Assessing the impact of a *Brexit* on UK industry and GDP using the academic literature

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Abstract: The best of the recent academic literature suggests 3 ideas on this issue: a) the depressing influence of a Brexit on the British industry would not so much transit through its direct effect on trade and foreign direct investments than through… b) an indirect, significant depressing effect on industrial productivity which… c) could lessen the GDP growth rate by around -0.5% per year until 2030. This order of magnitude is a lower bound for the total impact of a Brexit insofar as it only refers to the effects transiting through the industry and not, for instance, through the UK financial sector. Additionally, most of the detrimental effect of a Brexit would be concentrated on SMEs, because the SMEs import and export more, on average, than the average firm.

Citizens of the United Kingdom will vote, probably in 2016, whether they prefer the UK to remain in the European Union or to leave it (*Brexit*). The academic literature of the last two decades suggests that a *Brexit* would be rather at odds with the British own economic interests insofar as it would depress productivity gains in the industrial sector and thus weigh on growth and employment.

1. The depressing influence of a *Brexit* on the British industry would not so much transit through its direct effect on trade and foreign direct investments…

a. Protectionism may force consumers to buy from some producers who are less cost effective than foreign competitors, does not allow for scale economies stemming from wide markets, lessens the variety of goods sold on the domestic market and may promote the market power of local firms (which is generally bad for welfare).

b. Standard models have been used to simulate the impact of higher trade barriers on trade and thus growth. A well-known reference is Pain and Young (2004) from the NIESR[1] draws on a macroeconometric model and suggests an overall negative effect of -2.25% in the long-run. According to these authors, the main transmission channel would stem from lower inward foreign direct investment. Other, more recent publications yield comparable orders of magnitude, *i.e.*, around -2% of GDP on average over a long-run horizon (typically around 15 years).[2]

c. Such orders of magnitude remain rather subdued. A GDP loss of 2% over 15 years amounts to a loss of GDP growth of 0.13% per year. This is by no means negligible but one has to acknowledge that some structural reforms can trigger higher impacts in absolute value (a pension reform raising the age of retirement, for instance).

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[1] Pain N. and G.Young (2004), « The macroeconomic impact of UK withdrawal from the EU", *Economic Modelling*, 21, pp.387-408. This reference is also quoted by Bank of England, *EU membership and the Bank of England*, oct. 2015.

[2] See Center for Economic Performance (2014), "Brexit or Fixit? The trade and welfare effects of leaving the European Union".

2.   … than through an indirect, significant depressing effect on industrial productivity implying far-reaching, detrimental consequences:

   a.   Academic trade economics has been focusing during the last two decades on the influence of trade on productivity. Bernard *et al.* (2003)[3] note that **the productivity of exporters** and their size are substantially higher than the non-exporters' ones. They suggest that globalization provides efficient producers with larger markets, fosters competition on the domestic market that entails the exit of the most unproductive firms, and overall bolsters aggregate productivity through a selection effect favoring the best-performers. Melitz (2003)[4] confirms these results and additionally shows that the net effect on welfare of this selection effect is positive.

   Exporting may not increase the productivity of the exporters when they address foreign markets (Clerides *et al.*, 1998)[5] but rather enhances their probability of survival and the growth of the employment (Bernard and Jensen, 1999).[6] Eventually, Alcala and Ciccone (2004)[7] confirm that the scale effects stemming from higher trade account for a significantly higher total factor productivity.[8]

   Corcos *et al.* (2011)[9] focus on the selection effect for exporters and suggest that, by itself and notwithstanding other mechanisms, it could account for a loss of TFP (total factor productivity) amounting to 3.2% for a country leaving the EU – with an implicit effect of 3.2% on its GDP in the long-run.

   b.   A very recent academic literature copes with another channel – namely, **the productivity of importers**. It appears that the total factor productivity of a firm increases when it *imports* – because importing allows it to gain access to a wider range of intermediate goods, benefit from the technology embedded in the imported goods, and also from a possible higher quality of these goods (Altomonte *et al.*, 2013).[10] A

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[3] Bernard A., J.Eaton, J.B.Jensen and S.Kortum (2003), "Plants and productivity in international trade", *American Economic Review*, 1268-1290.

[4] Melitz M. (2003), "The impact of trade on intra-industry reallocations and aggregate industry productivity", *Econometrica*, 71(6), pp.1695-1725.

[5] Clerides S., S.Lach and J.Tybout (1998), "Is learning by exporting important? Micro-dynamic evidence from Colombia, Mexico, and Morocco", *Quarterly Journal of Economics*, 903-947. This issue could still be debatable, though (see Bernard A., J.Bradford Jensen, P.K.Schott (2006), "Trade costs, firms and productivity", *Journal of Monetary Economics*, 53, 917-937).

[6] Bernard A. and J.Bradfords Jensen (1999), "Exceptional exporter performance: cause, effect, or both?", *Journal of International Economics*, 47, 1-25.

[7] Alcala F. and A.Ciccone (2004), "Trade and Productivity", *Quarterly Journal of Economics*, 613-646.

[8] They estimate that the elasticity of productivity to population (*i.e.*, the size of the markets) is around 0.25 – a significant indeed order of magnitude. However, this estimation is not directly useful for assessing the aggregate impact of a Brexit on productivity. By definition, an elasticity concerns small variations of trade, whereas a Brexit would be a sizeable one.

[9] Corcos G., M.Del Gatto, G.Mion and G.I.P. Ottaviano (2011), "Productivity and firm selection : quantifying the « new » gains from trade", *The Economic Journal*, 122, 754-798.

[10] Altomonte C., T.Aquilante, G.Bekes, G.Ottaviano (2013), "Internationalization and Innovation of Firms: Evidence and Policy », *Economic Policy*, iss. 76, pp. 663-92. See also, on German data: Vogel A. and J.Wagner (2010), "Higher Productivity in Importing German Manufacturing Firms: Self-Selection, Learning from Importing, or Both? », *Review of World Economics*, v. 145, iss. 4, pp. 641-65.

study on Italian data (Castellani *et al.*, 2010)[11] and another one on Belgian data (Muûls and Pisu, 2009)[12] suggest that manufacturing firms that import display a TFP that is between 20% and 40% higher that firms which do not trade. Baring these firms to import through a Brexit would thus result in a downward effect on aggregate TFP – and GDP – of around -1.8% in the long run.

c. **Overall, the literature - as exposed in 1c, 2a and 2b above - suggests that a *Brexit* would weight on GDP by at least 2¼+3.2+1.8=7¼%, triggering a downward effect on annual GDP growth of -0.5% over 15 years.[13]** This order of magnitude is a lower bound for the *total* impact of a Brexit insofar as it only refers to the effects transiting through the industry and not, for instance, through the UK financial sector.

    In other words, the risk for a *Brexit* to lessen very sizeably GDP growth in the next years is of such a magnitude that it would be irrational to neglect it.

d. **This detrimental impact would specially hit SMEs.** The academic studies quoted in this note rely on statistics showing that a business which both import and export is typically an SME, whereas firms that do not trade at all have on average typically less employees.[14] Overall, most of the detrimental effect of a Brexit would be concentrated on SMEs, precisely because the SMEs import and export more, on average, than the average firm.

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[11] Castellani D., F.Serti and C.Tomasi (2010), "Firms in International Trade: Importers' and Exporters' Heterogeneity in Italian Manufacturing Industry », *World Economy*, v. 33, iss. 3, pp. 424-57.

[12] Muûls M. and M.Pisu (2009), "Imports and Exports at the Level of the Firm: Evidence from Belgium", *World Economy*, v. 32, iss. 5, pp. 692-734.

[13] Indeed, given the methodologies employed in the quoted references, the different orders of magnitude obtained in 1c, 2a and 2b can be added up.

[14] On German data, Vogel and Wagner (2010) show that the average number of employee in (ex-West) Germany in 2005 is 26 while is rises to 72 for enterprises both exporting and importing. On Belgian data, Muûls and Pisu (2009) also suggest the same orders of magnitude. On Italian data, Castellani *et al.* (2010) rely on a sample where manufacturing firms have on average 40 employees whereas those which both export and import have on average 132 employees.