Manufacturing Reshoring and its Limits: the UK Automotive Case.

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Abstract

This paper explores the meaning of reshoring and its drivers in the case of UK manufacturing and in particular its automotive sector. Drawing on interviews, policy reviews and a range of recent surveys, the paper finds that while reshoring is a discernable trend in UK manufacturing, it is less pronounced than many have claimed and that – in the UK case at least - there are severe limits as to how far this reshoring trend can go, particularly in relation to the availability of skills and finance in the supply chain. This is in turn raises questions over the stance of British policy and whether more could be done, with comparisons made to US experience.

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1 INTRODUCTION

'Offshoring' and 'outsourcing' have dominated much of the discourse on manufacturing in advanced economies over the last decade, with many manufacturing firms shifting sourcing to low-labour cost locations in Central and Eastern Europe and South East Asia. However, in recent years offshoring has cooled and there have been some tentative signs of multi-national firms moving parts of their value chains back to their home economies. Indeed, manufacturing reshoring is a major topic of current debate in several countries including Germany (Kinkel 2012 and 2014; Dachs and Kinkel 2013), the US (Ellram *et al*, 2013) and the UK (Merlin-Jones, 2012), despite evidence of the phenomenon in the latter being

somewhat thin. This paper presents evidence on the reshoring trend in UK manufacturing, key arguments over what is driving such reshoring, as well as limits or 'bottlenecks' as to how far such trends can realistically go, such as in relation to skills and access to finance. The research underpinning the paper first consisted of a range of initial semi-structured interview with manufacturing firms (notably automotive supply chain firms) in the UK Midlands, as well as policy makers, support agencies and professional services firms such as accountants, banks, lawyers and property specialists. Having identified a range of issues affecting firm location decisions (including the exchange rate, wage costs, transport costs, quality, supply chain resilience and so on), a pilot survey was undertaken by the authors in 2013, followed by more detailed follow up interviews with firms over 2013-14. The findings from this work are buttressed through a 'meta-analysis' of the findings of range of later surveys on a larger scale which concurred with the authors' earlier findings. In addition, the paper offers a case study of the automotive industry given that this was highlighted in interviews and in surveys as a key sector experiencing 'reshoring'. The analysis is completed by a critique of British industrial policy with reference to reshoring, with reference to comparable policy experience in the US. Drawing on such findings, the paper argues for a government commitment that frames reshoring in a broader, longer term, pro-active pro-manufacturing industrial policy.

For decades, 'offshoring' and 'outsourcing' have transformed a range of previously nationally based manufacturing sectors into global networks of design, production and distribution across global value chains coordinated by major Original Equipment Manufacturers (OEMs). As manufacturing activities shifted to low-labour cost locations, high-end design, R&D and product development largely remained anchored to high-cost and high knowledge-intensive home economy locations. However, most recently the weaknesses of and risks inherent in such global value chains (GVCs) have been exposed, stimulating efforts to rethink their nature (see Gereffi *et al*, 2005) – thus raising possibilities to reshore some manufacturing activities to 'home' countries. A combination of labour costs making up a lower overall share of total costs, along with wider changes such as a more competitive exchange rate (despite the recent appreciation of sterling), increased transport and energy costs, rising wages in key areas of China, and a greater awareness of supply chain resilience have together contributed to a 'perception change' in some underlying business 'fundamentals', in some manufacturing sectors at least. This perceived potential for some supply chain relocalisation also links in with the trend of 'servitisation' of manufacturing and the shift to a hybrid model where manufacturing and services are increasingly intertwined. However, this paper suggests that – in the UK case at least - there are severe limits as to how far this reshoring

can go and these raise some important questions and issues over the possible role for industrial policy.

In so doing, this paper seeks to explore these trends and limits in the UK context and in so doing to pose some key questions for academics and policy makers. The paper is structured as follows: section 2 explores the context and drivers of reshoring, drawing in particular on academic and theoretical debates; section 3 explores policy and business debates on manufacturing reshoring in the US and UK; section 4 details recent trends on reshoring and its limits in the UK drawing on a range of recent evidence; section 5 offers an analysis of the UK automotive case with critical policy reflections; section 6 draws wider policy 'lessons', and section 7 offers some concluding comments.

ACADEMIC PERSPECTIVES ON THE CONTEXT AND DRIVERS OF RESHORING:

Production dynamics and organisations evolve and change as the division of labour adjusts to respond to changes in nature and geography of demand. There is not an optimal organisation of production in absolute terms. The volume production of the Fordist factory successfully satisfied large numbers of first-time buyers with homogenous products, but once consumers became less predictable and demanded variety and innovation, successful organisations became those that were flexible and responsive. The disintegration of the production process in the post-Fordist era was therefore driven by efficiency gains related no longer to scale economies but to external and agglomeration economies that required nevertheless geographical proximity. This is evidenced by the huge literature on clusters and industrial districts that has developed since the 1990s (Becattini *et al* 2009). In other words, the decomposability of the production process meant that individual production functions could be identified. Each could be carried out separately from the others so long as they were linked through market or quasi-market exchanges or transactions. The cluster model paved the way for a new way of organising of production, one where the production line was replaced by a production *system* populated by firm-to-firm market transactions. Indeed task specialised firms could plug themselves itself in the production system or *supply chain*, hence being complementary whilst integrated. Firm-level economies of scale and scope were replaced by system-level agglomeration and external economies, whereby firms benefitted from the latter as systemic economies were underpinned by the spatial proximity of supply chain outsourcing.

The offshoring of outsourced manufacturing functions occurred soon after. It coincided with either the choice to rely on suppliers - especially for labour intensive activities - located no

longer inside the system or the local economy but in lower labour cost countries; or to shift production activities to the same lower labour costs countries through foreign direct investment. Over the 1990s and 2000s, Central and Eastern Europe (CEE) and East Asia became key beneficiaries of such trends. Offshoring' and 'outsourcing' have often – albeit mistakably - been used interchangeably since the process of outsourcing has proceeded almost alongside that one of offshoring, i.e. the relocation of manufacturing tasks mostly to CEE countries and East Asia driven by cost-saving strategies. However, the two have quite different meanings and are motivated by a quite different economic calculus.

Indeed, a wealth of literature going back to the 1970s has dissected the drivers of firms' production offshoring strategies (why) and related operations (how). Hymer's theory of multinational firms (1960), Dunning's holistic paradigm (2000), Vernon life cycle model (1966) and more recently the resource-based view (Wernerfelt,1984) have all theorised what motivates firms' location choices and in particular, where and why to locate certain functions in some places and other functions in other places. Offshoring is in fact shorthand for complex location strategies that multinational firms design and operationalize in a globalised business environment.

The globalisation of production activities that emerged from the combined offshoring of firstly and mostly manufacturing activities created so called global production networks (GPNs) (Coe at al 2008), commodity chains (Gereffi and Korzeniewicz, 1994), or global value chains (GVCs) (Gereffi and Fernandez-Stark, 2011). Consequently, the Smithsonian division of labour became a division of 'value additive functions', whereby each production stage contributes to a higher or lower extent to the value addition of the final output. Value chains are defined as "the full range of activities which are required to bring a product or a service from conception, through the different phases of production (…) delivery to final consumers and the final disposal after use (…) Production per se is only one of a number of value added links" (Kaplinsky and Morris, 2002). What contributes most to the value added of the final production is clearly what is likely to be seen by the firm as a 'core activity' or a 'strategic activity'. Global value chains tend to comprise a mix of arm-lengths market and internalised relations (Gereffi et al 2005). They comprise Fordist-type activities that are low value-added and labour-intensive together with high value-added and specialised activities.

Value chains comprise components that embody different value added content and which therefore contribute differently to the overall value added. Manufacturing, production and assembly are deemed to produce low levels of value added, because in imperfectly competitive markets (i.e. global markets), a reduced price elasticity is constructed by

embodying in products a high content of intangible value through innovation, advertising and marketing. There then appears to be those value chain functions that most contribute to firms' extraction of market power and are therefore higher in value added.

The location choices of multi-national firms are motivated by the contribution that different 'places' can make to their overall *division of value*. This led to low labour cost 'places' being attractive for labour intensive functions as against high cost and high competence places being targeted for high value added functions such as head-quarters. Indeed, this latter stream of literature has focused on the territorial impact of the global operations of multinational corporations especially in relation to developing countries (Gereffi et al 2005). Scholte (2000) argues that the globalisation of production activities has '*de-territorialised'* production choices, especially because as Hymer (1972) observed some time ago, multi-national firms are the head, but the arms and the legs are not part of the same body, albeit the former controls the latter with various forms of hierarchical power. Indeed, Hymer observed that multi-national firms' location choices consolidate patterns of uneven economic development globally.

In this paper we investigate how the policy debate on regenerating UK manufacturing has been coupled with an emerging trend that is seeing UK firms wishing or actively pursuing the reshoring of some of their previously-offshored manufacturing functions. An appreciation of the reversibility of firms' offshoring trends has already emerged from a number of scholarly papers on German firms' offshoring and backshoring strategies. These refer to the location choices of German manufacturing firms in a number of sectors attracted mostly to East European countries due to perceived cost savings especially in the wake of the 'big bang' eastern enlargement of the European Union in 2004. So for German firms, backshoring meant moving production mostly from Eastern European countries (50%) and only partly from China (16%). Motives for backshoring were seen as poor quality, greater flexibility, transportation costs and higher labour costs abroad (Kinkel 2012, 2014; Dachs and Kinkel 2013). This in-depth research on German manufacturing firms' location choices revealed that backshoring strategies tended to show a five year lag with respect to offshoring decisions: one in six companies that had offshored between 2004-06 chose to backshore (Kinkel and Maloca, 2009). The authors argue this is evidence of 'short term corrections' due to changes in the host business environment (ibid) or a form of on Walrasian tâtonnement (Leibl *et al* 2011). Kinkel (2012) finds that backshoring activities across the German manufacturing sector did not change much before (2004-06) or after (2007-09) the global economic crisis; in the period 2007-09 for every three firms offshoring, one backshored.

More recently, the terminological ambiguity was unpacked and systematised by Fratocchi *et al* (2013a, 2013b, 2013c, 2014) with a comprehensive and critical meta-analysis of recent contributions on 're-shoring', 'back-shoring', 'on-shoring' and 'in-shoring' (Fratocchi *et al*, 2013). Other nuances have been emphasised in terms such as 'near-shoring' or 'best-shoring' (Colliers International and Corenet Global (2013) which suggest an increased spatial proximity of value chain activities but with them not necessarily moved back to the home economy. Such contributions provided the first comparative analysis across European countries. This paper uses the Colliers and Corenet Global (2013) work to stress that 'near-shoring' suggests a re-location closer to the home country but not necessarily a repatriation, while the term 'best-shoring' is used to stress that firms' location choices are mostly driven by strategic choices that maximize their competitiveness without predefined scale considerations.

More broadly, the academic debate on reshoring has developed along different paths consistent with the relevant theories that have looked at the evolution of firms' organisational forms and globalisation trends. One strand of the theoretical debate has assessed to what extent reshoring is a location and cost-related choice. According to Ellram *et al* (2013), using firms' internationalisation theories, reshoring could be seen as a pure location decision based on cost assessment; however they argue that firms are no longer looking at 'costs in isolation' but are instead looking at 'total costs', and with 'value capture' becoming more important in this regard. Gray *et al* (2013) also support the idea that reshoring is fundamentally about location and distinguishes four options for firms' production decisions depending on how they combine on/off shoring and in/out sourcing. In so doing, they suggest that outsourcing probably took place faster than expected as firms followed a herd instinct (or 'bandwagon effect') and internationalised their production; this in some cases led them to miscalculate the actual cost advantage of offshoring. Such miscalculation has emerged as 'organisational learning' has revealed the real cost benefits of offshoring. They argue that the current reshoring trend is in effect a correction of such strategic misjudgement (ibid).

A different assessment is offered by Wu and Zhang (2013): they argue that firms are considering onshoring because costs are rising and the cost advantage of some Asian economies has been eroded (and hence is in line with the work on German firms' back-shoring), but also that reshoring is likely to be driven by more volatile demand and relatively small and more segmented markets, reducing the benefit of scale economies. Meanwhile, Mena *et al* (2013) stress the complexity of multi-national corporations in multi-tier supply

chains, arguing that changes in the balance of power across such complex systems needs to be examined when considering changes in the configuration of global value chains. Similarly, Gereffi (2013) argues that multi-national firms are streamlining their supply network down to a handful of first-tier suppliers which may supply complete modules to the OEM and which will in turn manage the rest of the value chain (see Bailey *et al* (2010) on the automotive industry); a key issue is whether such tight quasi-market relationships will be also moved closer to the main buyer or not.

Other contributions have examined network management and ownership issues. In particular, reshoring can be studied from a transactions cost perspective: this allows for an understanding of how the spatial dimension ('where') intersects with the organisational dimension (firm governance and boundaries) (McIvor, 2013). In this context, reshoring can be studied in relation to changes also of the ownership nature of the relationships between firms along the value chain. The supply chain management literature, on the other hand, has focused on the resilience of the supply chain, stressing that changes in the organisation of the supply chain are driven by the need to minimise the 'exposure to serious disturbances' (Christopher and Peck, 2004;3). Such concerns are now highlighted as push factors that are persuading multi-national firms to move outsourcing closer to home.

POLICY AND BUSINESS DEBATES IN THE US AND UK

Both in the US and the UK, the policy and academic discourse around economic recovery have recognised that more sustainable growth requires an economy comprising a balanced set of manufacturing and service activities. There has also been some recognition that technological shifts have reframed the manufacturing sector, offering viable niches in which high cost economies can be competitive (Merlin-Jones, 2012). The policy debate on reshoring has in this regard been positioned within broader debates on how to rebuild a manufacturing sector that dovetails with a service one. Policy initiatives have intersected with changes in the global business climate that are altering the 'calculation of offshoring'. This has contributed to a perceived change in 'business fundamentals' as firms re-evaluate the expected and revealed costs of offshoring.

The US policy narrative in particular has unpacked the economic value of the repatriation of manufacturing jobs (Lipscomb, 2011): this is driven by push factors related to changes in the global economy, in particular in China, as well as by domestic pull factors (see Sirkin *et al*, 2011 and 2012). Meanwhile, some industrialists and opinion leaders have advocated an overt policy commitment to re-invigorate the US manufacturing sector. Headline cases of

companies reshoring have given visibility to a phenomenon that is probably at an early stage. Indeed, a broader understanding of aggregate trends is still missing. However, relevant push and pull factors are changing the motives for offshoring production, with less resource seeking and more market seeking.

In the US, the lure of offshoring is seen as fading due to the reduced location competitive advantage of some Asian economies: indeed a key push factor is rising wages in key areas of China where the differential between US and Chinese wages narrowed from 1/40 to 1/10 in 2012 (Dolega, 2012). To bypass this, companies seeking the next low labour cost location are considering locations in Thailand, Vietnam and Cambodia, with a number of new unknown variables to deal with.[1] The geographical reconfiguration of global value chains becomes an option for firms, especially when various push factors are weighed. These include transport costs that have risen substantially in recent years. In addition, many firms are increasingly appreciating the pecuniary costs derived from the time lag in shipping, inventory costs and the loss of flexibility, particularly in sectors where fashions can change quickly, such as in clothing and textiles. Other related issues are associated with the value chain resilience in the wake of unexpected disruptive events such as the Japanese earthquake and tsunami, flooding in Thailand, or the ash cloud from Iceland. Meanwhile, the Renminbi is judged to be undervalued still and is expected to appreciate eroding further China's cost advantage; in addition the US government policy of devaluing the dollar is also favouring local production by domestically located firms. A Deloitte (2009) report suggests that overall the cost gap between US and China narrowed from 32% in 2006 to 17% in 2008. Equally, some factors are pulling multinational firms back 'home'. These include the availability of US skills with a 30% wage reduction, stronger IP protection and quality control, and short lead times along the value chain (*ibid*). So as to underpin these, the US government has articulated a 'manufacturing friendly' industrial policy that has included tax relief and cheaper energy.

This policy commitment to manufacturing in the wake of the economic crisis has resonated with a public perception that manufacturing is important: indeed a survey carried out by Deloitte-MI Report (2009) found that 80% of respondents saw manufacturing as important in ensuring US living standards and economic prosperity, and two-thirds supported the position of the government of investing in manufacturing and taking a strategic approach towards it (ibid). A more recent survey by the Boston Consulting Group (BCG, 2013) found that the proportion of US firms considering repatriation has grown from 37% in 2012 to 54% in 2013.

[1] In turn raising the prospect of 'itinerant offshoring' in that jobs may migrate but not return (see Leunig, 2012).

One estimate suggests that by 2020, higher US exports, combined with production work likely to be reshored from China, could create 2.5 million to 5 million American factory and service jobs (ibid). Headline cases of reshoring include: K'Nex, the toy manufacturer; Trellis Earth Products, makers of bioplastic goods such as bags and utensils; Handful, a bra manufacturer; General Electric, which moved manufacturing of washing machines, fridges and heaters from China to Kentucky; and Google, which is making Nexus Q, a new media streamer, in San Jose.

Meanwhile, the UK policy debate around manufacturing reshoring has been farmed within the broader post-recession discourse on 'rebalancing'. The sustained period of economic 'flatlining' after the 2008-9 financial and economic recession highlighted the difficultiesfor the UK economy in 'kick-starting' sustainable growth in the presence of a small manufacturing sector. The term *rebalancing* was then associated (in part) with an attempt to expand a manufacturing base dovetailed with a dominant service sector (mainly retailing, finance and business services). Fostering reshoring as a means to expand UK manufacturing remains potentially appealing to policymakers for two reasons. Firstly, it is perceived as a way of rebuilding some of the UK's fractured supply chains. Froud *et al* (2011) note that in the UK's largely foreign owned branch assembly plants, broken supply chains effectively undermine high British content and limit domestic backward linkages. For example, machinery and vehicles production in the UK sees some 50% of intermediate purchases being imported as against just 30% in Germany (ibid). The implication is that German supply chains are closer to home especially for higher value added functions which are also the most costly. This suggests more effective control over the supply chain in relation to technology and quality, but more importantly the opportunity for domestic small and medium sized firms to constantly, albeit indirectly, connect globally. In contrast, the pervasive offshoring of large sections of supply chains across UK manufacturing has caused deep fractures in supply chains.

More recently, however, changes in the cost calculation of offshoring have led British OEMs to start re-evaluating the map of their GVCs (in line with the work on Germany by Kinkel and Maloca (2009)). An Engineering Employers' Federation (EEF, 2009) survey found for instance that during the 2008-09 recession, some 60% of British firms had concerns over the vulnerabilities of overseas suppliers, as against 20% being concerned over domestic suppliers. Not surprisingly, around two thirds of firms had re-evaluated their supply chains to minimise such risks, with some bringing production back to the UK and other sourcing more components locally. Rebuilding supply chains might also offer customers greater flexibility and reliability in production. For example, the issue of reliable delivery was highlighted in a

2007 EEF survey; high-technology firms in particular saw logistics as a key competitive strength, and the auto and electronics sectors saw this as increasingly important in the future (EEF, 2007). A more recent EEF (2011) survey of 150 firms found that in the wake of recent supply chain disruptions, two fifths of companies were bringing some production back in house, and one quarter had increased their use of local suppliers.

Secondly, there is the associated hope that reshoring could contribute to 're-populating' the UK's business 'underwood' with domestic small and medium sized firms in the manufacturing supply chain, in the past squeezed out by financialised large corporations. The potential for some supply chain relocalisation also links in with the 'servitisation' of manufacturing and shift to a hybrid model where manufacturing and services are increasingly intertwined. As Merlin-Jones (2012) notes, many British manufacturers have been well placed to develop the sort of services and system solutions that end users are looking for, and this is one way in which they can differentiate themselves from rivals. This in turn could offer the prospect of such firms co-locating such activities so as to maximise the quality of offering to customers in the UK and Europe, giving 'reshorers' a potential competitive advantage. The danger here, however, is that attempting to foster 'rebalancing' and manufacturing revival is superficially attractive but could simply mean more assembly in the UK, with increased spending on components and other intermediate products then leaking abroad. The case of JCB has been highlighted in recent research, where the British content of its diggers declined from 96% by value in 1979 to just 36% by 2010 (Froud et al, 2011).

Beyond the policy discourse, it is important to realise that manufacturing reshoring – in so far as it is happening - will not bring manufacturing *back* as it was in the 1980s, neither in terms of job numbers nor in terms of the nature of manufacturing activities. Indeed it will not be a 'magic wand' for re-invigorating the UK economy but nevertheless could offer an opportunity to 'redesign' a competitive advantage in some manufacturing sectors. The UK, similarly to Europe and the US, is a relatively high–cost economy with a skilled labour force, or rather knowledge capital. This has meant in the past the presumption that its manufacturing could not compete in global markets, hence the steer towards services and in particular high value added services. Decoupling manufacturing from services has been shown to be an unsustainable trajectory, however.

'High cost' economies can still have a 'competitive' manufacturing sector, or rather the portion of it that comprises high value added activities, as seen in Germany or the

Scandinavian economies (see also Tomlinson and Branston, 2014, in this issue). High value engineering, manu-services, personalised manufacturing, or high tech manufacturing are all labels used to describe the making of 'things' with a high content of technology, innovation, customised design or servicing. These are 'things' for which demand is less price-elastic and for which technology, knowledge and innovation shape the competitiveness contest. If these are the sectors that the UK should aspire to retain and grow, then reshoring may become one of the pieces of a more complex jigsaw.

There are a number of reasons for attempting a *re-coupling* of services and the making of such high value added manufacturing activities. Firstly, these activities are less sensitive to labour costs because they are less labour-intensive and less reliant on scale economies, but are rather deeply linked to innovation and design as well as post-sale services. Within the value chain framework, the process of increasing the servitisation of manufacturing coincides with the strategy of extending value creation both upstream and downstream. Manufacturing activities therefore become a hybrid between the assembling and the making, together with the designing, branding, innovating, advertising and servicing that directly or indirectly involves the customer, or user. Secondly, there is a new generation of products for which a co-production of innovation between the producer and the user is necessary to the extent that innovation tends to be embedded in the production itself. These are by definition highly customised products with very detailed specifications. Their uniqueness warrants somewhat the co-location of innovation and production.

RECENT TRENDS IN RESHORING AND ITS LIMITS: UK EVIDENCE

As noted earlier, a frequently cited figure on reshoring trends in the UK is that from an EEF (2011) survey which suggests that in the wake of recent supply chain disruptions, two fifths of companies were bringing some production back in house (insourcing), and one quarter had increased their use of local suppliers (reshoring). More recently, not dis-similar figures were reported from a survey of 150 senior managers of British listed companies.[2] In this survey, almost a third of manufacturers using overseas suppliers stated that they expect to buy more British made components over next five years. In addition, some 51% of respondents stated that their businesses plan to boost UK production capacity in the next 5 years, of which 56% say they were likely to hire more staff (Business Birmingham, 2013).

[2] Figures from an online survey of senior British managers in manufacturing, undertaken by YouGov Plc in April 2013; see Business Birmingham (2013). We are grateful for Business Birmingham and YouGov sharing the full database and questions with us.

More generally, 41% of respondents to the Business Birmingham survey reported that the UK was becoming more attractive as a manufacturing destination compared with locations abroad. The key drivers of this were seen as: rising costs overseas; high quality production in the UK[3]; simpler transport and logistics; the availability of a skilled workforce; a strong supply chain; and better quality R&D and innovation.

However, nearly a half of respondents to the Business Birmingham survey (48%) cited high energy costs, and over a third (38%) cited 'restrictive regulations' (such as visa restrictions or commercial legislation) as obstacles to expanding their manufacturing operations in the UK. Respondents reported other obstacles to expanding manufacturing operations in the UK as: high wage costs; the lack of skilled labour; and access to finance. While the latter findings on energy costs, wage costs, skills and access to finance point to some limits or 'bottlenecks' when it comes to reshoring possibilities, a similarly positive narrative was offered by another recent report which examined mid-sized manufacturers (RSA and Lloyds Banking Group, 2013).[4] This report argued that the 'localisation of production' could reduce the UK's trade deficit by a third and had the potential to increase manufacturing employment by 100,000 to 200,000 over the next ten years.

The RSA (2013) report suggests that additional 'home' production will occur on the back of rising energy (and hence transport) costs, increasing regulations, and changing patterns of demand, with the implication being that mid-sized manufacturers in particular will not in the long run be able to export at high volume. Rather, they will serve markets closer to home – making products for use in their home country or nearby, and reducing levels of outsourcing from Asia (ibid). One critique of the report is that while exporting may become more challenging for such firms, re-orientating towards domestic markets may be less than easy given competition and key constraints over access to skills and finance.

However, while there have been a number of reports looking at what firms intend, plan or expect to do as regards reshoring or onshoring, there has been little attention paid as to what has actually been happening thus far. One early attempt to do so was by Bailey and De Propris / SGH Martineau (2013), who surveyed manufacturing firms in the Midlands of the UK in 2013.[5] Of immediate note was that two thirds of firms surveyed for the report said that reshoring simply was not relevant for them. Of the third of respondents that did see it as relevant, over a half were either doing it or actively considering it. Yet overall, the numbers of

[3] On quality issues in producing in China see Midler (2011).
[4] Mid-sized companies were classified as having a turnover between £25m and £500m and with between 100 and 2,000 staff.
[5] Online survey undertaken in late 2013 by SGH Martineau, Business Insider magazine and the authors.

firms actively engaged in reshoring was markedly lower than in previous surveys; only around 16% of manufacturing firms responding were actually undertaking reshoring and just 5% actively *considering* it. This is in main part because a different question was used, asking whether firms were actually engaged in reshoring rather than merely considering it. While the sample size of the survey was low (eighty firms responding from some 800 contacted), the tentative findings nevertheless perhaps suggest that while reshoring is occurring, it is on a less significant scale than otherwise suggested and that further research was needed to access its true scale.

Of the firms which stated that they were engaged in reshoring, a third of firms stated that they had brought back business from Asia, a half from 'BRIC' (Brazil, Russia, India and China) countries, and over 20% from Europe. In terms of drivers of this trend, key issues identified were transport costs (by 62% of respondents) and quality issues (62%), followed supply chain resilience (39%), exchange rate shifts (31%), rising wages overseas (31%), the need for rapid turnaround (31%)[6], and the need to offer a service alongside manufacturing (31%). The significance of supply chain resilience may reflect heightened awareness in the wake of major disruptions with the earthquake and tsunami in Japan, and flooding in Thailand. The findings suggest that in manufacturing at least, some firms appear to be re-evaluating the risks that extended supply chains are exposing them to.

On barriers to further repatriation, a range of issues were highlighted by respondents. Labour costs were the most frequent issue identified by respondents (50% of respondents), which is unsurprising given that much of this activity was anyway shifted overseas in search of low labour costs. Other key issues (all identified by around a third of respondents) comprised: access to finance; the availability of skilled workers; the extent to which the shift overseas has already gone; and energy and raw materials costs. The latter is in sharp contrast with the US where repatriation has in part been encouraged by cheaper energy. Meanwhile, the degree of government support was not seen as a major barrier to reshoring amongst respondents; in fact firms reshoring had received support from a range of agencies. Indeed, if anything, what this might suggest is that policy interventions can actually help and that if the UK Government wanted to push reshoring further it might wish to consider further support.

The Bailey and De Propris / SGH Martineau (2013) report was followed by a more extensive survey by the UK's Manufacturing Advisory Service (MAS, 2013) reported in its Autumn

[6] The need for rapid turnaround is critical in sectors such as clothing and textiles, where fashions change quickly and retailers wish to avoid having stock in transit for long periods. See Tokalti (2008).

Barometer for 2013 which confirmed some of the former's findings. This surveyed around 500 senior executives of English manufacturing SMEs on different positions within the supply chain (some 46% sold to the end consumer, 26% to the final producer, 26% to other manufacturer and 6% were raw material producers). The survey adopted a similar set of questions as in the Bailey and De Propris / SGH Martineau (2013) survey. In line with the latter, it found that 15% of manufacturing SMEs were in the process of reshoring or had reshored production back to the United Kingdom (although another 18% of respondents stated they were planning or considering 'on-shoring'). The reasons given by those who were, or were thinking about, moving operations back again reflected cost savings (26%) and quality issues (20%), as well as issues around lead times (18%) and delivery performance (15%). Similarly, higher domestic costs (of labour and production) were the main constraints on any further major re-shoring, closely followed by persistent finance and skills gaps.

Finally, a similar finding of around 1 in 6 UK manufacturing firms engaging in reshoring (whether bringing back production back in house in the UK or to a UK supplier) was reported in another 2013 report by the EEF. In line with the other reports reviewed here, reshoring was not perceived by the EEF as being limited to any specific size or characteristic of firm. However, the report found that larger firms in the transport, electrical and optical equipment sectors were more likely to be reshoring. Key drivers of reshoring were seen as: greater certainty around delivery times and shorter delivery times; minimising supply chain disruption; enabling better collaboration with customers and suppliers; quality; the erosion of labour cost advantages overseas; and fluctuations in transport costs. Interestingly, the EEF report notes that with rising productivity in manufacturing, jobs reshored were not likely to be in large numbers (indeed the report notes moderate employment boosts of between 1% and 5% among firms reshoring) but that they are more likely to be highly skilled, technical and well paid (EEF, 2013). Finally the report highlights barriers to reshoring in terms of finding skilled workers, energy costs and planning regulations.

INSERT TABLE 1 SOMEWHERE AROUND HERE

A similar set of drivers for manufacturing reshoring in the UK was offered by PwC (2014), whose main findings are summarised in Table 1, along with the some of the main findings from the full range of reports and surveys reported above. While indicating that re-shoring is indeed occurring in the UK manufacturing sector, what these surveys and reports do suggest is that the UK is far from a 'tipping point' that some have suggested in relation to the US

(Sinkin *et al*, 2011) and that some major barriers or bottlenecks limit wider reshoring, most notably relating to the availability of skilled workers and access to finance.

THE UK AUTOMOTIVE INDUSTRY

As seen above, there have been a number of long-term trends – including offshoring and outsourcing – which have threatened 'mature' industries such as the automotive industry in the UK. This has had a profound effect on such 'mature industrial regions' of the UK. Birmingham and the West Midlands, for example, has suffered over the last forty years from a dramatic process of deindustrialisation and relative economic decline. The impact of the latter was highlighted by Barber and Hall (2008) who stressed that Birmingham's poor performance from the late 1960s was indicative of long term structural decline rather than cyclical factors, with significant contributors to decline including an over-concentration on the automotive sector – much of which shifted overseas- as well as low levels of investment and productivity.

Under the 'lean manufacturing' model automotive OEMs have demanded high 'QCD' (quality, cost and delivery) performance and increasingly have dealt with fewer suppliers to reduce the costs of managing the supply chain. A longer-term outsourcing trend was highlighted by OEMs spinning off their parts divisions from the late 1990s onwards. Overall, there has been a wave of consolidation in the global value chain similar to that for OEMs, with first tier suppliers taking on greater R&D roles and, in some cases, responsibility for whole systems, modules, and assembly work. These first tier suppliers in turn exert greater power over lower level suppliers as they themselves outsource a range of design and development functions (see Bailey *et al*, 2010).

Linked to this, the internationalisation of component sourcing by assemblers has accelerated. Modularisation, and the outsourcing of bulky components, inevitably resulted in first tier often suppliers setting up in geographic proximity to the vehicle makers, but with little incentive to source components locally for the modules they prepare for the OEMs. Indeed, Sturgeon *et al* (2008) highlight that first tier suppliers with global operations were able to focus the production of high volume key components in a few locations and then transport these parts close to the OEMs' final assembly plants (which are located near to the end market). Here sub-systems and modules were completed and moved to the proximate assembly plants of the OEMs. This increasingly global sourcing, and a shift to lower wage cost locations, threatened established automotive 'clusters' such as that in the UK; note for example the plant closures in the UK in the 2000s and shift abroad of component sourcing

(Bailey *et al*, 2010). These longer terms trends left a UK automotive industry with fractured supply chains.

At the regional scale, automotive production systems range from 'metal bashing' through to high-technology composite materials, engines and environmental technologies, with a series of interlinked networks ranging from local supply to GVCs dominated by the big players with technological 'pipeline' connections to other clusters. This is indicative of the broader nature of the auto industry; as Sturgeon *et al* (2008) indicate, it "is clustered and dispersed, rooted and footloose. The industry can be usefully conceived of as a network of clusters." In this regard, Yeon Kim and McCann (2008) posit that regions benefitting from the immigration of integrated supply-chain networks will tend to maintain their advantageous position over time, as they will be less sensitive to factor price variations than standalone facilities in other regions. For such 'winning' regions, this is a positive development. However, those regions which lose such supply-chain systems, as has been the case in recent decades in some regions of the UK, the prospects for rebuilding such systems looked limited, until relatively recently at least.

However, as indicated in the authors' initial range of interviews, and reinforced by survey evidence reviewed above, the transport (and particularly automotive) sector is seen as having experienced a significant degree of reshoring. The sector has also seen around £6bn of investment over the last three years with output rising by around 50% since 2009 (The Smith institute and SMMT, 2012). Given the perceived reshoring opportunity that exists, the UK's coalition government has developed, over four rounds, a £245 million Advanced Manufacturing Supply Chain Initiative (AMSCI) to help develop local suppliers around the UK's major manufacturers, with a focus on automotive. The fund is aimed at supply chain companies and can be used for capital expenditure, skills and training, and R&D projects. The scheme aims to build on an earlier auto-focused Regional Growth Fund bid by several Local Enterprise Partnerships (LEPs). While a welcome start, the overall amount of funding on offer (£245 million in total across manufacturing by 2015) is limited. In addition, due to the minimum project threshold value of £2 million, bids often need to be from several companies clustering together. Extending the scheme so that smaller firms can directly access the support available seems critical, especially when the lack of access to finance is a major issue for such firms.

Efforts at reshoring automotive component sourcing in particular also include work by the Automotive Council. The Council is a collaborative effort that brings together OEMs, government and universities to explore challenges facing the sector. The Council has

mapped the supply chain's relative competitiveness and identified opportunities where UK capabilities can be retained and built upon, and identified some £3 billion worth of potential contracts which car manufacturers would like to place in the UK (Automotive Council, 2012). Building on such trends, the Society of Motor Manufacturers and Traders (SMMT) has tried to bring together assemblers and suppliers to see whether more components could be sourced locally. As the Automotive Council found, the main reason why auto assemblers purchase in the UK is proximity (including lower logistics cost, the configuration of parts, and the support of UK-built vehicles) (ibid). However, what components suppliers consider as their competitive advantage, and whether that matches what the view of assemblers, is less clear.

Critically, access to finance remains a major issue for many firms in the automotive supply chain. The Smith Institute and the SMMT (2012) highlighted a 'window of opportunity' to expand outputs and create jobs in the automotive supply sector, but that access to finance remained a real problem which was effectively thwarting the realisation of such potential (ibid). Drawing on a survey of firms operating at different levels in the UK auto supply chain, the report found that 60% of firms were aspiring to grow in the future, one third so rapidly. However, they faced significant financial challenges including: fractured relationships with the banks; a gap in growth finance (many have to fund investment through internal cashflow); problems in funding tooling development costs; payment and finance across the supply chain; and the nature of SME owner mangers. The report stresses that, on the whole, banks have a poor understanding of the sector.

'Tooling up' in the automotive supply chain represented a particular challenge given the uncertainty over future vehicle volumes, the asset specificity of the tool (which means that lenders have been reluctant to accept it as collateral, and a lack of specialist knowledge in the baking system over how to evaluate proposals). In tackling such issues, the report calls for a 'step change' in the engagement of the UK financial sector with the automotive industry. Financial initiatives must be streamlined by the government, the authors note, a taskforce launched to look at finance for tooling up, and a move made towards more long-term policy arrangements to ensure sure finance is available. At some point a dedicated automotive (and manufacturing) loan fund – backed by the state – may be required to overcome failures in the financial system. On this, in mid-2014 the government launched a £24m National Tooling Fund to assist toolmakers and component manufacturers to fund the design, development and manufacturing of tools following a firm order from an OEM.

WIDER POLICY LESSONS?

More broadly, the work of the Council can be seen as a good example of how industrial policy can help firms and government deliver universal benefits. Such activities could usefully be extended, both in the auto case and to other industries (for example, into the Marine Industries Leadership Council, the Industrial Biotechnology Leadership Forum or the Aerospace Business Leaders group), with such groups helping to identify key fractures in industry supply chains and how to address them. This is no longer about industrial policy 'picking winners', but rather helping the private sector identify weaknesses and then addressing them. The work of the Council is in line with how industrial policy design is conceived of in modern debates (see Rodrik, 2008), where policy ideally has the quality of 'embedded autonomy'. It is not captured by firms and sectors, but focuses on the discovery process, where firms and the state learn about underlying costs and opportunities and engage in strategic coordination. In the context of reshoring possibilities for UK manufacturing, it might mean government working with industry to identify key fractures and gaps in the supply chain and how to address them. In this regard, there is an institutional and capacity failure inherent at the national level in terms of the lack of policy conviction and a lack of resources to design pro-manufacturing industrial policy interventions.[7]

More generally, the UK could learn from policy initiatives in the US where the government has been active in encouraging US-based firms to relocate some activities back to the US. In 2012, President Obama created tax incentives that for example increased tax breaks for domestic production activities in advanced manufacturing, offered a 20% income tax credit to allow for the expenses of shifting operations back to the US, made permanent an expanded tax credit scheme for R&D, and removed tax breaks for firms offshoring manufacturing. The US government has also funded a 'Reshoring Initiative', including an online costs calculator, based on the premise that manufacturers able to calculate costs more fully are more likely to outsource to domestic firms rather than overseas (Merlin-Jones, 2012). The US experience also highlights some of the constraints and limits to reshoring. As noted above, manufacturing activities being reshored will require fewer, more highly skilled workers as manufacturing productivity grows. That presents a challenge in terms of raising skill levels in manufacturing. Furthermore, while reshoring may assist in terms of output growth it may not create large numbers of new jobs, as Well Fargo (2012) has highlighted in the US case.

[7] BIS (2013) notes the need to build "innovative new institutional capability for the future".

Possibilities for manufacturing reshoring in the UK and Europe may be more limited than in the US, as the Boston Consulting Group has concluded (Sirkin *et al*, 2012). In part this may be because the wage cost differential (adjusted for productivity) between Europe and China may not be close enough create a 'tipping point' in some sectors as in the US (Sirkin *et al,* 2011). But this still raises the issue of what policy can do to push the process along, and means recognising that smaller firms often followed larger firms in offshoring production as they wanted to be near their customers. So attracting them back means relocating not just individual firms but whole segments of the supply chain, and means support for smaller firms especially which face high costs when moving operations.

While there have seen some welcome moves by the British government in encouraging the process, these have been small scale and often do not reach smaller firms in particular. A key lesson of this paper is that a much more concerted effort is needed as part of a wider industrial policy that looks to build manufacturing capacity. That means one that stimulates investment in new technologies (for example through better capital allowances), that provides accessible finance for small and medium sized firms along the supply chain, that backs high growth firms and exporters, that encourages manufacturers to increase output and employment through tax breaks, and which supports better skills formation.

Overall, there appears to be an opportunity to rebuild some of the UK's fractured manufacturing supply chains – particularly in the automotive case - given recent shifts in exchange rates, transport costs, rising wages overseas and heightened concerns over supply chain resilience. But the key message from this paper is that this is not going to happen on a significant scale without a major policy effort.

CONCLUSIONS

Over the last two decades, offshoring has hollowed out many previously nationally, and often regionally, based manufacturing sectors and transformed them into global networks of design, production and distribution coordinated by multinationals firms. The location choice of internationalising firms has been extensively explained in the context of international business theories and transnational corporation theories.

In this paper, we focus on the relatively new trend of manufacturing reshoring. Our contribution provides a first exercise in particular in relation to the UK debate to appreciate its scale and drivers. Reshoring indicates the decision by multinational firms to bring back to the home economy some of their previously offshored activities (either outsourced or

relocated). Empirically, such a 'U-turn' seems to be driven in particular - in the UK at least - by a combination of a more competitive exchange rate (despite the recent appreciation of sterling), increased transport costs, quality concerns, rising wages in key areas of China and central and eastern Europe, and a greater awareness of the importance of supply chain resilience.

These empirical findings hint to a fundamental change in the assessment of where to locate what on behalf of multi-national firms. Indeed the weaknesses of and risks inherent in managing production through global value chains seem to be more heavily considered than in the past. Equally, the 'servitisation' of manufacturing and a shift to a hybrid model where manufacturing and services are increasingly intertwined require a recoupling and closeness. Furthermore, evidence seems to suggest that while offshoring offered firms considerable possibilities incompeting low cost locations, reshoring is very much constrained by the quality and size of the domestic labour market and availability of finance. While evidence suggests that reshoring is being actively considered by businesses, practical constraints appear tolimit the trend, hence the relatively modest scale of reshoring activity indicated in this paper.

Despite some recent policy successes in the case of the UK's industrial policy as regards the automotive industry, and from which wider lessons can perhaps be drawn, addressing such issues requires a more long-term, proactive and holistic pro-manufacturing industrial policy than has been recognised thus far to create favourable business conditions that convince firms to move back home. No doubt such issues will be pursued in future research and policy debates.

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Survey	Headline Findings	Key Drivers	Barriers to further repatriation
Business Birmingham, You Gov, 2013 (150)	One-third of manufacturers expect to source more from UK	Rising costs overseas; Quality; Simpler logistics; Skilled Workforce; Supply chain; R&D/Innovation	Energy costs; Regulations; Lack of skilled labour; Access to Finance
Business Insider, SGH Martineau, Bailey & De Propris, 2013 (80)	16% of manufacturing firms engaged in reshoring	Transport Costs; Quality; Supply Chain resilience; Exchange rate shifts; Rising wages overseas; Need for rapid turnover; Provision of service with manufacturing	Labour costs; Access to finance; Availability of skilled workers; Energy and Raw Material Costs
Manufacturing Advisory Service, 2103 (500)	15% of manufacturing firms engaged in reshoring	Cost savings; Quality; Lead Times; Delivery Performance	Higher UK labour & production costs; Access to finance; Skills gaps
EEF, 2013 (271)	16% of manufacturing firms engaged in reshoring	Greater certainty over lead times; Shorter delivery times; Minimising supply chain disruption	Availability of skilled workers; Energy costs; Planning regulations
PwC, 2014	Reshoring had potential to raise output by £6bn to £12bn and create 100,000-200,000 jobs by mid 2020s.	Declining Wage Gaps; Technology Changes; Security of Supply Chain; Rising/Volatile Transport Costs; Quality; Responding to Consumers Quickly; Cost of managing operations overseas	n/a

Table 1 Summary Table of Recent Evidence on UK Manufacturing Reshoring