Comparing reshoring evidence from the EU and the US – present findings and limitations

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Abstract

This paper compares evidence on reshoring activities of manufacturing companies from EU countries with US results. It draws conclusions on differences and similarities in reshoring patterns and limitations of the comparison. Reshoring seems to be a more common phenomenon in the US than in most European countries. In the US, different cost factors represent the most important motivations for reshoring, whereas quality and flexibility issues seem to be more important for European companies. However, it is very difficult to compare reshoring patterns, as they cover different time-frames and definitions of reshoring.

Keywords: reshoring, backshoring, EU-US comparison

Background

This paper analyses reshoring surveys and secondary data collections in the EU and the US. It compares the evidence from EU countries with US results and draws conclusions on differences and similarities in reshoring patterns and limitations of the comparison.

Reshoring or backshoring is the decision to relocate manufacturing activities back to the home country of the parent company (Kinkel & Maloca, 2009; Fratocchi et al., 2016). The literature explains reshoring as subsequent decision of a previous offshoring decision (Gray et al., 2013; Foerstl et al., 2016). Reshoring is a result of changes in location advantages of a foreign production site, or a consequence of a wrong assessment of these advantages (Ellram et al., 2013; Fratocchi et al., 2016). Case studies have shown that some managers have offshored manufacturing activities based on simple comparisons of easily measurable costs, in particular labor costs (Kinkel & Maloca, 2009). Factors that contributed to a wrong assessment of offshoring advantages include rising labor costs in foreign locations, long lead-times, low flexibility and quality in foreign production, unforeseen coordination cost, or a loss of intellectual property to foreign competitors or suppliers (Kinkel & Maloca, 2009; Holweg at al., 2011; Nassimbeni, 2006).

Transaction cost theory (TCT) points to various reasons for a wrong assessment of the 'hidden' costs of offshoring. Bounded rationality and possible contingencies in transactions across companies and countries may lead to higher than expected costs, poorer than expected quality, and higher than expected efforts for the management of transborder

activities (Fredriksson & Jonsson, 2009; Pisano & Shih, 2009; Tate et al., 2009). Additional *supply chain complexity* can lead to excessive coordination and monitoring efforts, rising transportation cost or high amounts of working capital in safety stock (Tate et al., 2011; Ritter & Sternfels, 2004).

Reshoring decisions may also result from the limited abilities of companies to sufficiently develop and maintain critical capabilities in foreign locations, or to exploit the host country's resources in order to create competitive advantage for the multinational company as a whole (Canham & Hamilton, 2013). Here, advanced production technologies come into play. Some organisations are able to adopt manufacturing processes to develop unique and barely imitable competences at specific locations – very often starting with the home-base – and to exploit these resources in a specific and more effective way (Broedner et al., 2009; Grant, 1991).

However, empirical evidence on reshoring activities in different countries is relatively scarce and calls for more knowledge about its drivers, effects, and evolution (Fratocchi et al., 2016; Kinkel, 2014). With the aim to compare EU and US findings on reshoring patterns, the paper poses the following *research questions*:

RQ-1: From empirical evidence, what are the main findings on companies' reshoring activities in the EU and the US?

RQ-2: What are the main similarities and differences and what are the main limitations of this comparison?

Methodology

Different sources of empirical evidence on reshoring in the EU and the US have been analysed regarding similarities and differences in reshoring patterns and limitations to compare these results (Kinkel et al., 2017):

- The *2012 Eurostat international sourcing survey*, which covers *backshoring* and *home-shoring* activities of companies from 15 European countries.
- Data from the *European manufacturing survey (EMS)* 2012 edition, covering data from more than 3000 companies from 11 European countries.
- *Longitudinal data* from the *German Manufacturing Survey*, including around 1,150 to 1,650 answers of German manufacturing companies in each survey round (1997, 1999, 2001, 2003, 2006, 2009, 2012, and 2015).
- Data collected by the *Uni-CLUB MoRe* through a keyword search in major business-related newspapers, magazines, white papers and the library of the US *Reshoring Initiative*, covering 377 reshoring cases from EU (51%) and US (47%) companies (Fratocchi et al., 2016).
- Data from the *European Monitor of Reshoring (EMR)*, based on a broad media screening of more than 7,500 press releases, covering 93 backshoring cases from January 2016 until May 2017 (Ancarani et al., 2017).
- Recent *country-specific evidence* based on specific surveys in the Nordic countries (Heikkilä, 2017), covering answers of 847 manufacturing companies (373 from Sweden, 229 from Finland, 245 from Denmark), in France, covering answers of 215 buyers and purchasing managers (Fel and Griette, 2016), and in the UK, covering answers of 262 UK-based manufacturers (Li et al., 2017),
- Data from the library of the US *Reshoring Initiative* (www.reshorenow.org), and from the US Reshoring Institute (2016), covering answers of 65 US manufacturers that are reshoring now or considering it.

Findings

The *Eurostat 2012 international sourcing survey* is the only "official" data base on reshoring activities in the EU. It differentiates in so called "international backsourcing", that is the movement of functions by the enterprise back into its home country, which the enterprise has previously moved out of the country, and "international relocation", that is the movement of functions by the enterprise into its home country, which have been carried out for the enterprise abroad but have not previously been moved out of the home country by the enterprise. These activities can also be characterized as "backshoring" and "home-shoring", as described in Pegoraro et al. (2017).

In Figure 1, the results on home-shoring and backshoring activities of enterprises from the manufacturing industry are displayed. The highest share of home-shoring is found in Ireland, where almost 9% of manufacturing enterprises were performing home-shoring activities between 2009 and 2011. Home-shoring is also above-average in Slovakia, Belgium and Sweden, with shares of 6% to 7% of all manufacturing enterprises. Backshoring is particularly frequent in Sweden, Ireland, Finland and Denmark, with shares of between 3.5% and 5% of manufacturing enterprises being active. Low shares are displayed for Romania, Bulgaria and Lithuania, which are clearly below average in home-shoring and backshoring activities of manufacturing enterprises.

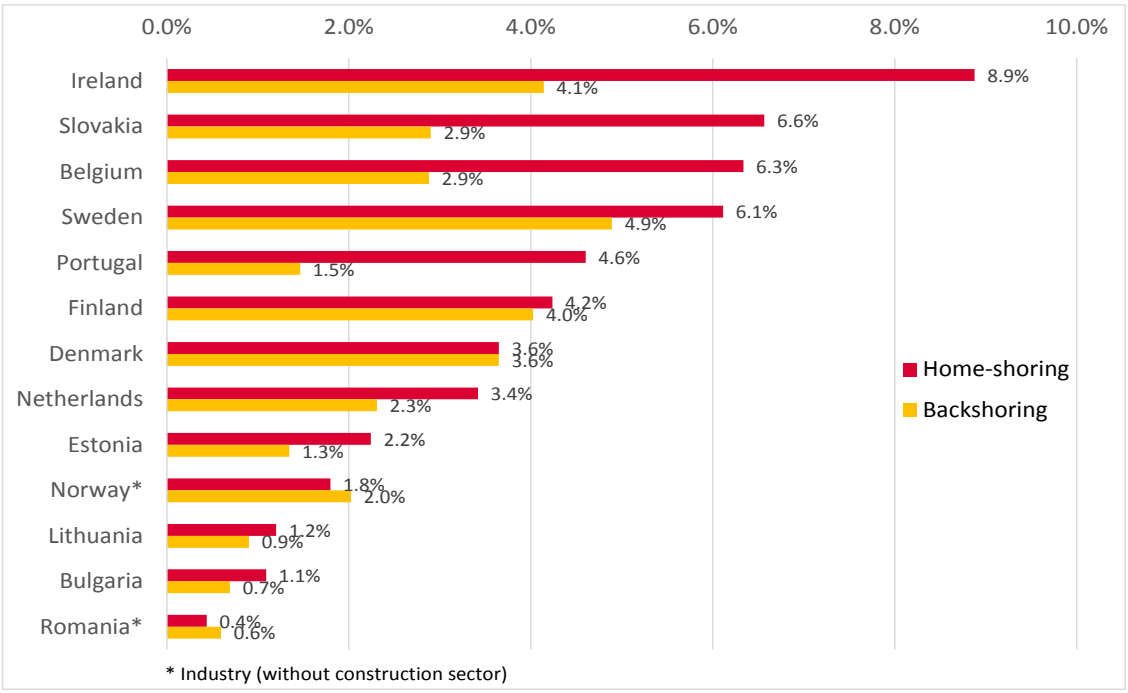

Figure 1: Share of enterprises (manufacturing industry) that home-shored or backshored activities in 2009-2011 (Source: Eurostat, own calculations and representation)

Overall, reshoring activities have been in particular performed by enterprises from small, open economies with high labour costs – as also international sourcing activities (Rikama et al., 2013). Reshoring activities are closely related to offshoring or sourcing activities, as reshoring can only take place from where previous activities have been set up.

The Eurostat survey on international sourcing also covers some motivational factors for backshoring. However, motivations for home-shoring are not covered, so the motivational factors are only related to the backshoring mode. The most frequent motive for

backshoring in the manufacturing industry is strategic decisions that are taken by the group head of the enterprise (36%). Second are problems with supplier flexibility and ability to supply (24%), which seems to be significantly more important for manufacturing companies than for other businesses. It is followed by higher than expected costs involved in sourcing activities (15%), long delivery time to customers (11%) and insufficient quality at the foreign location (11%). The latter seems to be more important for other businesses than the manufacturing industry. A further differentiation of the most important motives by the participating countries is difficult, as numbers off backshoring enterprises are rather small and statistical evidence does remain limited.

Dachs and Zanker (2014) present recent results on European companies' backshoring activities based on data from the European manufacturing survey (EMS)[1]. The data covers the period between 2010 and mid-2012 for 11 available countries (Austria, Switzerland, Germany, Denmark, Spain, France, Hungary, Portugal, Netherlands, Sweden and Slovenia). It shows that **around 4% of all companies in the survey sample have moved production activities to their home country**. In the same time period, there are more than three offshoring companies for every backshoring company. Results also show that backshoring is most frequent among medium-sized companies. The propensity for backshoring is below 1.5% in small companies with less than 50 employees, increases to 9% in companies with 150–249 employees and decreases to around 7% for companies with 250 and more employees. In a sectoral perspective, the share of backshoring companies is lowest in low-technology industries and most frequent in high-technology industries. Other EU countries (Western as well as Eastern Europe) represent almost two-thirds of the **source countries for backshoring** by EU companies. In particular China and India have become more important as source countries for backshoring over time, accounting for more than 20% of all backshoring activities. This follows the increased offshoring by EU companies to these countries in the years before. The **most important reasons for backshoring** are quality issues, reported by almost two thirds of the surveyed companies, and the loss of flexibility, to respond quickly to dynamic changes in market demand or needs of customers, for more than half of the backshoring companies. Innovation related factors like the loss of know-how or the vicinity of production to R&D are less important for the backshoring activities of EU companies, as also rising labour costs or lack of qualified personnel in the foreign target countries.

Fratocchi et al. (2016) provide evidence on motivations of manufacturing reshoring, based on a sample of 377 reshoring cases belonging to 322 companies. US and EU companies are almost equally represented in the sample (47% and 51%). Data were collected by the *Uni-CLUB MoRe* from 2011 to the beginning of 2014 through a keyword search in secondary data of the major business-related newspapers, magazines and reports, white papers of major consulting companies and internet search. With respect to US companies, data collected by the Reshoring Initiative (www.reshorenow.org) was also integrated. Results show that 59% of the reshoring activities originate from China and 13% from other Asian countries, 12% from Eastern European countries, 8% from Western European

[1] The *European Manufacturing Survey (EMS)* investigates technological and non-technological innovation in European industry (including offshoring, outsourcing, and reshoring). The survey is organised by a consortium of research institutes and universities, coordinated by the Fraunhofer Institute for Systems and Innovation Research ISI, and takes place every three years.

countries, and 5% from Central and South America. China as a source country of reshoring is much more important for US companies (75%) than for EU companies (44%), whereas Eastern Europe and Western Europe are mainly relevant for EU companies (23% and 13%) and almost negligible for US companies (0.5% and 3%). The most frequently mentioned **reshoring motivations** were logistics costs (22%), delivery time (18%), labor cost gap reduction (18%), Made in effect (18%), poor quality of offshored production (17%), and total costs of sourcing (11%). All other of the identified 26 distinct reshoring motivations were mentioned in less than 10% of the reshoring cases. On the other hand, some factors as e.g. the loss of know-how in the host country or other manufacturing costs as e.g. energy costs seem to be less relevant than in the related literature. Overall, factors of the external environment (in 70% of the cases) appeared to be more relevant for reshoring decisions than internal factors (44%). The authors conclude that both efficiency-driven as well as customer value-driven motivations for reshoring are important and should be integrated into sustainable ex ante evaluation schemes for offshoring initiatives.

Ancarani et al. (2017) provide more recent evidence from the *European Monitor of Reshoring (EMR)*, a collaboration between EU Eurofound and a Consortium of Italian Universities. It uses secondary sources, based on a broad media screening of press releases, major newspapers, local papers, trade journals, broadcaster websites, news agencies, etc., employing a structured keyword search. The screening started in January 2016 and covered 93 backshoring cases until May 2017. UK, Italy and France account for 66% of the collected cases, whereas Germany and Spain each represent only 5% of the sample. The **main source countries** of backshoring activities were by far Western European countries (36%) and China (34%), followed clearly behind by Eastern European countries (10%), India (7%) and the USA (6%). The high proportion of reshoring from Western Europe seems to be motivated by exploitation of untapped capacity at home or reorganisation of home-based production sites. The **main motivations for backshoring** are related to business restructuring, that includes global reorganization (38%), economic crisis (20%) and untapped capacity at home (17%), followed by flexibility related factors like delivery time (26%) and proximity to customers (25%), quality related factors like "Made in" effect (24%) and poor quality of offshored production (20%), and the automation of production processes (22%) and other innovations (22%) at the home base.

The only longitudinal data on offshoring and backshoring activities is available for the German manufacturing industry. The *German Manufacturing Survey* is part of the European Manufacturing Survey (EMS), coordinated by the Fraunhofer Institute for Systems and Innovation Research ISI, and includes around 1,150 to 1,650 answers of German manufacturing companies in each survey round from 1995 to 2015 (1995, 1999, 2001, 2003, 2006, 2009, 2012, 2015). The distribution of the sample is representative of the basic population of all German manufacturing companies. German evidence on reshoring might be indicative of trends in other developed and high-wage countries with strong capabilities in medium-high-tech manufacturing and opportunities for innovations for global markets, e.g. in automotive, machinery and equipment, electrical machinery, chemical industries (Brennan et al., 2015).

According to the most recent data from the survey round of 2015, backshoring of production capacities has slightly risen compared to the 2012 survey results. From 2013 to mid-2015, about **3% of the German manufacturing companies** have shored parts of

their foreign production capacities back to Germany. At the same time, production offshoring activities abroad continued to stay on a low level. Only 9% of German manufacturing companies have offshored parts of their production abroad from 2013 to mid-2015. Thereby the declining trend of the past 12 years has not yet reversed (Figure 6). Hence, **there is currently one backshoring company on every three offshoring companies**, which is a relevant phenomenon. When extrapolated to the entire German manufacturing sector, absolute numbers account actually for around 500 German companies performing backshoring activities per year.

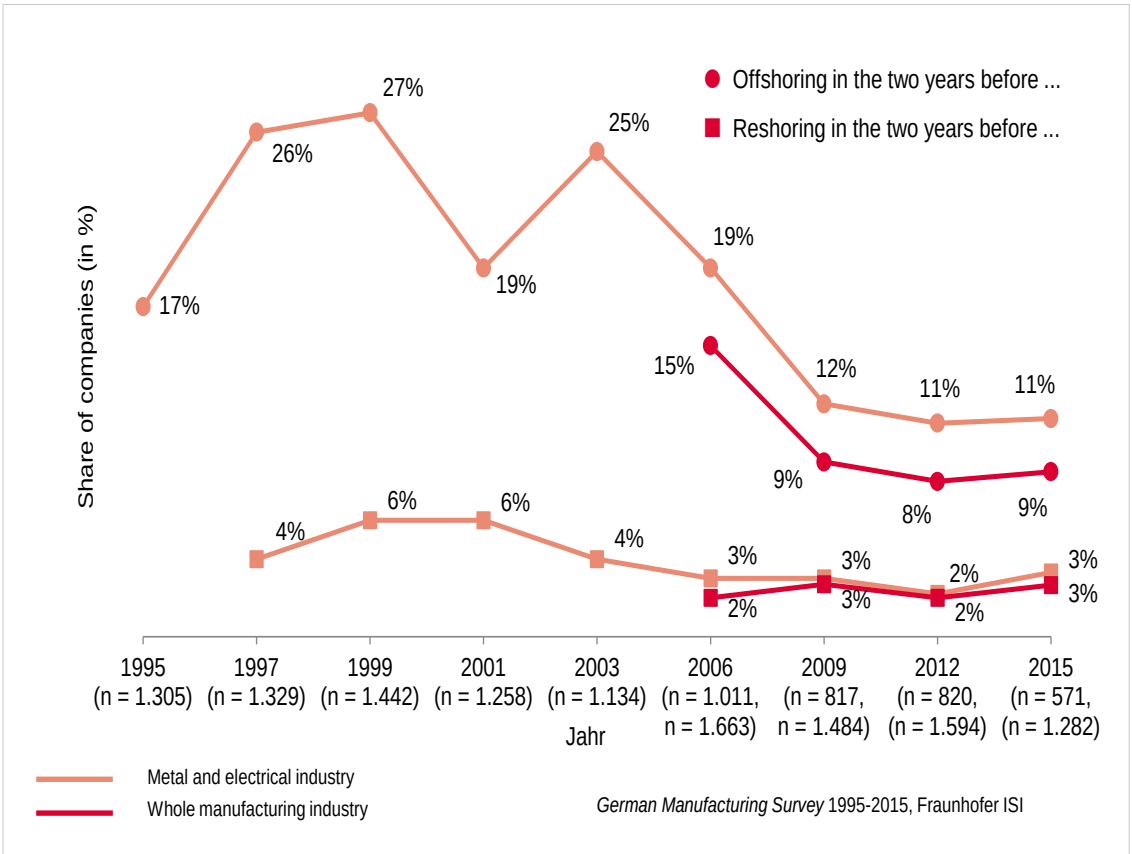

Figure 6: German manufacturing companies' offshoring and backshoring activities over time

The **main source countries** of German companies' backshoring activities were the Western European EU 15 countries (32%), followed by other (than China) Asian countries (23%), North America (16%), China (13%), and the Middle and Eastern European EU 13 countries (10%). In the previous surveys of 2012, 2009 and 2006, the EU 13/12/10 have been much more important for German companies' backshoring activities, accounting for around 50% of the backshoring cases in each round. The **most important reasons for backshoring activities** of German manufacturing companies are the lack of flexibility (56%) at the offshoring location or in the resulting supply chain and a low quality (52%) of the goods produced. Both reasons are relevant for more than half of all backshoring decisions and remained virtually unchanged since the last survey. On the other hand, innovation-relevant factors such as the risk of loss of know-how at the foreign location (6%), the proximity to domestic R&D (5%) or the availability or fluctuation of skilled workers at the foreign site (0%) play a minor role for reshoring decisions.

Heikkilä (2017) provides a comprehensive study on "Relocation of Nordic Manufacturing" in the so called Nordic countries Sweden, Finland, and Denmark (Heikkilä, 2017). They carried out a survey on offshoring and backshoring activities, containing responses of 847 manufacturing companies (373 from Sweden, 229 from Finland, 245 from Denmark). This rich data set allows for differentiating backshoring patterns and motives over the three countries covered. Overall, **19%** (n=160) of the surveyed companies answered that they have **performed backshoring activities** during 2010-15, with the highest backshoring propensity observed in Sweden (27%), followed by Finland (13%) and Denmark (13%) with a quite similar frequency. The **main source countries** of backshoring activities were other Nordic (26%) and Western European countries (31%), followed by Eastern European countries (17%), China (13%), and other Asian countries (9%). The **most important drivers for backshoring activities** are quality (scoring 3.82 on a 5 point Likert scale), followed by flexibility (3.73), lead time (3.56), access to skills and knowledge (3.48), access to technology (3.24), other cost (3.21), logistics cost (3.12) and proximity to R&D and product development (3.10). All other factors scored below the scale median of 3.0. Labor cost is the most important factor for offshoring decisions (3.93), but not for backshoring (2.43).

Fel and Griette (2016) conducted an online survey of 215 buyers and purchasing managers from companies located in mainly France. Among the surveyed companies sourcing in China, 48% have actually near-reshored all, or part, of their Chinese supplies over the past few years, and 10% plan to do so soon. Near-reshoring is most common in the textile (80%) and retail industry (75%) and almost non-existent in the computer industry. 30% of the near-reshoring companies – or **14% of all companies sourcing in China – were backshoring to France**, all others to other Western and Eastern European countries (incl. Turkey). Most of the near-reshoring is relatively new, as 96% of the responding companies started **during the past 5 years** and 39% in the past year (2015) alone. The **duration of the offshoring strategy before reshoring was relatively short**, reaching more than 10 years in only 20% of the cases and 5 years or less in 35% of the cases. The **main motives for reshoring** were changes in business conditions with China (54%, e.g. higher wage costs or exchange rates), followed by changes in the companies' strategies (30%), seeking to bring design and production closer together (40%) and correction of mistakes in their initial outsourcing decision (15%).

Recently, Li et al. (2017) provided results of a survey of 262 UK-based manufacturers. The analysis distinguishes between *direct reshoring*, which refers to the physical backshoring of previously offshored manufacturing activities back to the UK, and *indirect reshoring*, that is "to keep or increase manufacturing activities in the UK instead of moving them abroad after a serious consideration of foreign locations" (Li et al., 2017, p. 5). Results show that **13% of the responding companies have directly reshored manufacturing activities back to the UK within the past 8 years (since 2008)**, whereas "indirect reshoring" has been significantly more common among UK manufacturers, being performed by 52% of the surveyed companies. The analysis also provides some evidence that offshoring companies show a better cost performance in manufacturing, whereas reshoring (indirect or direct) companies are better in terms of flexibility and delivery time.

The debate on **reshoring in the US** was largely stimulated by the reports "Made in America, Again" of the *Boston Consulting Group (BCG, 2011, 2012)*. They show that more than 20% of the surveyed executives in 2013 were actively engaged in backshoring

or about to backshore manufacturing in the near future, compared to less than half of it in 2012. Based on this it is predicted that reshoring of activities from low cost countries will contribute to the future revival of US manufacturing. *A.T. Kearney (2014)* has taken a more sceptical look on reshoring to the US. Based on an analysis of 700+ reshoring cases that have been announced in the years 2010-14, it is argued that the growth in reshoring activities seems to have slowed down. As at the same time many US companies are still offshoring activities abroad, the impact of reshoring on aggregate indicators like production and jobs may be doubted. The most frequent reasons for reshoring of US companies are delivery time (30%), quality issues (30%) and several cost categories as freight costs, wages or energy costs. In total, cost-related reshoring motivations sum up to around 70% of the mentions. Innovation-related reasons are less common in the top 10 reasons.

Another source of evidence on reshoring in the US is the *Reshoring Initiative*, a non-profit organization that was founded by Harry Moser in 2010. It has the goal to bring manufacturing jobs back to the U.S. in order to strengthen the US economy, and offers a library of articles about US reshoring cases on the initiative's webpage www.reshore-now.org. According to Moser (2013), **most reshoring cases come back from China** (61%), followed by other Asian countries (Japan, India, Taiwan, Malaysia, Philippines; together 17%), Mexico (12%) and others (9%). The dominance of China is not surprising, since the previous manufacturing offshoring trend of US companies definitely pointed to China as the main target country. According to a more detailed data analysis of the *reshoring library* by Hartmann et al. (2014), the **main reasons** for reshoring activities of US companies were the following: Time-to-market/Transportation time (mentioned by 41% of the reshoring companies), quality issues (39%), transportation costs (29%), costs of control (27%), proximity to customers (26%), (cost-) efficiency (24%), and labor costs (24%). If put together, cost-related motives are most frequently reported, followed by motives related to flexibility and delivery time to customers, quality and image, innovation and policy. This shows the higher focus of US companies on cost, compared to European companies, whereas flexibility and quality issues seem to be equally important.

The most recent evidence on US reshoring activities is provided by the 2016 online survey of global operations conducted by the *Reshoring Institute* and the University of San Diego. It is intended for manufacturers in the USA that are reshoring now, considering it, or planning to open new manufacturing facilities in the US. The online survey was conducted from August to October 2016 and had 65 participants. The results show that the **main reason** for the evaluation of reshoring options are international logistic costs (12%). Referring to costs, also TCO evaluations (9%) and rising labor costs (5%) are among the top ten reasons for evaluating reshoring. Besides costs, flexibility (time to market (7%) and proximity to customers (10%)) and quality issues (8%) seem to be in particular important. The social and political factors seem to be of lesser importance for the companies to evaluate reshoring options. For companies sourcing overseas, delays in general are the biggest issue, whether it concerns shipping (28%) or production (27%). Another issue relates to the quality that is inconsistent (20%) or does not meet the requested requirements (14%). Also relevant is the theft of intellectual property, which seems to be of lesser importance for global sourcing operations (11%) – while it was more among the top ten reasons for considering reshoring options.

Conclusions

Reshoring seems to be a *more common phenomenon in the US* than in most European countries. In the US, more than half of the executives surveyed by BCG (2013) were considering reshoring activities. In Europe, the average share of reshoring companies at all manufacturing companies, "adjusted" to a comparable time-frame of 2 years of activity, is around 4%. This share varies significantly from around 1% in Eastern European countries like Romania or Bulgaria over 3% in large industrial countries like Germany or the UK, 4% in Nordic countries like Denmark or Finland, around 6% in Belgium or France up to 9% in Sweden and Ireland.

Source countries for reshoring by US companies are especially China and other Asian countries, while for European companies also Western and Eastern European countries are included. However, China has emerged as the most important single source country also for European companies, and India has also become more important.

For US companies, different costs factors, like total cost of ownership (TCO), transportation costs, rising labor costs, or costs of control, represent the *most important motivations for reshoring*. Contrariwise, quality issues and losses of flexibility and delivery time seem to be relatively more important for European companies. Also, the exploitation of the "made in" reputation effect is a significant driver for reshoring activities that seems to be more important for European than for US manufacturers.

*Backshoring seems to be a more common phenomenon than nearshorin*g, particularly in the US, with 10 times more backshoring cases than nearshoring cases in the US, and seven times more in Europe (Fratocchi et al., 2015). However, some surveys to not clearly distinguish between different modes of reshoring or cover different modes than other surveys, making cross-country comparisons difficult. E.g. *backshoring and home-shoring* is covered in the 2012 Eurostat survey on international sourcing, *backshoring and backsourcing* in the EMS, *backshoring and nearshoring* in the Uni-CLUB MoRe dataset, or *direct and indirect reshoring* in the UK and the US, with the latter defined as "keep or increase manufacturing activities in the UK/US instead of moving them abroad after a serious consideration of foreign locations" (Li et al., 2017, p. 5).

Overall, it seems not very likely that reshoring initiatives will be a major lever to restore industrial work in many high-wage countries. It is not easy, in some cases impossible, to restore product and process competences outsourced some years ago. In many cases it might be easier to build up capabilities for the next generation products or production technology, e.g Industry 4.0 or smart factory operations (Kinkel et al., 2017).

However, it is very *difficult to compare reshoring figures*, as they origin from different time-frames (from 2 to 8 years) and, in the case of US surveys, even include companies that are only considering reshoring activities or invest in (new) manufacturing capacities at home instead in some offshore country.

Another issue is *different points in time* when the surveys were conducted, as reshoring decisions are heavily influenced by factors of the external environment, which are changing quite significantly over time (e.g. wages, economic and political conditions, etc.). Thus, comparisons of reshoring levels between different countries need to be interpreted with great care.

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