

# HOW DOES MULTINATIONAL PRODUCTION AFFECT THE MEASUREMENT OF COMPETITIVENESS?

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**Aim:** Develop measures of **competitiveness** in tradable goods that take into account the activity of **multinational companies** (i.e. measures based on the ownership of production rather than the location of production)

## Why?

- Traditional measures of competitiveness are based on the **location** of production (gross exports, value added in exports, 'GVC income')
- The existence of multinational companies leads to a disconnect between location-based and **ownership**-based indicators of activity

## How?

- Assemble new **bilateral** dataset on **foreign affiliates** in 44 countries, where value added and factor incomes are broken down by location and ultimate owner country
- Compute **ownership-based** measures of competitiveness, where value added is allocated across countries according to the nationality of firms or factors
- Compute measures of competitiveness in international markets that take into account both **modes of supply** (exports and FDI) on a **value added** basis

## Main findings

- Foreign affiliates account for almost **20%** of the **world value added** in the manufacturing sector
- There are **significant differences** between location-based and ownership-based measures of competitiveness
- VA by nationality of firms or by factors of production tends to be larger than VA by location in some of the large advanced economies and smaller in the vast majority of emerging economies
- The **competitive position** on foreign markets of U.K., U.S. and, to a lower extent, France and Japan is **enhanced** if the activity of foreign affiliates is also taken into account instead of only exports
- Considering the activity of foreign affiliates also matters for assessing countries' recent **performance** on international markets

## Implications

- Location-based measures remain the appropriate measures "for most public policy and research issues" (Baldwin and Kimura 1998)
- But **ownership-based** measures capture important aspects of the competitiveness of a country's firms or factors of production and could be used to **supplement** location-based measures of competitiveness

## DATA AND METHODOLOGY

- Build new bilateral dataset on the activity of foreign affiliates in the **manufacturing** sector for 44 countries and a 'Rest of the world' aggregate over the years 2004-2011
- Breakdown by **location** of activity and by **ultimate owner** country (e.g. value added of U.S.-owned companies in Brazil)
- Variables: sales; number of employed persons; value added; labor compensation; capital compensation
- Data sources: inward and outward foreign affiliates statistics (**FATS**) reported by Eurostat, OECD and national sources + various estimates (based on industry and country ratios and Bureau van Dijk's Orbis firm-level data)
- Preference for inward data; impose consistency with inward total reported by location country
- Methodology: Baldwin and Kimura (1998) and Lipsey, Blomstrom and Ramstetter (1998)
- Define *location* with first subscript and *ownership* with second subscript
- Value added by **location** ("domestic")

$$VA_i^{location} = VA_{i,i} + \sum_{j \neq i} VA_{i,j} \quad (1)$$

- Value added by **nationality of firms**

$$VA_i^{firms} = VA_{i,i} + \sum_{j \neq i} VA_{j,i} \quad (2)$$

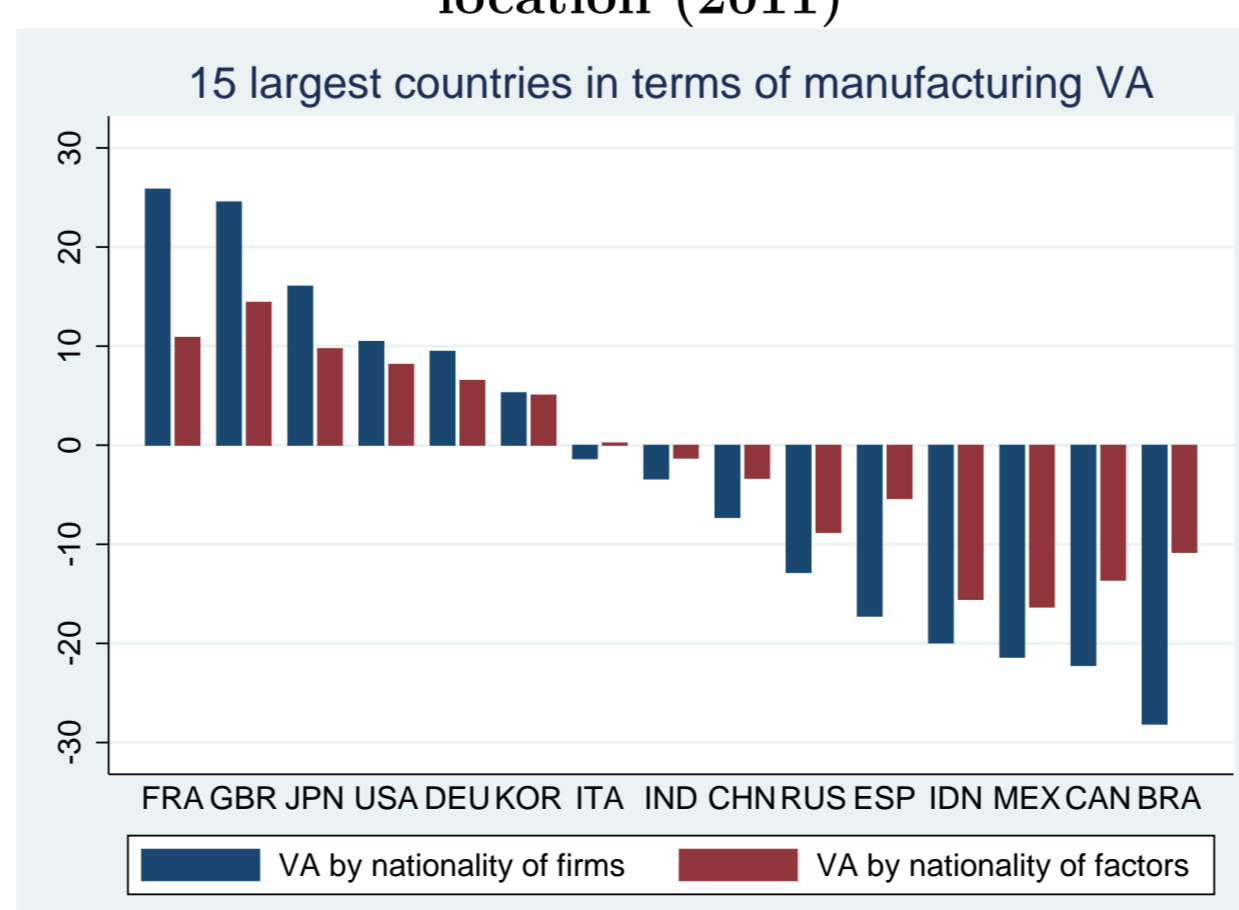
- Value added by **nationality of factors**

$$VA_i^{factors} = VA_{i,i} + \sum_{j \neq i} LAB_{i,j} + \sum_{j \neq i} CAP_{j,i} \quad (3)$$

## OWNERSHIP-BASED MEASURES OF COMPETITIVENESS

- VA by nationality of firms measures the global capabilities of domestically-owned firms (combining capital, management, proprietary technology with labor at home or abroad)
- VA by nationality of factors measures the global value added generated by national factors (labor at home, domestically-owned capital at home or abroad)
- These indicators measure the competitiveness of a country's **firms** or **factors** of production and could be used to supplement location-based measures of competitiveness
- VA by nationality of firms is **significantly larger** than VA by location for France and the U.K. (25%), Japan (15%) and the U.S. and Germany (10%)
- No difference is found in the case of Italy, while in almost all the other large economies VA by nationality of firms is smaller than VA by location (up to -30%)
- Differences between VA by nationality of factors and VA by location are smaller but still significant (10-15% for most advanced economies and between -10 and -15% for some of the emerging economies)

**Fig. 1 - Percentage difference between VA by nationality of firms or factors and VA by location (2011)**



## EXPORTS AND FOREIGN AFFILIATES' ACTIVITY ON A VALUE ADDED BASIS

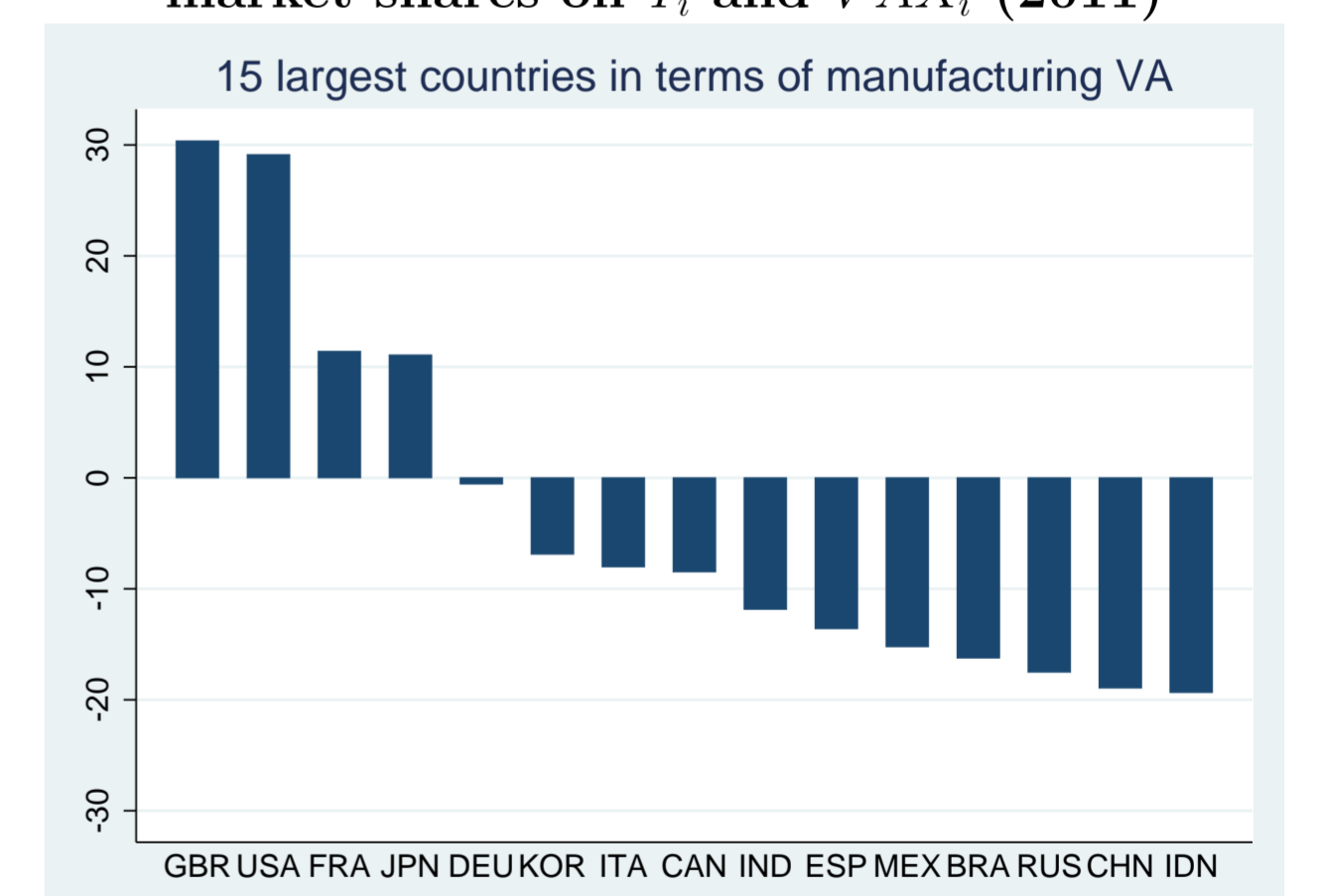
- Define  $Y_i$  as value added to **serve foreign markets**, either via exports or foreign affiliates

$$Y_i = VAX_i + VAF A_i \quad (4)$$

$VAX_i$  = value added in exports;  $VAF A_i$  = value added of foreign affiliates

- World market share on  $Y_i$  is **30% larger** than share on  $VAX_i$  for U.K. and U.S., 10% larger for France and Japan, about the same for Germany

**Fig. 2 - Percentage difference between world market shares on  $Y_i$  and  $VAX_i$  (2011)**



- The **loss of market share** over 2004-2011 becomes **smaller** in terms of  $Y_i$ , compared to  $VAX_i$ , for Japan (13%, from 23%), France, Italy and U.K.

**Fig. 3 - Percentage change in world market shares on  $Y_i$  and  $VAX_i$  (2004-2011)**

