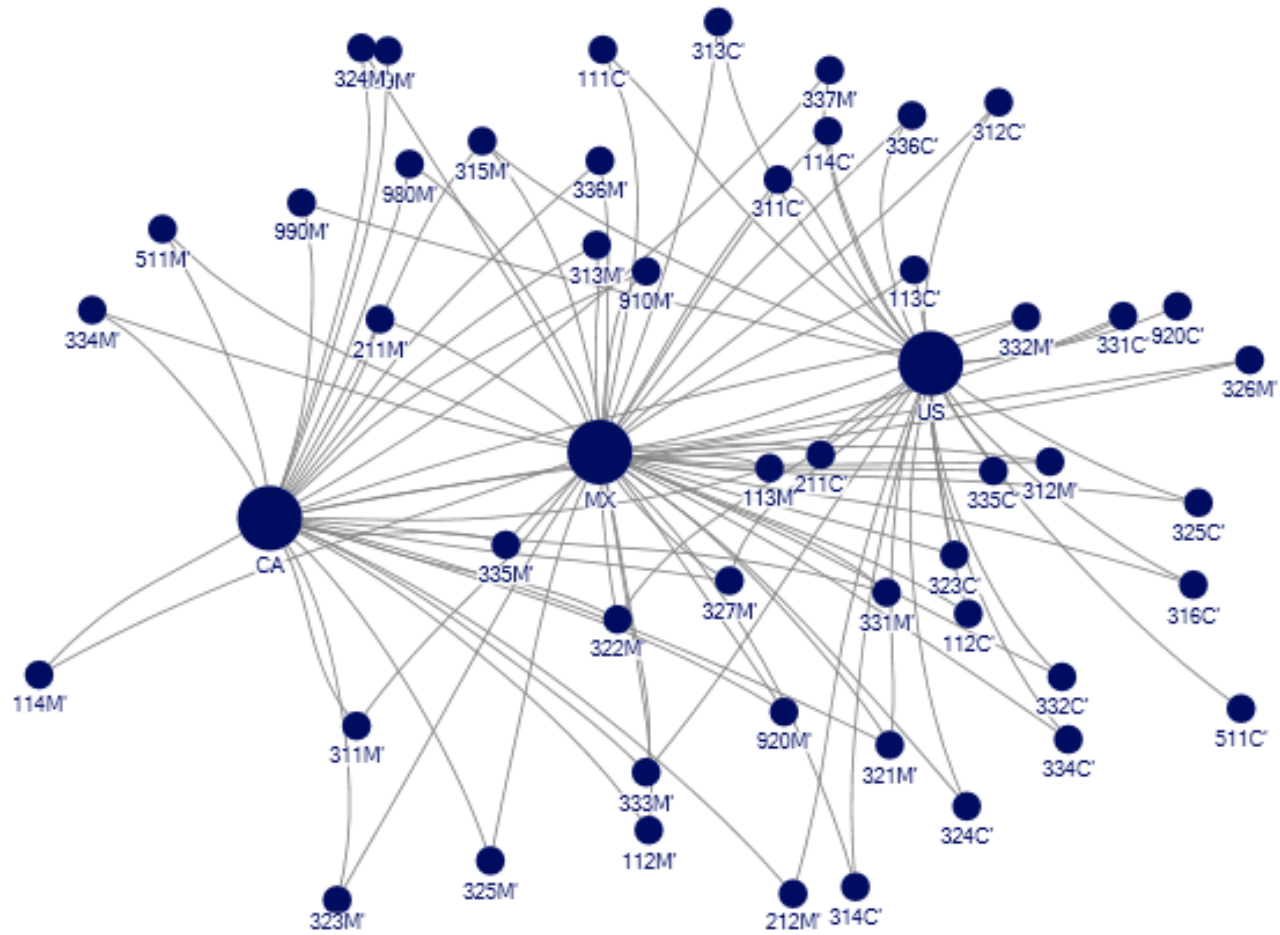
2012



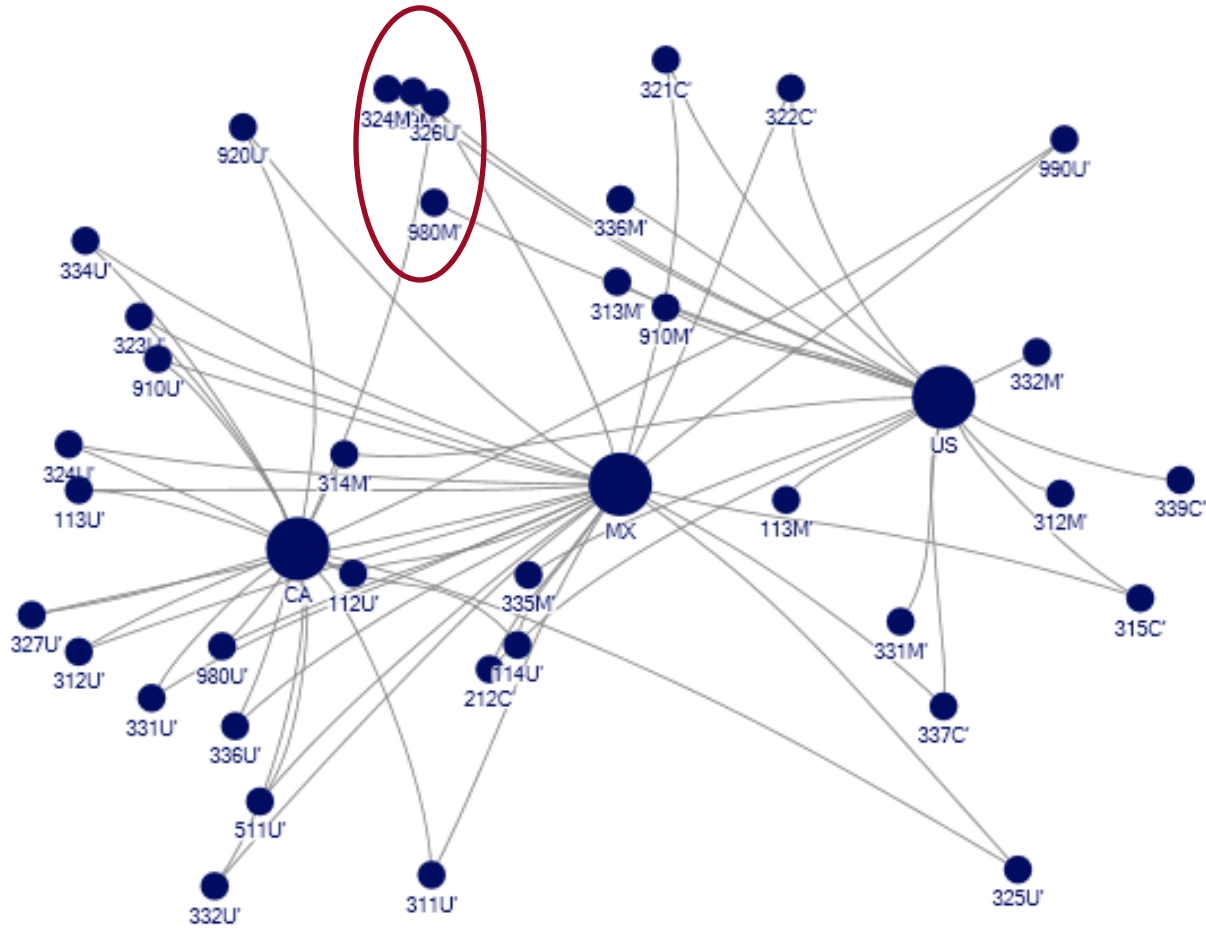
Comments on Product Space

- Grouping of RCA suggest something about NAFTA area production
 - In 2000 greater dispersion
- Also RCA changing for countries
- How does this relate to growth and development?
 - More complex tasks require higher skills
 - Skills transitivity
- Agricultural Product vs. Manufacturing Production
 - Implications for employment and wages
 - Implications for each country and region

NAFTA 2000



NAFTA 2006



Next Steps in Research

- Complete the RCAs for each year 2000 -2012
 - Perhaps expand to 6-digit
- Reconcile inconsistencies or missing values in some categories
- Add/compare FDI by NAICS
- Add/compare, if possible, immigration or changes in domestic employment structures.
- Consolidate and map using networks

References

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