

# U.S. MANUFACTURING COMPETITIVENESS IN A GLOBAL CONTEXT

Western Michigan University ~ College Of Arts And Science

Department Of Economics

By: Johanna Refana-Quiros



## Introduction

Rapid globalization and trade have reshaped the nature of a firm's production process. Countries are now part of a global production chain, where each country performs activities of a particular stage of production.

This has created new challenges for countries: low labor cost, infrastructure, R&D, technology have forced countries to specialize in the segments of the value chain in which they have a comparative advantage



In this context, Can the U.S. manufacturing sector compete in a highly fragmented Global Value Chain?

To answer this question, we need an appropriate way to measure competitiveness of a country

## Example

In order to examine a country's competitiveness we need to understand the Value of Intermediate Goods Imports. Let's analyze the following case:

Car production in U.S.: Production depends on parts produced elsewhere. Intermediate goods need to be produced as well, thus this raises output in those industries.

The increase in output in other related industries can impact the industries that it delivers to, and so on. The question that arises is: who gets the biggest share in a Global Value Chain? determining this is fundamental to find how competitive a country is



## The Data

I used the World Input Output database (WIOD). This dataset includes data for 40 countries ( 27 EU + 13 other), 35 industries for 1995 to 2009.

## Method

Following Timmer et.al (2012), I use Global Value Decompositions to measure a country's competitiveness

The analysis mainly focuses on the following three decompositions

- 1.Vertical Specialization: shows the import content of exports
- 2.GVC income: measures the total income in a country that is directly and indirectly related to the production of manufacturing goods
- 3.GVC jobs: measures the jobs in a country, directly and indirectly related to the production of manufacturing goods

Figure 1  
Vertical Specialization

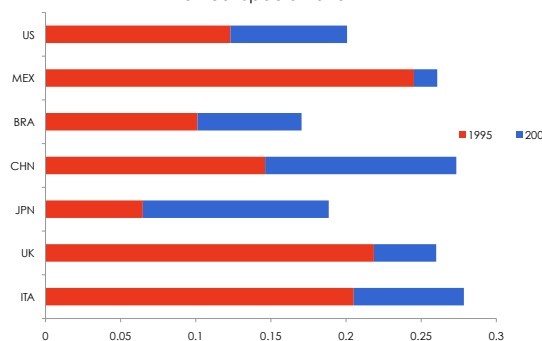


Table 1

Country	GVC Income		GVC Jobs	
	1995	2008	1995	2008
U.S.A	750,113	1,028,770	41046.08	32739.53
Mexico	29,953	71,411	21490.32	25673.58
Brazil	80,257	206,359	44955.46	55508.84
China	132,075	607,362	378633.1	499246.2
Japan	658,660	501,542	27781.95	21521.56

## Results

Figure 1 shows the vertical specialization (VS) of US and 6 other countries in 1995 and compares it with 2008. VS tell us that there has been an increase in international fragmentation of the production process, however by only using this technique it's not possible to identify their origin.

This is why a more reliable measure of productivity and competitiveness is needed. Table1 shows Global Value Decompositions.

GVC income shows that income from the production of manufacturing jobs has increase for almost all countries in this study. China had the biggest increase in GVC income

GVC jobs shows that the U.S. has lost some jobs in the manufacturing sector, however it experienced an increased in GVC income, therefore it seems that U.S manufacturing sector has had some gains in productivity.

## Conclusions

1. International fragmentation in the production process increased significantly from 1995 to 2008. So, globalization has facilitated global production networks, where each country adds value depending on the type of activities performed in a particular stage of production.
2. The value added increases as income, due to production factors (labor and capital), in the country increases
3. Manufacturing employment has been affected by production fragmentation, not only in U.S, but also in Japan. Countries like China, due mainly to cheap labor, have seen a positive impact in labor, however rich countries still get the biggest share of income
4. The U.S has lost some ground in manufacturing jobs, however the manufacturing sector is still competitive in a global context
5. An extension of this paper will look at GVC income and jobs by skill level

## References

Timmer. M, Los. Bart, Stehrer. R, de Vries. G (2012), "Fragmentation Incomes and Jobs. An analysis of European competitiveness", WIOD working paper