

## Backshoring of Production Activities in European Manufacturing

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### Summary

This note presents empirical evidence on production backshoring – the movement of production activities from locations abroad back to the home country. Between 2010 and Mid-2012, only four percent of all firms moved production activities back to their home country. For every backshoring firm, there are more than three offshoring firms. Thus, from today's perspective it is unlikely that backshoring will be an important driver of a 'manufacturing renaissance' in Europe.

The most frequent reason for backshoring is poor quality of the goods produced at foreign locations, followed by the loss of flexibility and too high transport costs. Sectors with a high backshoring propensity are electrical equipment, communications equipment and the automotive industry. These sectors may be the most obvious candidates for policy intervention to increase the frequency of backshoring in European manufacturing.

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## Introduction

Backshoring of importance within the debate about the future of manufacturing in Europe

Backshoring – the relocation of production activities from abroad to the home country of the firm – came into focus of multinational companies as well as policy makers in recent years. Some firms have made disappointing experiences with their production activities abroad – cost savings and productivity turned out to be smaller than expected, and additional, unforeseen cost arose. Sharp decreases in market demand during the economic crisis gave additional reason to re-evaluate the advantages and disadvantages of foreign production locations.

Policy is as well increasingly aware of backshoring. The current debate on re-industrialization in the US and Europe is, to a large degree, fuelled by the hope that cost advantages of many offshoring locations will gradually deteriorate in the next decade due to faster wage increases in Asian countries and new production technologies. As a consequence, some observers expect a ‘manufacturing renaissance’ in Western Europe and the US when firms reconcentrate and further develop production activities in the home country.

This note presents empirical evidence on the backshoring of production activities by European firms. The *European Manufacturing Survey* (EMS) provides information on production offshoring and backshoring for more than 3,000 European manufacturing firms. The data allows studying the frequency, motives and partner countries of backshoring as well as characteristics of backshoring firms.

### **The European Manufacturing Survey**

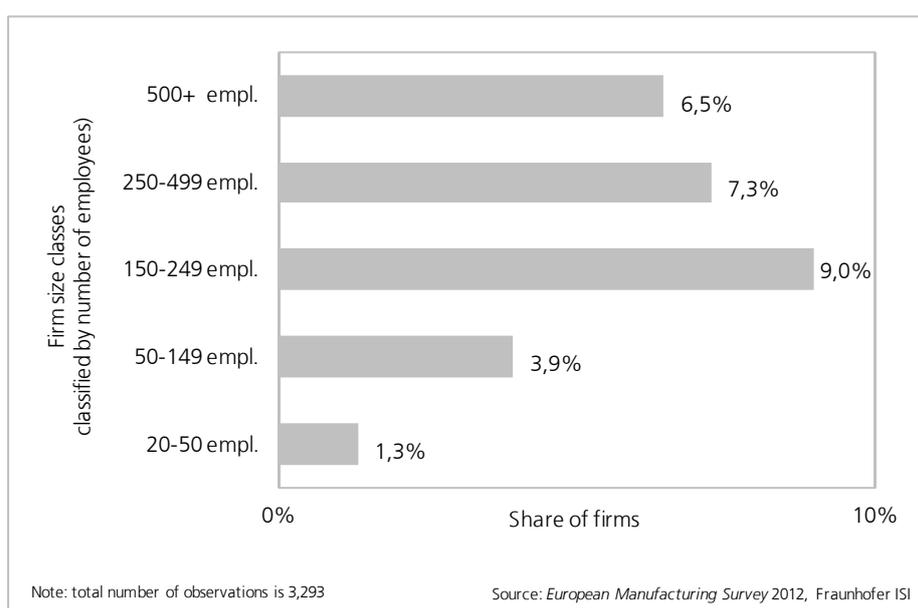
The *European Manufacturing Survey* (EMS) investigates technological and non-technological innovation in European industry. It focuses on fields such as technical modernisation of value adding processes, introduction of innovative organisational concepts including international offshoring and outsourcing of production and R&D activities and new business models for complementing the product portfolio with innovative services. In contrast to the Community Innovation Survey (CIS), EMS is more focused on technology diffusion and organisational innovation than on product innovation.

EMS is organized 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. More than 3,500 firms in 13 countries participated in the latest EMS survey in 2012.

## Frequency of backshoring

Backshoring is a rare phenomenon. In the countries where data is available<sup>3</sup>, only four percent of all firms have moved production activities back to the home country between 2010 and Mid-2012. This is considerably lower than the share of firms which have offshored production activities in the decade before (17%). Thus, only a fraction of the offshoring firms return. Moreover, there are still considerably more firms which offshore than backshore; for every backshoring firm in the sample, there are more than three offshoring firms.

We cannot observe that backshoring has become more frequent. In contrast, the share of backshoring firms has slightly decreased by 0.6 percentage points in the period 2010–2012 compared to 2007 to Mid-2009.



**Figure 1:**  
Backshoring  
propensity across  
size classes,  
2010 – Mid-2012

Backshoring is most frequent among large firms (Figure 1). The propensity for backshoring rises with firm size. It is below 1.5% in small firms with less than 50 employees, increases to 9% in firms with 150–249 employees and decreases for the two largest size classes.

The decrease in backshoring for firms larger than 250 employees is difficult to understand. Backshoring increases with size simply because offshoring often precedes backshoring<sup>4</sup>. Moreover, larger firms are often stronger diversified

<sup>3</sup> Backshoring data for 2012 are available for AT, CH, DE, DK, ES, FR, HR, PT, NL, SE, SI.

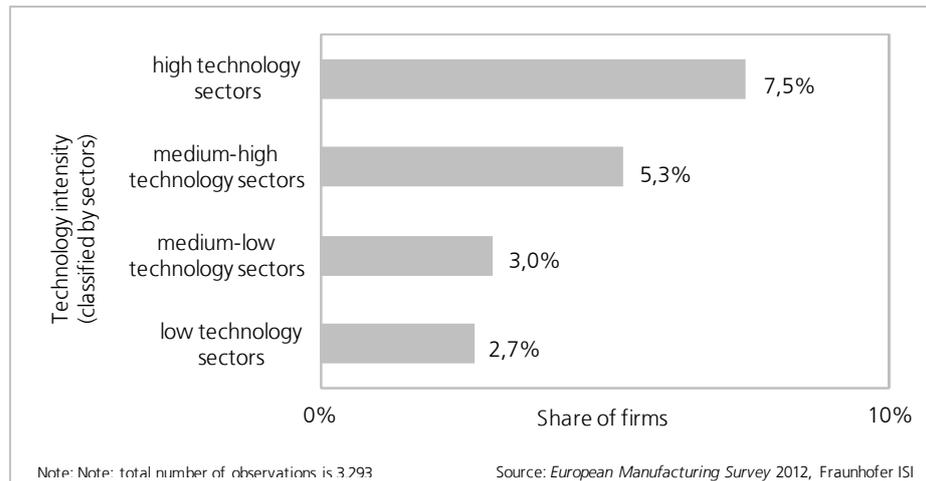
<sup>4</sup> A firm may backshore production activities without prior offshoring when it owns production activities abroad due to a merger or an acquisition.

and own multiple plants, which increases the likelihood for relocation. This would also imply that backshoring strictly increases with size. However, as Figure 1 reveals, there seem to be factors in place for firms between 150 and 249 employees that make backshoring relatively more attractive. It may be that firms in this size class have intensified offshoring considerably in the previous period.

### Backshoring at the industry level

In a sectoral perspective, the share of backshoring firms is lowest in low-technology industries such as the manufacturing of clothing, food and beverages, wood and wood products, or glass and bricks. Advantages of offshoring locations seem to be largest in these sectors. In contrast, backshoring is most frequent in high-technology industries. Here, the electrical equipment and computer industry stand out. This may be interpreted as a sign that Europe's competitive advantages as an industrial location lie in these industries.

**Figure 2:**  
Backshoring and  
technology  
intensity of the  
sector, 2010 –  
Mid-2012



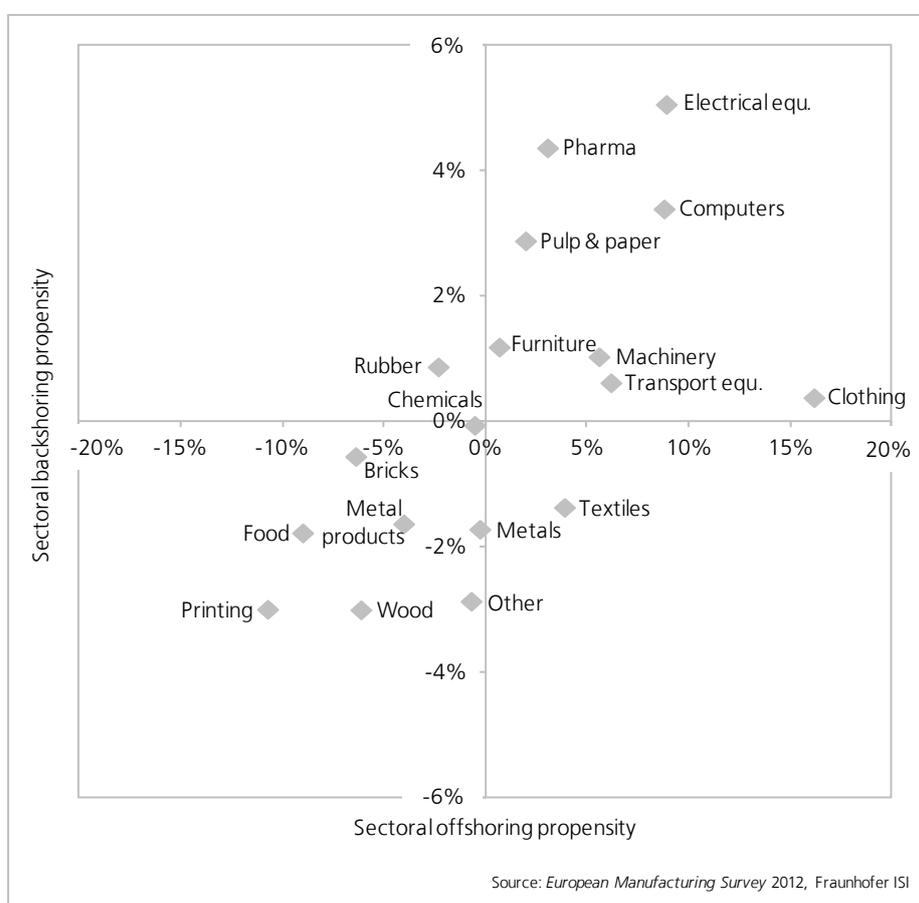
### Different backshoring strategies at sector level

To examine industrial strategies in more detail, the following Figure 3 compares the shares of backshoring and offshoring firms across sectors. The vertical axis depicts offshoring propensity at the sectoral level, while the horizontal axis represents sectoral backshoring propensity. We have deducted the mean for the total sample from the share of backshoring and offshoring firms in each sector, so that a sector which has the same backshoring or offshoring propensity as the total sample lies on the vertical or horizontal axis.

The two axes together form four different quadrants which reflect different sectoral strategies. The south-east quadrant ('They never come back') is characterized by a high propensity to offshore, but low backshoring. This combina-

tion makes a return of substantial industrial activity unlikely. The only industry included in this quadrant is textiles.

We observe fundamentally different strategies in the north-east quadrant ('Mobile sectors'). Here, firms frequently offshore and backshore production activities, although offshoring is always higher than backshoring. The manufacturers of electrical equipment, computers and telecom equipment, transport equipment or pharmaceuticals are examples for this strategy. Firms in these sectors may react with this strategy to changing framework conditions in various locations and/or changes in technology which may also alter the attractiveness of different production locations. They may be a potential target group for policy measures to foster backshoring.



**Figure 3:** Offshoring and backshoring across sectors, 2010 – Mid-2012

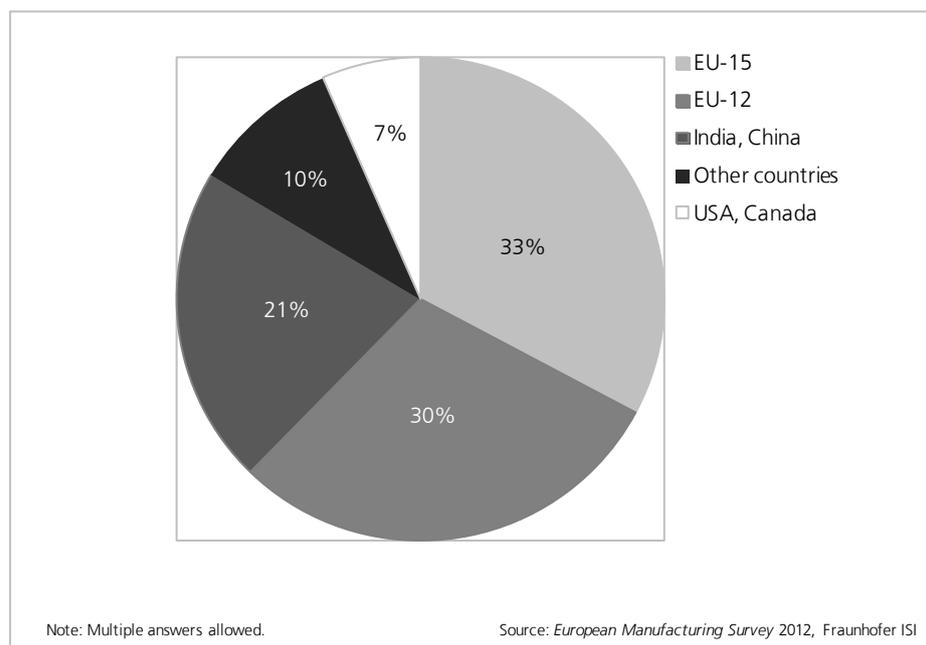
From a policy perspective, the most interesting quadrant of Figure 3 is the north-west quadrant, 'Re-industrialisation'. Industries in this quadrant reveal high backshoring and low offshoring propensity. Unfortunately, this quadrant is nearly unpopulated. Only the manufacturers of rubber products belong to this sector. Another industry close to this quadrant is the chemical industry, a

sector characterized by high capital intensity, high capital-to-labour cost ratios and continuous production processes.

### Source countries for backshoring

In the last decade China, India and EU member states which joined the European Union in 2004 (EU-12) were the main target countries for production offshoring of European firms (Dachs et al. 2006). Hence, it is no surprise that these countries are also the most important source countries for backshoring in the period 2009–2012 (see Figure 4). In addition, we also find considerable backshoring activities from EU-15 locations (in particular Germany) and from the US. The US and other countries together account for around a fifth of all backshoring.

**Figure 4:**  
Share of various source countries for backshoring of production activities, 2009 – Mid- 2012

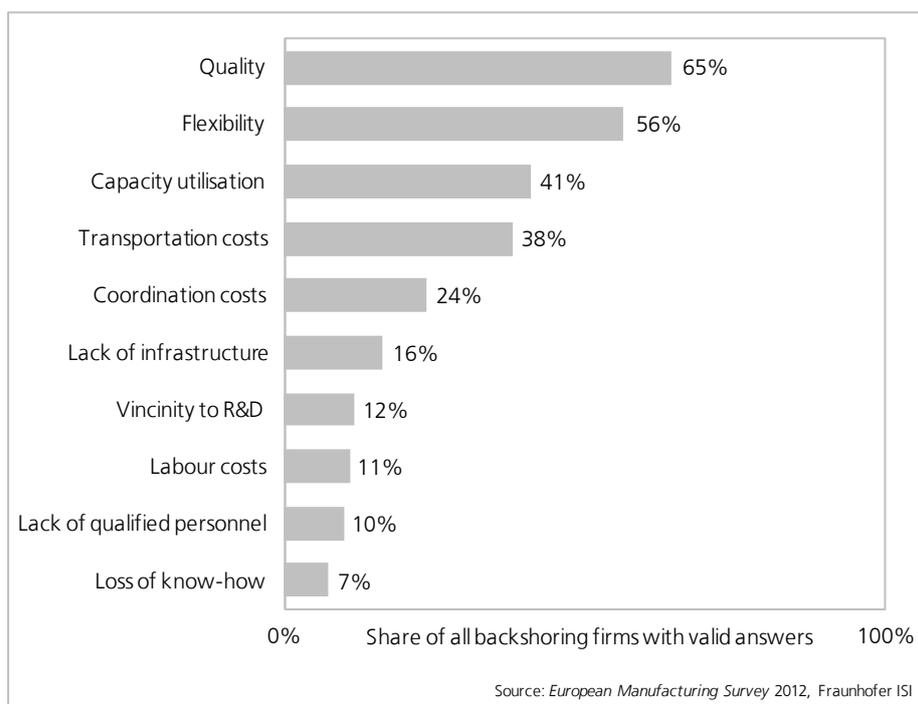


### Motives for backshoring

Why are firms moving production activities back to the home country? This is an essential question for policy makers, since it sheds light on the locational advantages of countries as seen from the perspective of relocating firms.

Generally speaking, overseas production is the result of the interplay of ownership, locational, and internalisation advantages (Dunning 1995; Dunning 2001). In the case of backshoring, we may assume that one or several of these advantages have deteriorated over time in the host country compared to the home country, or the firm has simply overestimated the benefits and underestimated the costs arising from production activities abroad.

EMS results indicate that the most frequent motive for backshoring are problems with the quality of the goods produced abroad (see Figure 5 below). More than half of the firms in the sample report quality issues as the reason for backshoring.



**Figure 5:** Reasons for the backshoring of production activities, 2010 – Mid-2012

Another important reason which is valid for more than half of all backshoring firms is a loss of flexibility. Production activities spread over several countries make it more difficult to react quickly to changes in market demand or new needs of key customers. The wish to increase capacity utilisation at home and too high transport costs follow as two other important motives for backshoring.

Motives related to technology and innovation, in contrast, are not considered as important reasons for backshoring. Only seven percent of all backshoring firms move production back because of a perceived loss of know-how in the host country; a lack of qualified personnel in the host country is only slightly more relevant for backshoring. Moreover, it seems that only a small fraction of the offshoring firms find it difficult to separate R&D (which is often located in the home country) and production activities abroad. Only 12% of the backshoring firms say that the co-location of production and R&D activities at home was the reason for backshoring.

It has been mentioned above that observers in Europe and the US hope that a closing wage gap between the US or Europe and Asian locations will pose a

major incentive for backshoring. EMS results do not support this hope; only 11% of all backshoring firms took this step because of labour costs. Diminishing wage gaps are not a huge driver of backshoring so far.

## Conclusions

Will backshoring of production activities lead to a manufacturing renaissance in Europe? Our results do not support this hope. Backshoring in European manufacturing is still rare; only a small fraction – four percent – of the firms which moved production activities abroad in previous years return. For every backshoring firm in our sample there are more than three offshoring firms.

Backshoring propensity is highest in high-technology industries such as electrical equipment, computers and transport equipment, industries with strong supplier relations that give them an economic relevance well beyond their sectoral boundaries. However, there is no sector where the share of backshoring firms is higher than the share of offshoring firms.

Firms backshore production activities mostly because of poor quality and due to a lack of flexibility and low capital utilisation in the home country. Home countries of offshoring firms may therefore promote backshoring by increasing efforts in training and innovation, and by pursuing a pronounced strategy of industrial modernisation, including investment in process technologies to increase production flexibility and quality. These measures may help backshoring to gain momentum in the future.

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