Relocation of second degree intra-UE: a study in the manufacturing industries

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Abstract
Using data from the European Restructuring Monitor, this paper explores the relocation of second degree (RoSD) of European manufacturing in the time span between 2002 and 2015. Within RoSDs we distinguish two typologies: back-reshoring (i.e., when the destination country is the home country) and other RoSDs. In this paper we provide an initial descriptive analysis of the trends over time and a network analysis of the origin and destination countries. Moreover, for each RoSD case, we explore the role of the location drivers that have been classified in market-seeking, natural resource-seeking, strategic asset-seeking, and cost-saving.

Keywords: reshoring, relocation, drivers

Topic(s): Rightshoring: making correct offshoring and reshoring decisions; Global Operations and Strategic Sourcing; Plant Location, Design, Layout

Introduction
With the advent of global value chains, manufacturing processes have been increasingly sliced up and spread around the world. As a consequence, we witnessed an increase of the degrees of freedom for multinational companies to continuously reconfigure and relocate activities to chase opportunities made available by globalization (e.g. lower costs, access to skills and resources). Today, especially in low-tech industries, global manufacturing networks appear to be increasingly "footloose" (Ferdows et al., 2016), i.e., there is a continuous re-configuration and movement of manufacturing locations around the world.

The mainstream literature so far focused mainly on the offshoring of manufacturing activities due to cost reasons, but this phenomenon is much more complex since it is not a static event but it evolves over time. For instance, recent literature identified several sub-trends that follow-up the offshoring, such as the "back-shoring" phenomenon (i.e.,

bringing manufacturing activities back to the original country) (Fratocchi et al., 2014). To gain insight into this matter, prior studies have used German survey data to assess trends in relocation movements (Kinkel and Maloca, 2009). However, most of the evidence is limited to one country and does not stress enough the antecedent of this phenomenon, i.e. the first offshoring initiative.

In this paper, we aim to expand the existing literature on relocation choice in several ways. First, we extend the range of our analysis by focusing not only on the back-reshoring phenomenon, but also on other relocations of second degree, i.e. movements from one country to another different from the home country. Second, we use secondary data rather than perceptional survey data and we extend the analysis to European firms rather than to a single country such as Germany. Third, we employ a network analysis to assess from-and-to which countries relocations occur and the intensity of such relocation movements. Finally, we connect these relocations to the drivers of the first offshoring initiative, in order to understand whether and how the former can represent a strategy to achieve the latter.

Literature Review

The relocation of activities abroad is not a new practice, since firms have been implementing various forms of delocalization for more than 50 years. A wide body of literature has investigated the drivers of international location choices for offshoring, focusing in particular on manufacturing industries (MacCarthy and Atthirawong, 2003) (Bhutta, 2004; Jia et al., 2014; Quintens et al., 2006). Among the motivations, cost reduction has been ranked by many studies (Canham and T. Hamilton, 2013)as the most important for manufacturing offshoring. Offshore locations often offer advantages in terms of lower costs of labor and other productive inputs (Jensen and Pedersen, 2011). Other motivations include the access to products, technologies, or knowledge not available at home (Lewin et al., 2009), the improvement of product quality (Ettlie and Sethuraman, 2002), the development of foreign sales activities (Bozarth and McDermott, 1998; Shi and Gregory, 1998) also through countertrade agreements (Nassimbeni et al., 2014), and the improvement of delivery performance (Frear et al., 1992). A more general categorization of the drivers underlying the offshoring phenomenon has been proposed by Dunning (1993), who suggests that firms invest abroad to exploit, among the others, the location advantages of the host countries, which can be of market-seeking, efficiency-seeking, natural-resource seeking and asset-seeking nature. These drivers have been identified by the literature as being responsible of the first relocation choice, i.e. from the home to the host country.

However, companies often need to face a relocation choice of second degree (RoSD), meaning that they need to move their activity from the host country to another foreign location or even back to their home country, being this latter case a back-reshoring phenomenon. The literature has identified several drivers underlying the RoSD phenomenon, such as changes in the business context (Martínez-Mora and Merino, 2014), managerial errors and the strong interconnections along the value chain (Kinkel and Maloca, 2009).

However, a recent paper by Albertoni et al. (2017) has shown that the RoSD are not only the consequence of changes in the macro-economic context, performance shortcomings and interdependences of the value chain, but they also represent the follow-up of the original offshoring strategy. Specifically, companies use RoSD also to pursue the original offshoring drivers, e.g. by relocating a market-seeking activity in a new emerging market offering better sales opportunities than the present location.

Building on this perspective, we advance the previous paper by Albertoni et al. (2017) by distinguishing between the back-reshoring phenomenon and other types of RoSD (i.e. from the host to another foreign country). This perspective enables to better disentangle what offshoring drivers trigger the two different RoSD phenomena. Additionally, our analysis enables to add further insights on the extent to which the original offshoring drivers are pursued through a new international venture, as in in the case of other types of RoSD, with respect to the case in which they are pursued by going back home, as in the case of back-reshoring. In this latter case, indeed, it is likely that companies will find better conditions in their home country than abroad, thus paradoxically pursuing the original offshoring driver from their home country.

Methodology: Dataset and Analysis

Our dataset consists of relocation recorded in the European Restructuring Monitor (ERM). This public database publishes factsheets on large-scale restructuring announcements by either European and non-European firms affecting subsidiaries based in the European Union. Data is collected daily and includes announcements of at least 100 jobs or 10% of a workforce of more than 250 people. From the ERM database, we selected records related to relocations from 2002 to 2015 which led to 535 RoSD by European and non-European firms (with manufacturing activities in Europe) belonging to different industries, of which 90 cases are back-shoring decisions (the destination country is the home country).

The sample is described in Table 1 and the number of announcements per year is reported in Figure 1. It is important to highlight that no relevant differences are observed in the trend if the number of jobs moved is considered, meaning that, on average, relocation announcements involved the same amount of jobs in each year (about 250 jobs per announcement). From Table 1, we can see that in the considered period the number of back-reshoring movements is only 17% of the total movements, and, by definition, only by companies with the Headquarters in the EU.

From Figure 1 we can observe that the relocation initiatives have a peak in the years between 2005 and 2007, mainly because of the effect of UE enlargement happened after 2004. This event was favorable for companies that could move into low-cost countries to exploit advantages of EU-countries (removing customs and duties). Next, the worldwide financial crisis started in late 2008 had effects on the movements of the companies that in 2009-2010 strongly reduced the relocation initiatives. The industries considered are reported in Table 2. We can observe a good representation of different industries, with a majority of companies in the manufacture of motor vehicles, trailers and semi-trailers and manufacture of electrical equipment.

Table 1 – Number of announcements by relocation typology and headquarter location

	Non-EU Headquarters	**EU Headquarters**	**Total**
Other RoSD	226	219	445
Back-reshoring	-	90	90
Total RoSD	**226**	**309**	**535**

Figure 1 - Number of announcements per year

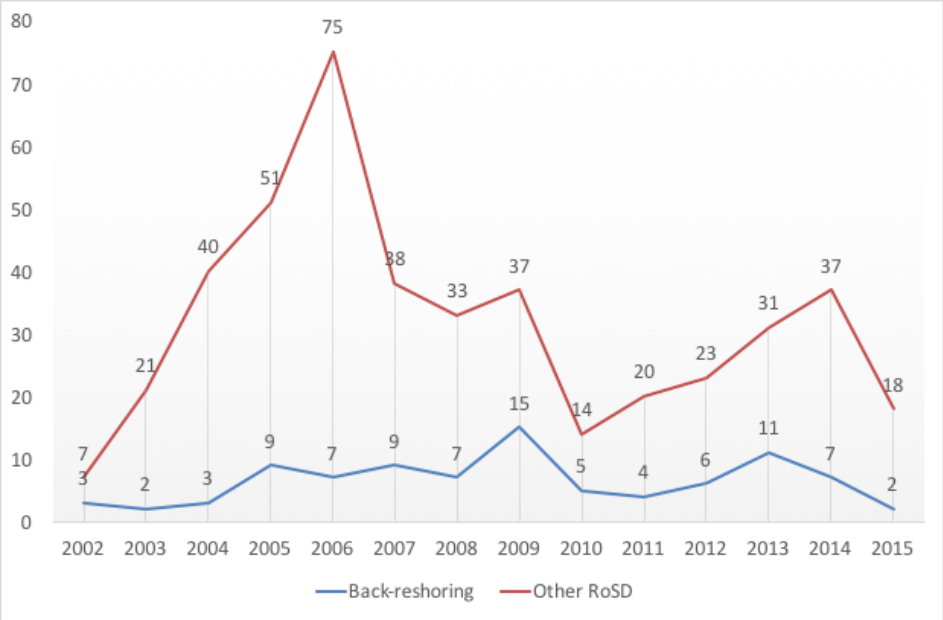


Table 2 – Description of the sample by industry

Industry	**Number of RoSD**
Manufacture of motor vehicles, trailers and semi-trailers	103
Manufacture of electrical equipment	84
Manufacture of computer, electronic and optical products	50
Manufacture food product	47
Manufacture of machinery and equipment n.e.c	39
Manufacture of chemicals and chemical products	33
Manufacture of rubber and plastic products	22
Manufacture of basic pharmaceutical products and pharmaceutical preparations	22
Manufacture of fabricated metal products	15
Manufacture of tobacco products	14
Manufacture of furniture	13
Manufacture of other transport equipment	12
Manufacture of textiles	11
Manufacture of basic metals	11
Others	59

Findings

First of all, we created the network of relocations to understand which countries were sources and/or destinations in the considered period. We used Gephi® as a software and we considered the total RoSDs. Each country is represented by a node and an arrow connects a source country a destination country, whenever a movement happened in our database (Figure 2). The size of the arrow is proportional to the number of movements.

Next, we colored countries based on the number of incoming movements (Figure 2a – Left) and outgoing movements (Figure 2b – Right).

We can observe that Poland (POL), Germany (DEU), Italy (ITA), Great Britain (GBR), France (FRA), Sweden (SWE), Denmark (DEN) and Czech Republic (CZE) are at the center of the network, thus having the highest degree of interchanges with other countries.

All the other countries are peripheral to this centre, with the exception of Latvia (LTV), Estonia (EST) and Lithuania (LTU), which form a sort of independent cluster.

Moreover, from the figure (a) on the left, we can see that Poland, Germany and Hungary (HUN) were the most popular destination countries, followed by Italy, Check Republic and Romania (ROU). In particular, Poland received significant flows from Germany, France and Great Britain. Interestingly, among the main destinations we can see both Eastern European countries (Hungary, Czech Republic, Slovakia), but also Western ones (Germany, Italy).

On the other side (Figure 2 b, on the right), we can see that that the main origin countries are the Western European countries, and, in particular, France, Sweden, Belgium, Germany, Ireland. We can therefore identify four typologies of countries:

- Frequent origins and destinations, like Germany and Italy;
- Frequent origins only, like France and Belgium and other Western European countries;
- Frequent destinations only, like Poland and Romania;
- Marginal countries, like Croatia (HRV).

Figure 2a (left) and 2b (right) – Network diagram representing all RoSD in the sample (including back-reshoring). Width of the arrow is proportional to the number of announcements. Darker color by in-degree (left) and out-degree (right).

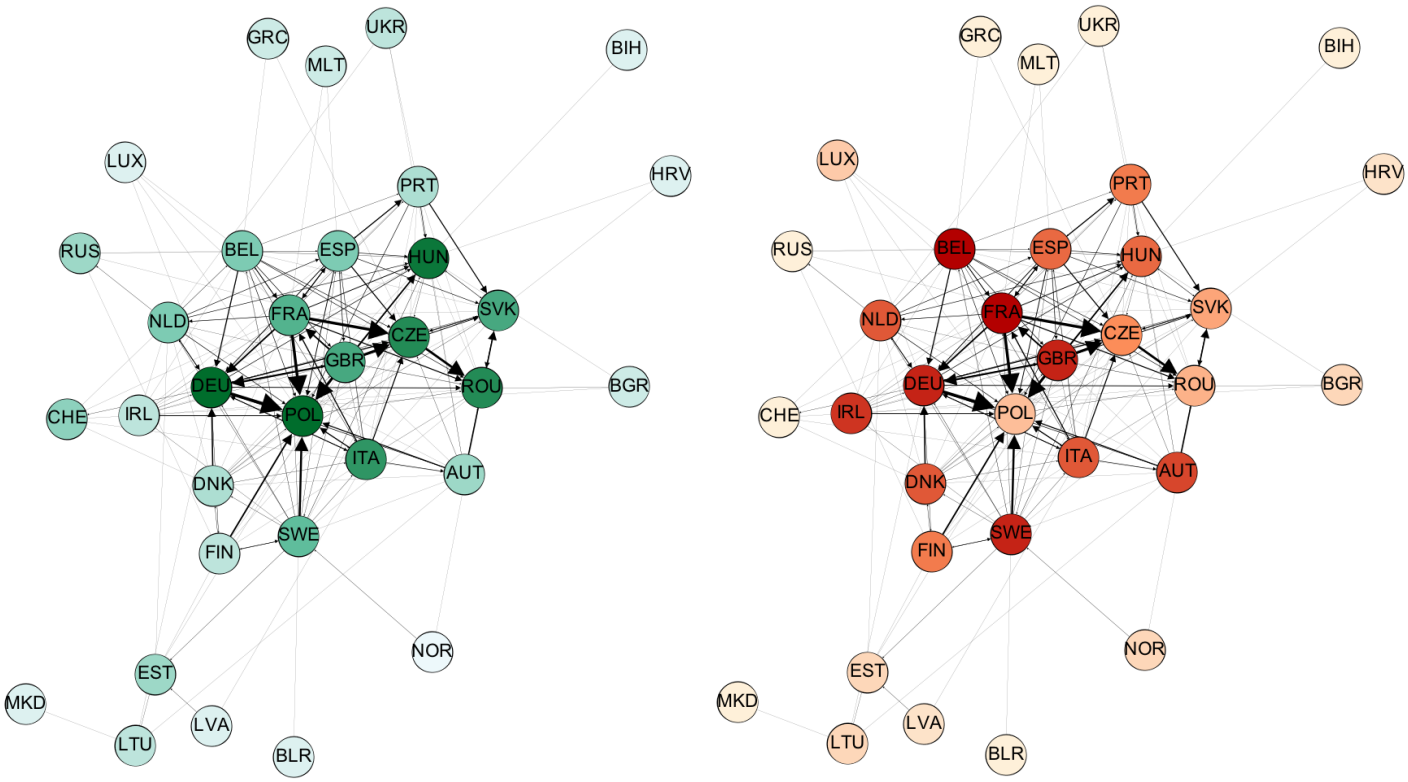


Figure (a): destinations of RoSD *Figure (b): origins of RoSD*

In the appendix (Table A1), we also report the origin and destination countries only in the case of back-reshoring. The results confirm a central role of Germany, as an origin and destination. France, however, emerges as the second place in terms of incoming/outgoing movements.

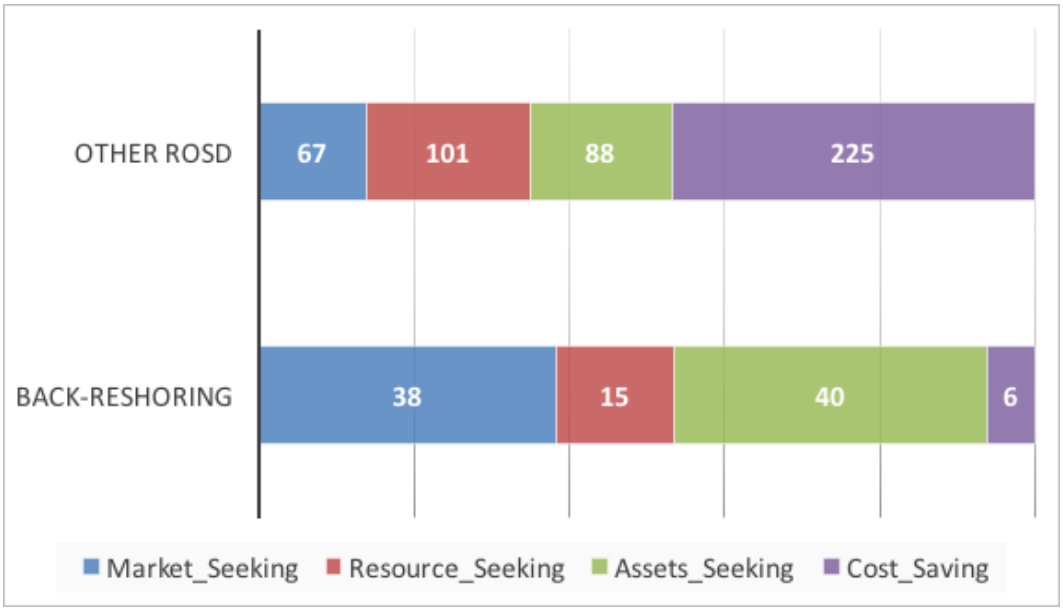
Finally, for each announcement, we gathered data on the home country (country A), the first offshoring country (country B) and the final destination country (country C) from secondary sources (e.g., World Bank, UNCTAD). In line with Buckley et al. (2007), for each country and for each year, we collected information related to the attractiveness of that country in terms of:

- Market-seeking: country GDP, GDP per capita, annual percentage increase in GPD
- (Natural) Resource - seeking: the ratio of ore and metal exports to merchandise exports of host country
- (Strategic) Asset seeking: Total (resident plus non-resident) annual patent registrations in host country
- Cost – saving: price levels in PPP;

Next, on the basis of the differences between the original home country destination (country A) and the first offshoring host country (country B), we classified the RoSD according to the prevalent driver (maximum one driver for each movement). Finally, we

split the sample in back-reshoring and other RoSD movements. The results displayed in Figure 4 show that back-reshoring is more likely when original offshoring driver is market-seeking and asset-seeking, meaning that they are mainly related to moving manufacturing activities towards the home country where the market and assets are more developed and promising. For instance, this is typical of all the movement from Eastern to Western European countries, previously highlighted. On the other hand, other RoSD movement are due cost reasons, but market, resource and asset seeking drivers are not negligible.

Figure 3 – Distribution of prevalent drivers for RoSD and Back-reshoring movements.



Further analyses, based on econometric methodologies, will enable us to better understand the extent to which the drivers of the original offshoring initiative can significantly explain the two different RoSD.

Conclusions

Our paper provides some very preliminary evidence on the relationship between the drivers of the first offshoring investments, on the one hand, and the different typologies of RoSD, on the other hand. Our preliminary results show that when the first offshoring investment is driven by cost-saving reasons, the companies are more likely to undertake a RoSD in other host countries different from their home countries. This means that companies that internationalize to decrease costs are more likely to pursue this objective by exploiting arbitrage opportunities through a frequent relocation across countries. Conversely, firms that internationalize for market-seeking and asset-seeking reasons are more likely to go back home, where they probably can find better market and asset opportunities than in their home country. Paradoxically, some MNCs firms seem to pursue their original offshoring drivers by going back to their home countries.

Our paper can contribute to the literature on location choice by showing the strong relationship between the original offshoring and the subsequent RoSD choices. Our paper can also offer some insights to the literature on back-reshoring, by highlighting a further driver of this phenomenon, i.e. the pursue of the original offshoring driver. Our results, if confirmed by the econometric analysis, can also provide some managerial implications. Specifically, we suggest manager to plan and set up all the conditions that

enable the RoSD since when they plan the initial offshoring venture, in order to be able to implement such a choice more easily and to be able to pursue their original offshoring strategy by moving in a new country or by going back home.

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Appendix

Table A1 – Number of movements from origin (rows) and destination (columns) countries in the case of back-reshoring only.

	AUT	BEL	CHE	CZE	DEU	DNK	FIN	FRA	GBR	ITA	LUX	NLD	POL	SVK	SVN	SWE	**TOT**
AUT			1		2	1									1	1	6
BEL					1			3								1	5
CZE					1			1	1								3
DEU			2				1		2	1		1	1	1		1	10
DNK			1		2		1			1		1		1			7
ESP					3			1	1	1							6
EST												1					1
FIN																2	2
FRA		1	1		4				1	1	1						9
GBR				1	1			2		1							5
HRV															1		1
IRL			1		1			1	1							1	5
ITA	1				3			4									8
LUX		1			1												2
NLD					1			1									2
NOR																1	1
POL					2					1							3
PRT										1							1
ROU	1									1							2
SVK					1												1
SVN	1																1
SWE		1			1	2	1	1				1			1		8
TOT	**3**	**3**	**6**	**1**	**24**	**3**	**3**	**14**	**7**	**8**	**1**	**4**	**1**	**2**	**3**	**7**	**90**