Global Britain Briefing Note

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Global Supply Chains

don't spring into being overnight

. . . nor can they be replicated overnight

Introduction

In a 2013 survey *(Ernst & Young UK Attractiveness Survey, 2013)* of over 2000 multinationals, 72% of companies interviewed in North America, and 66% of those in Asia, thought reduced integration with the EU would make the UK *more* attractive as a destination, against 38% of those interviewed in Western Europe[1].

At the time of writing, the question of whether the UK should leave the European Union is moving up the political agenda. A number of politicians, journalists, business organisations and multinationals are already campaigning for the UK to remain "In". Some hint or assert that if the UK were to leave the European Union, multinationals would leave the UK, leading to the loss of "millions" of British jobs. (Similar threats were uttered when a previous British government contemplated replacing sterling with the euro.)

Multinationals, through their Global Supply Chains, are estimated to account for 80% of global trade[2]. Constructing a properly-functioning Global Supply Chain requires sustained effort and substantial resources deployed over years, even decades: management, equipment, services, logistics, real estate, finance, systems etc etc.

Building a Global Supply Chain is a highly-complex long-term enterprise. So is deciding to replace one country-link in such a Global Supply Chain with another. This Briefing Note examines Global Supply Chains in the car industry.

Factors involved in selecting "country-links" in the supply chain

Imagine a multinational constructing a Global Supply Chain whose end-product – a car - is reasonably sophisticated. An example of such a supply chain is at Appendix I.

The manufacturing & assembly processes involve hundreds of operations, many of them highly-skilled (pattern-making, casting, forging, welding, stamping, grinding, stapling, screwing, bolting, metal/plastic bonding, riveting, milling, turning, pressing, forming, moulding, oxy-acetylene & water-jet cutting, chemicals processing, heat treatment, galvanising, pressure testing, wiring, soldering, painting, polishing etc etc).

In such a scenario the multinational has to take account of myriad factors when selecting a particular country as a location in which some of the operations detailed above would be carried out. Those factors tend to be multi-dimensional and "dynamic", varying and mutating in time and space, not just in the country being considered as a location in the supply chain, but in countries "upstream" and "downstream" of the country in question. It is extremely improbable that one single factor will determine the choice of a particular country as a link in a supply chain. In practice, dozens of factors have to be taken into account, most of them involving uncertainty and judgement. Appendix II sets out a non-exhaustive list of such factors.

Transferring operations from one EU member-state to another

Within the EU, a multinational manufacturer's Global Supply Chain can have links in several member-states. Moving operations from one EU member-state to another would be costly, complicated and disruptive. The car industry provides an illustration of what would be involved.

In 2013 the UK produced 1.5 million cars: ***two per cent*** of the world total (see Appendix III). In that year, ten countries produced more cars than the UK. (From its fifty factories worldwide, Toyota ***alone*** produced over ten million vehicles). A change in the UK's political arrangements on Brexit, involving ***at worst*** a trivial[3] temporary increase in tariffs vis-à-vis the EU - but no change at all vis-à-vis the rest of the world - would be highly unlikely to motivate a major car manufacturer to switch production out of the UK.

Nevertheless, let us suppose that a major Japanese car-maker were to contemplate switching production from the UK to the Continent. There are four EU countries comparable in size with the UK with a hundred years' experience of car design & manufacturing: France, Germany, Italy & Spain, each with extensive manufacturing infrastructure and a large domestic car market. Each is in the Eurozone.

Would a Japanese car-maker risk investing in France – a country whose domestic car-makers (one of which – Peugeot-Citroen - is on government life-support) have been "off-shoring" output outside the EU for decades ? Would the Japanese invest in Spain? Unlikely. In Italy ? Unlikely. That leaves Germany – despite its shrinking working-age population - as a "possible". Would the big three German domestic manufacturers, VW, BMW & Mercedes, welcome a major Japanese car-maker setting up a plant in their home territory ? The Japanese would be aware that in recent years American car-makers (Ford & GM) have been shifting production out of Germany (some of it to England).

Most car "makers" are *assemblers* of components manufactured by sub-contractors in different countries, even continents. (One European example is the "German" car-maker BMW, which makes many of its engines at an 85-acre purpose-built plant at Hams Hall[4] in the English Midlands, not just for its Minis assembled in Oxford but also for its "executive" cars assembled in Bavaria and elsewhere.) If a Japanese car assembler in the UK decided to transfer assembly to, say, Germany, it would also have to decide whether to terminate its relationships with possibly hundreds[5] of British sub-contractors and laboriously replace them with a similar number of German sub-contractors. Substituting German for British sub-contractors would be lengthy, risky and expensive.

Conclusion

In the developed world, as noted above, average effectively-applied tariffs (customs duties) on imports are close to one per cent[3].

In the extremely unlikely scenario (Appendix IV below) in which a post-Brexit EU would temporarily refuse to conclude free trade agreements[6] with a newly-independent UK which continued to import millions of cars and components from the EU, such a tariff increase would be regrettable.

However, to put that in context, the imposition by Brussels of a one per cent tariff would be dwarfed by variations in the cost of physical inputs into the manufacturing process such as energy, copper, steel or plastic, and of monetary inputs such as interest rates & exchange rates. In the last five years, for example, the pound/euro exchange rate has swung by no less than 20%[7].

Notes

*1 Quoted by Iain Mansfield on page 42 of his winning entry, "*A Blueprint for Britain: Openness not Isolation*" for the IEA Brexit Prize, April 2014: www.iea.org.uk*

2 Global Britain Briefing Note No 91: Global Value Chains (GVCs) account for 80% of global trade, 22.1.14, www.globalbritain.co.uk > Briefing Notes

3 Figure C.61: Rule of Law & average tariffs, 2010, in II: Factors shaping the future of world trade, p.203, World Trade Report 2013, World Trade Organisation, www.wto.org

4 The Hams Hall plant has 800 personnel & produced 408,000 engines in 2013, destined for the UK, Germany, Austria, China, Thailand, Indonesia, Malaysia, Egypt, Russia & India. www.bmwplanthamshall.co.uk

5 In the aerospace & defence fields, over 500 British sub-contractors are reported to be supplying the Lockheed Martin F-35 warplane; over 100 sub-contractors are reported to be supplying the future British aircraft carrier, HMS Queen Elizabeth. www.telegraph.co.uk

6 Global Britain Briefing Note No 62: A country doesn't need to belong to the EU to trade with it, 7.1.11, www.globalbritain.co.uk > Briefing Notes

7 On 24.4.09 the £/€ spot rate was £ 1 = € 1.11; on 14.10.09 its low point was £1 = € 1.07; on 15.8.12 its high point was £ 1 = € 1.28; on 23.4.14 it was £ 1 = € 1.21.

1.28 divided by 1.07 = 1.196: an increase of almost twenty per cent. Source: Bank of England

End

Appendix I

An imaginary example of a car supply chain

- An imaginary Japanese car manufacturer – "Toyzuki" – assembles a family car at its plant in Thailand
- The car's engine is manufactured in Japan then exported to Thailand
- The car's shock absorbers & spring suspension are manufactured in South Korea then exported to Thailand
- The car's seats & seat belts are manufactured in Cambodia & then exported to Thailand
- The car's electronic control systems are manufactured in Vietnam & then exported to Thailand
- The car's gear-box & transmission system are manufactured in China then exported to Thailand
- The car's wheels & tyres are manufactured in Laos then exported to Thailand
- The car's bodywork is manufactured & painted in Thailand.
- Final assembly of all the above takes place in Thailand.

The value of the car ex-works in Thailand is 100. That 100 is composed (at "works-inward" values in Thailand) of:-

Engine	20
Shock absorbers/springs	10
Seats & seat-belts	15
Electronic control systems	20
Gear-box & transmission	15
Wheels & tyres	10
Bodywork/final assembly	10
Total	*100*

The car is then exported by sea to the UK. Shipping cost is, say, 5. Its landed value at (say) the Port of Bristol is 105. The car is logged & "cleared" (electronically) on arrival in Bristol by the British customs authorities. It then goes to Toyzuki's distribution centre in (say) Leicester for final checking, then to one of the many British Toyzuki's concessionaires (retailers).

On arrival at Bristol, the British customs authorities "see" an import of a car from Thailand. The value (at "landed at Bristol" values) of the car for customs purposes is 105. The proportion by value of the car actually "made in Thailand" (as distinct from "assembled in Thailand") is 9.5% (10 divided by 105). No one country-supplier of car-components to Thailand accounts for more than 19% (20 divided by 105) of the car's landed value in Bristol. *End*

Appendix II

Factors involved in selecting country-links in a supply chain

Infrastructure

1. Presence of other manufacturing multinationals, & local companies, (perhaps "clusters" of subsidiaries in related industries) with a network of local sub-contractors able to provide components, maintenance of machinery, spare parts, repairs to buildings, IT support, telecoms, etc etc
2. Reliable & continuous supplies of electricity, with stable frequency & voltage
3. Moderate & stable costs of energy: electricity, gas, oil etc
4. Reliable, stable & continuous supplies of telephony & broadband
5. Costs, stability & security of local inputs of goods, services & labour, including local taxes
6. Geographical proximity to the multinational's "upstream" & "downstream" links in its Global Supply Chain. If the country being considered as a link is, say, Thailand, and the "upstream" link is, say, Vietnam, and the "downstream" link is Malaysia, the multinational in question is hardly likely to plump for - say - Ecuador, or Portugal, instead of Thailand. In manufacturing, geography still really does matter.

Transport Links

7. For personnel & goods: "upstream" & "downstream" transport by land, sea & air: cost, ease of travel, frequency, reliability, security, absence of piracy
8. Adequate local/regional transport by land, sea & air

Personnel

9. Availability in depth of suitably qualified (training, education, skills, English-speaking etc) local labour & management
10. Level of unionisation of labour; acceptable labour relations; ability to lay-off people
11. If local staff are to be re-inforced by expatriates, adequate housing, schools, hospitals etc?

Government/Regulatory/Financial

12. Stable national system of government; rule of law reasonably independent of government, especially corporate/employment/tax law

13. Regulatory environment: over-intrusive, acceptable, relaxed ? Labour laws acceptable or borderline (cf France with legal maximum 35-hour week & cumbersome redundancy procedures)?

14. Is the local legal system reliable, robust ? Or arbitrary ?

15. Is the local tax regime stable, "fair" ?

16. Availability of local legal, accounting, tax & other support services, perhaps affiliated to international "Anglo-Saxon" firms

17. Is the country in question a member of the WTO and/or regional free trade agreements or customs unions covering the products in question ? Are there customs duties on "inputs" into the manufacturing process, and if so, how onerous ? Are customs procedures efficient, predictable & certain ?

18. Efficient "clearing" (customs/tariffs/logistics etc) of products/components through sea and air ports and land frontiers ?

19. Level of corruption: endemic, occasional, bearable ? How to manage ? Risks/opportunities ?

20. Protection of IP (intellectual property): adequate ? Are patents recognised? Does local patent protection exist ?

21. Country's local financing systems: banks, leasing companies, insurers etc: adequate? Presence or absence of international banks, leasing companies, insurers etc ?

22. Currency: is the country's currency stable; if not, can another currency be used, and/or measures taken to hedge against significant variations in its value ?

23. Does the country being considered as a link in the multinational's supply chain meet the multinational's global tax-minimisation requirements ?

End

Appendix III

World Car Production 2013

(excluding commercial vehicles)

Rank	Country	Output '000	Global Share
1	China	18,085	28%
2	Japan	8,189	13%
3	Germany	5,440	8%
4	USA	4,347	7%
5	South Korea	4,123	6%
6	India	3,139	5%
7	Brazil	2,742	4%
8	Russia	1,920	3%
9	Mexico	1,772	3%
10	Spain	1,720	3%
11	UK	1,510	2%
12	France	1,460	2%
13	Czech R.	1,128	2%
14	Thailand	1,123	2%
15	Slovakia	975	1%
16	Canada	965	1%
17	Indonesia	925	1%
18	Turkey	634	1%
19	Malaysia	540	1%
20	Argentina	507	1%
21	Poland	475	1%
22	Belgium	450	1%
23	Romania	411	1%
24	Italy	388	1%
25	Taiwan	291	*
26	South Africa	265	*
27	Hungary	220	*
28	Australia	185	*
29	Sweden	161	*
30	Uzbekistan	134	*
	Others		2%
	Total	65,387	*100%*

** less than 1%*

Source: International Organization of Motor Vehicle Manufacturers: www.oica.net/category/production-statistics

Appendix IV

Post-Brexit, tariff-free UK-EU trade in cars will continue

German, French & other EU manufacturers dominate UK car manufacturing, exports, imports & domestic consumption.

They, not politicians, will ensure that EU-UK trade in cars, in both directions, continues to be tariff-free post-Brexit

- The UK imports over *twice* as many cars from the EU as it exports to the EU (1.4 million imported, 0.6 million exported)

- Of the total 1.7 million cars imported into the UK in 2011, *eighty-three per cent* - 1.4 million - were from the EU

- Continental EU manufacturers have a 53% share of the domestic UK car market. German manufacturers alone have a 32% share; Volkswagen Group alone has a 19% share

- Nissan/Renault's Sunderland plant is the UK's biggest car exporter, with 37% of all UK exports of cars*

** Renault has a 43% equity stake in, & management control of, Nissan, which has a 15% equity stake in Renault*

UK Car Market in 2011: units manufactured, imported, exported & registered		
	Millions of units	*Notes*
Output of UK plants	1.3	0.5 Nissan/Renault, 0.2 BMW, 0.6 others
Imports into UK from RoW	1.7	of which 1.4 or 83% ***from*** the EU
Exports from UK to RoW	(1.1)	of which 0.6 or 57% ***to*** the EU
Consumption in UK (new registrations)	1.9	of which 1.0 or 53% ***made*** in Continental EU
Data source: Milne/Hamill, "Withdrawal From the EU Would Not Damage Our Car Industry: True or False?" *Civitas, 2013,* www.globalbritain.co.uk *> Publications.*		

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