PERSISTENT PRODUCTIVITY FAILURE IN THE UK: IS THE EU REALLY TO BLAME?

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On average, UK productivity performance in the decades leading up to the financial crisis was quite disappointing. Joining the EU was not to blame. Indeed, EU membership, which was an integral part of the Thatcher reform programme, had a significant positive impact. Over the long run, UK supply-side policies have been badly designed in various different ways. These design faults have not been the result of constraints imposed by EU membership but rather the consequence of domestic government failure. There is no reason to think that EU exit will lead, either directly or indirectly, to improvements in UK productivity outcomes.

Keywords: Brexit, productivity, supply-side policy.

JEL codes: N14, O47, O52.

Introduction

UK productivity performance has been a significant concern throughout the postwar period. Already, by the 1960s there was an increasing realisation that the rate of productivity growth was well below that of many other European countries. In the early 21st century, while this relative economic decline had ceased, it was apparent that the level of labour productivity still compared unfavourably with that in rival economies.

Over time, many different permutations of supply-side policy have been tried. These include attempts to promote investment-led growth and reliance on selective industrial policies in the 1960s and 1970s, the Thatcher reforms of the 1980s, and the productivity-agenda approach of New Labour. Policymaking has, of course, been under the aegis of EEC or EU membership since 1973. This has implied greater openness, more competitive product markets, and constraints on competition and industrial policies. On balance, it seems clear that in all these respects the impact of membership on productivity performance has been positive. Nevertheless, from World War II to the financial crisis, productivity outcomes in the UK, as elsewhere in Europe, primarily reflected domestic economic circumstances and policymaking.

Pre-crisis supply-side policies had some definite strengths but were far from perfect. However, I will show that the weaknesses were a result of decisions taken in Westminster rather than Brussels. It is unlikely therefore that there will be a medium-term boost to productivity growth from Brexit; if anything, it may be that its impact will be negative.

Overview of productivity performance, 1950 to 2007

It is a convenient simplification to consider three sub-periods within these years, namely, the Golden Age of European Growth prior to 1973 when the UK was outside the EEC, the post-Golden Age slowdown when the UK went through the Thatcher experiment, and the years from 1995 to the crisis which could be described as a period of post-Thatcher consensus in supply-side policy as well as the heyday of the ICT revolution.

The estimates of the rate of labour productivity growth in table 1 show that it was relatively slow compared with Western European countries before 1973, although in terms of the UK's own economic history this was the

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Table 1. Labour productivity growth (% per year)

	1950–1973	1973–1995	1995–2007
France	5.30	2.67	1.75
Germany	5.91	2.86	1.70
Ireland	4.06	3.37	3.64
Italy	5.67	2.30	0.49
UK	3.47	2.12	2.13
US	2.57	1.27	2.21

Source: The Conference Board (2016).
Note: Labour productivity is measured in terms of real GDP per hour worked except for post-1973 Ireland which is real gross national product per hour worked; Germany is West Germany prior to 1995.

Table 2. Levels of labour productivity (UK=100 in each year)

	1950	1973	1995	2007	2007 adjusted
France	62.5	110.9	124.8	120.2	110
Germany	54.5	110.1	129.2/104.6	121.6	110.4
Ireland	41.8	56.5	74.0	97.2	99.3
Italy	52.9	101.3	105.3	100.1	99.6
UK	100.0	100.0	100.0	100.0	100.0
US	151.6	147.1	122.3	120.9	125.1

Source: The Conference Board (2016); own calculations based on Bourles *et al.* (2012).
Note: Labour productivity is measured in terms of real (purchasing-power-parity-adjusted) GDP per hour worked except for Ireland which is real GNP per hour worked in 1995 and 2007. Germany is West Germany in 1950 and 1973; in 1995 the first number is West Germany. The adjusted figures for 2007 take account of the implications of different employment rates and differences in hours worked using the regression results from Bourles *et al.* (2012, Table 1).

fastest ever. A more detailed examination reveals that this was only partly explained by lower scope for catch-up and reconstruction (Crafts, 2019). Between 1973 and the mid-1990s, there was a general slowdown during which the UK's labour productivity growth rate fell by less than most other European countries. In this period, the scope for rapid catch-up growth had largely evaporated across European countries. From the mid-1990s to the eve of the financial crisis UK labour productivity grew at a similar rate to the previous period and a bit faster than in France or Germany. Table 1 also reflects a notable diversity of productivity growth performance among EU members and a striking reversal of fortunes between Ireland and Italy.

The result of relatively slow growth during the Golden Age was that by 1973 the UK had been overtaken in terms of labour productivity levels by both France and West Germany and, indeed, by seven other European countries.

Table 3. Contributions to labour productivity gaps (percentage points)

	Labour quality	Capital intensity	TFP	Total
USA/UK				
1910	–1.9	30.1	–10.5	17.7
1950	0.3	20.9	45.7	66.9
1973	1.9	10.8	39.6	52.3
2000	0.4	12.6	11.3	24.3
Germany/UK				
1910	–0.1	0.2	–24.6	–24.5
1950	–0.6	–2.6	–22.6	–25.6
1973	9.5	5.4	–0.9	14.0
2000	3.7	11.7	1.4	16.8

Source: Broadberry and O'Mahony (2007).
Note: Contributions are derived using a standard growth accounting formula.

It is hard to see this as anything other than a failure. As is reported in table 2, by the mid-1990s, these productivity gaps had become wider and, although they had narrowed somewhat, they were still above the 1973 level in 2007. It should, however, be noted that in recent years the raw data probably exaggerate the 'true' productivity gap since employment rates and hours worked differ across countries. When employment rates are relatively low it is usually because low-productivity workers are not employed and when hours are relatively high fatigue may be an issue. Adjusting for these factors in table 2 suggests that the productivity gaps with France and Germany (but not the United States) in the raw data for 2007 exaggerate the extent of underperformance in the UK.

Table 3 provides a decomposition of contributions to labour productivity gaps. Looking at the Germany/UK gap, it is noticeable that a major feature of the Golden Age was the big reduction in the TFP gap between 1950 and 1973. To a considerable extent, this reflected both reconstruction and improved allocation of resources. At the same time, West Germany was building up superior stocks of human and physical capital. After 1973, the gap in the contribution of human capital decreased somewhat as the UK invested more in college education to offset Germany's advantage in vocational education. Compared with the United States, the really notable feature is the large reduction in the TFP gap after 1973.

It should be recognised that EU membership did not imply convergence of supply-side policies. In tables 4 and 5, two aspects which are of particular interest to Brexiteers, namely, regulation and taxation, are highlighted. The two measures of regulation reported in table 4 have been highlighted by the OECD and were found to be

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Table 4. PMR (product market regulation, 0–6) and EP (employment protection, 0–6)

	PMR 1998	PMR 2008	PMR 2013	EP 1998	EP 2008	EP 2013
Austria	2.12	1.37	1.19	2.75	2.37	2.37
Belgium	2.30	1.52	1.39	1.85	1.89	1.89
Denmark	1.66	1.34	1.21	2.13	2.13	2.20
Finland	1.94	1.34	1.29	2.31	2.17	2.17
France	2.38	1.52	1.47	2.34	2.47	2.38
Germany	2.23	1.40	1.28	2.68	2.68	2.68
Greece	2.75	2.21	1.74	2.80	2.80	2.12
Ireland	1.86	1.35	1.45	1.44	1.27	1.40
Italy	2.36	1.51	1.29	2.76	2.76	2.68
Netherlands	1.82	0.96	0.92	2.84	2.88	2.82
Portugal	2.59	1.69	1.29	4.58	4.42	3.18
Spain	2.39	1.59	1.44	2.36	2.36	2.05
Sweden	1.89	1.61	1.52	2.70	2.61	2.61
UK	1.32	1.21	1.08	1.10	1.26	1.10
US	1.63	1.59	1.59	0.26	0.26	0.26

Sources: OECD Product Market Regulation database and Employment Protection database.

Note: Employment protection is for regular employment. On both indicators, a higher score signifies more regulation. Details on how these indices are constructed can be found at www.oecd.org/regreform/reform/44545109.pdf and at https://www.oecd.org/els/emp/EPL-Document-LAC-Methodology-ENG.pdf

Table 5. Effective average and effective marginal corporate tax rates (%)

	EATR 2000	EATR 2007	EATR 2017	EMTR 2000	EMTR 2007	EMTR 2017
Austria	29.1	21.6	21.6	17.9	13.1	13.1
Belgium	33.2	28.1	28.3	17.1	13.5	14.4
Denmark	28.2	22.2	19.7	19.8	15.7	14.1
Finland	26.1	23.4	18.0	19.6	17.3	12.9
France	32.0	29.3	32.4	19.2	17.5	19.9
Germany	32.8	25.9	27.0	17.0	13.3	18.2
Greece	32.3	20.2	25.4	13.5	7.0	5.2
Ireland	8.8	11.1	11.3	5.3	7.3	17.2
Italy	33.8	30.5	21.4	16.3	14.1	–0.1
Netherlands	30.4	20.9	19.1	20.4	13.1	8.1
Portugal	29.2	24.0	25.2	14.8	11.4	14.9
Spain	34.0	33.3	27.6	20.0	23.4	24.0
Sweden	24.7	24.7	19.4	17.2	17.2	13.0
UK	26.9	26.9	18.5	20.0	20.0	17.1
US	34.9	34.9	34.9	23.2	23.2	23.2

Source: Oxford University Centre for Business Taxation Corporate Tax Database.

important in the diffusion of ICT by Cette and Lopez (2012). They show that the UK has been relatively lightly regulated and has certainly not been forced to be like France. National, rather than supra-national, control of labour market regulation has prevailed and the UK has been able to maintain a flexible labour market as is appropriate for a 'liberal market economy' (Hall and Soskice, 2001). Similarly, the UK has been able to cut corporate tax rates and effective average tax rates are well below French or German levels.

Falling behind in the Golden Age

From the early 1950s through 1973, the UK experienced a phase of relative economic decline marked by relatively slow growth which, at least in part, was the result of badly designed supply-side policies. Failure to reform industrial relations successfully was a major shortcoming of British governments from the 1950s through the 1970s. Throughout this period there were continual efforts to persuade organised labour through an informal social contract to accept wage moderation in the interests not only of encouraging investment, but even more to allow low levels of unemployment without inflation at a time when politicians believed that this was crucial to electoral success after the interwar trauma. At worst, this was tantamount to allowing a de facto trade union 'veto' on economic reforms and certainly obstructed industrial-relations reform. In any event, British supply-side policy, shaped by the 'post-war consensus', was unhelpful towards growth in several respects.[1] These included a tax system characterised by very high marginal rates, described by Tanzi (1969) as the least conducive to growth of any of the OECD countries in his study; missing out on benefits from trade liberalisation by retaining 1930s protectionism into the 1960s (Oulton, 1976); a misdirected technology policy that focused on invention rather than diffusion (Ergas, 1987); an industrial policy that ineffectively subsidised private sector investment (Sumner, 1999), sustained seriously inefficient investment in nationalised industries (Vickers and Yarrow, 1988), and slowed down structural change by protecting ailing industries through subsidies (Wren, 1996); and tariffs (Greenaway and Milner, 1994).

A key feature of the Golden-Age British economy was the weakness of competition in product markets, which had developed in the 1930s and intensified subsequently. Competition policy was largely ineffective, protectionism continued through the 1960s, and market power was substantial. The evidence shows that weak competition interacted with the institutions, notably the systems of industrial relations and corporate governance, to undermine British productivity performance during the Golden Age (Crafts, 2012). The rents resulting from weak competition were shared with trade unions partly through effort bargains that entailed overstaffing as was revealed in the 1980s when competition subsequently intensified (Machin and Wadhwani, 1989). Nickell *et al.* (1997) estimated that, for firms without a dominant external shareholder

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to control managers (the norm for big British firms at this time), an increase in supernormal profits from 5 to 15 per cent of value added would reduce total factor productivity growth by 1 percentage point.

The establishment of the European Economic Community increased trade considerably. In 1958 the EEC was formed by the original six countries following the signing of the Treaty of Rome in 1957; the UK chose not to join.[2] The signatories pledged to lay the foundations of 'ever closer union' among the peoples of Europe and Article 2 committed members to form a customs union, to establish a common market and to harmonise policies. The EEC customs union was achieved in 1968 but the common market took much longer and awaited the Single European Act, which addressed non-tariff barriers to trade, liberalised trade in services and ended capital controls and was (less than fully) implemented from 1992. Even so, trade costs between the six countries fell rapidly in the early years while for the UK there was little change (Jacks *et al.* 2011). Using a gravity model, Bayoumi and Eichengreen (1995) estimated that intra-EEC trade among the original six members was increased by 3.2 per cent per year between 1956 and 1973, implying that EEC membership may have raised income levels by 4 to 8 per cent by 1970 (Eichengreen and Boltho, 2008) and the annual growth rate of real GDP per person by at most 0.5 percentage points, based on the elasticity between trade volumes and income estimated by Frankel and Romer (1999). This was a useful bonus but quite a modest (about 1/8th) contribution to the overall growth rate in the 1960s.[3]

What difference did UK entry into the EEC make?

Joining the EEC reduced trade costs for UK trade with member countries. This raised both trade volumes and the level of income per person. These effects can be quantified by using a gravity model to find the implication of EU membership for the volume of trade and then to quantify the effect of expanded trade on the level of income using the estimated relationship in Feyrer (2009) which itself is an improved version of the well-known Frankel and Romer (1999) model. This uses an econometric approach to capture impacts working through improved productivity and a larger capital stock which far exceed traditional welfare triangle gains from improved resource allocation. Feyrer concludes that the elasticity of income to trade is probably between 0.5 and 0.75.

The gravity model estimates in Baier *et al.* (2008) imply that EU15 trade in 2000 was at least 71.6 per cent higher than if there had been no trade agreement, with the implication that total EU trade was raised by 25.4 per cent. Based on the lower bound of Feyrer's estimated elasticity, the EU had a positive impact on GDP of 12.7 per cent. Similarly, this method predicts that EU membership raised UK trade relative to the counterfactual by 33.0 per cent after fifteen years. In 1988, EEC trade was 51.4 per cent of total so the implication is that joining the EEC had raised UK trade by 17.1 per cent. Taking the lower bound of Feyrer's estimated elasticity, this would have raised UK GDP by 8.6 per cent.[4] It should be noted that this is much larger than any reasonable estimate of the membership fee that the UK has paid for EU membership (Crafts, 2016).

If accession to the EEC raised UK GDP significantly, then a major component of this must have come from increased competition in product markets. A computable general equilibrium (CGE) exercise using a model incorporating imperfect competition and scale economies found that the static effects of reductions in market power would have contributed a welfare gain equivalent to 2.1 per cent of GDP (Gasiorek *et al.*, 2002). However, in addition there were favourable impacts on productivity performance consequent on stronger competition and entry threats in product markets. A difference-in-differences analysis found that there was a substantial boost to productivity in sectors which experienced a large reduction in protection (Broadberry and Crafts, 2011).[5] Reductions in market power effectively addressed long-standing obstacles to productivity performance from weak management and industrial relations problems in British firms (Crafts, 2012). Trade liberalisation in its various guises reduced price-cost margins (Hitiris, 1978). Later increases in competition resulting from the European Single Market raised both the level and growth rate of TFP in plants which were part of multi-plant firms and thus most prone to agency problems (Griffith, 2001). Increased competition goes a long way to explain the boost to growth found by Campos *et al.* (2018) or the higher income level predicted by the Feyrer (2009) method.[6] It should also be recognised that in the context of the 1970s and early 1980s EEC membership was an integral part of the Thatcher reforms through its positive effects on competition, as was reflected in strong British support for the legislation to establish the Single Market.[7]

EU membership also constrained supply-side policy choices in important ways, especially as the rules became stricter and more strongly enforced over time. It was in effect a 'commitment technology'. Competition policy and selective industrial policy were relevant areas where this was the case, although in each case it might

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be thought that the direction of travel under the 'post-Thatcher consensus' would have been much the same outside the EU. Competition policy in the early 1970s was mostly ineffective (Clarke *et al.*, 1998). Few investigations took place, very few mergers were prevented, the process was politicised, a variety of 'public-interest' defences for anti-competitive activities were allowed, and there were no penalties for bad behaviour. Control of mergers was the aspect of competition policy which was notably undermined by the public interest test. This was not well specified but allowed consideration of whatever was deemed relevant. The Monopolies and Mergers Commission could only recommend that a merger be blocked on the basis that it would operate against the public interest, i.e., the burden of proof was on the MMC, and could only investigate a merger if a reference was made by the Minister on the advice of the Director General of the OFT. There was a widespread belief in government circles that mergers were beneficial because they improved productivity and international competitiveness of British business such that competition policy was subordinated to industrial policy (Wilks, 1999). Yet, the ex-post evidence was that, on average, mergers did not generate significant improvements in productivity performance (Kumar, 1984; Meeks, 1977). The 'lessening of competition' test on which UK and EU law eventually harmonised was surely preferable.

Selective industrial policies are prohibited under State Aid rules.[8] Selective industrial policies were favoured in the 1960s and 1970s but with very disappointing results. Although 'picking winners' may have been the aspiration, "it was losers like Rolls Royce, British Leyland and Alfred Herbert who picked Ministers" (Morris and Stout, 1985, p. 873). There was a very clear tendency for selective subsidies to be skewed towards relatively few industries, notably aircraft, shipbuilding and, latterly, motor vehicles (Wren, 1996a). More generally, there was quite a strong bias towards shoring up ailing industries which is well reflected in the portfolio of holdings of the National Enterprise Board (Wren, 1996b). Moreover, policies to subsidise British high-technology industries were notably unsuccessful in this period in a number of cases including civil aircraft, which by 1974 had cost £1.5 billion at 1974 prices for a return of £0.14 billion (Gardner, 1976), computers (Hendry, 1989) and nuclear power (Cowan, 1990).[9] So, prohibition of such policies which obstruct rather than promote creative destruction has been a positive contribution from EU membership.

Post-1970s reversals of fortune

The post-Golden Age reaction to poor economic performance in the UK was Thatcherism. In many respects, this did represent a sharp break with the earlier postwar period after 1979 and this was certainly true of supply-side policies relevant to growth performance. Reforms of fiscal policy were made including the re-structuring of taxation by increasing VAT while reducing income tax rates and to restrain the growth of public expenditure notably by indexing transfer payments to prices rather than wages while aiming to restore a balanced budget. Industrial policy was downsized as subsidies were cut and privatisation of state-owned businesses was embraced while de-regulation, including most notably of financial markets with 'Big Bang' in 1986, was promoted. Legal reforms of industrial relations further reduced trade-union bargaining power which had initially been undermined by rising unemployment.

In general, these changes were accepted rather than reversed by Labour after 1997. The respectable pre-crisis growth performance was achieved in the context of the 'post-Thatcher consensus' on supply-side policy which was shared by New Labour and the Conservatives. Of itself, the financial crisis does not imply that pre-crisis growth was illusory or somehow unsustainable, which might imply a general policy failure, but rather reflects inadequate financial regulation. But the advent of the crisis has had a significant impact on productivity performance over the 'lost decade' since 2008.

Thatcherism was a partial solution to the problems which led to underperformance in the Golden Age, in particular, those which had arisen from weak competition.[10] The reforms encouraged the effective diffusion of new technology rather than greater invention and worked more through reducing inefficiency than promoting investment-led growth. Nevertheless, under the auspices of 'Thatcher and Sons' relative productivity performance improved and labour productivity growth compared favourably with that of other large European countries after the mid-1990s (cf. table 1). Clearly, there have been continuing weaknesses in supply-side policy (Crafts, 2015). The most obvious has been in innovation policy which is reflected in a low level of R&D (Frontier Economics, 2014) but skills (OECD, 2016), infrastructure (LSE Growth Commission, 2013), land-use planning regulation (Cheshire and Hilber, 2008), and the tax system (Mirrlees *et al.*, 2011) have also given significant cause for concern while British capital markets remain notably short-termist with a bias against long-term investment (Davies et al., 2014). Addressing these issues well has generally been 'too difficult' politically even though the 'trade-union veto' has long gone.

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While relative UK performance improved, productivity growth in Italy has been extremely disappointing and a far cry from the remarkable success of the Golden Age (table 1). This indicates an inability to make the reforms necessary to sustain catch-up growth in its later phases. In particular, this has included a failure to strengthen competition policy adequately (Buccirossi *et al.*, 2013) and to improve the quality of Italian education (Bertola and Sestito, 2013), and is underlined by Italy's dismal showing in the World Bank's Doing Business and Governance Matters rankings (Crafts and Magnani, 2013). Resource misallocation has increased substantially since the mid-1990s and has undermined productivity growth (Calligaris *et al.*, 2016). Italy epitomises Europe's problem with expediting creative destruction; exit of low productivity firms is much too slow. Participation in the Single Market and joining the Euro were not adequate substitutes for an effective domestic supply-side policy.

Ireland's experience was the opposite of that of Italy. Serious underperformance in the Golden Age was followed by the Celtic Tiger phase of the late 20th century (tables 1 and 2). This success was predicated on being within the EU but also was based on the development of appropriate supply-side policies to exploit this opportunity. A central aspect of the Celtic Tiger economy was the prominence of foreign direct investment (FDI). 'Export-platform' FDI dominated production in high-skill and knowledge-intensive sectors, and by 2000 accounted for almost half of manufacturing employment and 80 per cent of manufacturing exports (Barry, 2004). Rapid TFP growth was underpinned by a large ICT production sector based on FDI. Ireland developed a sophisticated industrial policy to select projects for financial support and made investments in telecommunications and college education that were conducive to FDI (Buckley and Ruane, 2006). An elastic labour supply underpinned investment and productivity growth (Barry, 2002).

Nevertheless, the most important factor in Ireland's success in attracting FDI was the combination of its corporate tax regime together with EU membership (Slaughter, 2003). EU membership was a necessary but not sufficient condition for the Irish growth model. Both prior to the late 1980s and from the turn of the 21st century to the crisis, Irish performance was mediocre at best, reflecting domestic policy errors (Crafts, 2014).

Over the long run, relative economic growth performance across EU countries has varied a great deal. The success or failure of EU member countries in achieving strong economic growth has depended primarily on their design and re-design of supply-side policies as the cases of Ireland and Italy clearly demonstrate. Joining the EU may not have caused the improvement in the UK's standing but it certainly did not prevent it.

Will Brexit improve UK productivity performance?

Between the 2007 peak and mid-2018, UK labour productivity has grown at only 0.2 per cent per year; if it had maintained the pre-crisis trend growth rate of 2 per cent real GDP in 2018Q2 it would have been 21.4 per cent higher (ONS, 2018). This even compares unfavourably with the notorious 'climacteric' of 1899–1913 when labour productivity grew at 0.5 per cent per year.[11] Although the national income accounts probably underestimate recent growth, the productivity slowdown is much bigger than can reasonably be attributed to measurement error or the impact of the digital age falling outside the boundary of GDP.[12] It remains unclear what explains the severity of the slowdown. The financial crisis has probably been important and resource reallocation has surely been significantly impaired (Schneider, 2018); the impact of investment in ICT capital has waned while the productivity impact from new technologies like AI is only just beginning (Crafts, 2018).

There is, however, no persuasive reason to see Brexit as the antidote to this deeply disappointing recent experience. Indeed, there is agreement among most economists that the direct effects of Brexit on the level of UK productivity will be adverse with the long-run impact including lower investment and TFP than in the counterfactual and magnitudes of perhaps minus 3.5 and minus 7.5 per cent of GDP for a 'soft' and 'hard' Brexit, respectively (Ebell and Warren, 2016).[13] The underlying methodology of these studies is quite close to seeing Brexit as the calculation made above for 1973 in reverse.

Two caveats to these conclusions should be noted. First, the gravity-model evidence does not explicitly cover the case of a former EU member which means that the estimated impact on trade of leaving the EU strictly speaking is not known. History does seem to influence trade volumes and, implicitly, trade costs (Eichengreen and Irwin, 1998). This suggests that the adverse impact on trade may be lower than the conventional calculations assume.[14] Second, the post-entry trade effect on productivity that the UK experienced in the 1970s and 1980s came largely from increased competition at a time when this addressed a major weakness in

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supply-side policy. Brexit will probably not have an equal and opposite effect. The UK has addressed some of its problems of corporate governance and industrial relations, and it has a much more effective competition policy regime.

Proponents of Brexit might argue that standard analyses do not consider the implications of greater freedom for supply-side policy for productivity performance. That said, inside the EU the UK still has control over 'horizontal' industrial policies.[15] It can certainly be argued that there is room for considerable improvement in the details of those policies. Areas of concern include under-spending on infrastructure, a badly designed tax system, very restrictive land-use planning rules, schools that deliver low-quality education, and innovation policies that result in low levels of R&D (Crafts, 2015).[16] Reforms to these policies are not, however, precluded by EU membership. The obstacles are to be found in Westminster not Brussels and are related to British politics rather than constraints imposed by the EU and Brexit makes little or no difference.

A government that wished to adopt a more interventionist approach based on a return to widespread use of selective industrial policies and a new 'public-interest' based policy on mergers could do so in the event of a 'hard' Brexit. Such policies would not be allowed within the EEA and the EU has made clear that a trade agreement would rule them out. On the other hand, a 'no-deal' Brexit would allow much greater policy freedom. In other words, if you believe that the route to faster productivity growth is state interventionism, then EU membership could be to blame for UK productivity failure. For those sceptical of the wisdom of a return to 1970s-style competition and industrial policy, a soft Brexit has the added advantage of providing a 'commitment technology' that removes the discretion to choose this path.

Conclusions

UK productivity performance has disappointed over much of the postwar period resulting in a significant productivity gap with peer group countries although the extent of this pre-crisis 'failure' is smaller than is often supposed. Supply-side policies that affected productivity could have been better designed. The policy configurations prevailing both during the 'postwar consensus', and also during the 'post-Thatcher consensus', were flawed in various ways.

Relative UK productivity growth improved somewhat between the 1970s and the 2000s but this should not be seen as mainly due to joining the EU. Domestic policy frameworks at home and abroad mattered much more than did European economic integration. Nevertheless, EU entry did raise the level of GDP per head by a non-trivial amount.

After 1973, EU membership helped to address some of the weaknesses which were impairing UK productivity and were amenable to increased competition. It was an important component of the Thatcher reforms and was vigorously promoted by Mrs Thatcher herself both in the 1975 referendum and in the context of the Single Market. In contrast, Brexit is unlikely to be helpful in addressing today's productivity problems since it is neither necessary nor sufficient for the introduction of better horizontal industrial policies.

EU membership has constrained UK policymakers notably in the area of selective industrial and competition policies. In the light of the experience of government failure during the 1970s, this has surely been helpful. An important downside risk of Brexit is that it may open the door for a return to interventionism.

In sum, the EU really is not to blame for UK productivity failures. UK supply-side policies have left much to be desired but EU exit is neither necessary nor sufficient for reform.

NOTES

1 The concept of the 'post-war consensus' should be understood as the set of policies regarded as feasible by senior politicians and civil servants given presumed political constraints (Kavanagh and Morris, 1994). This implied a high degree of policy convergence but did not connote ideological convergence between the Conservative and Labour parties (Hickson, 2004).

2 The six founder members were Belgium, France, Germany, Italy, Luxembourg and Netherlands.

3 Conventional wisdom as reflected in the econometric analysis of Badinger (2005) is that economic integration raises the level of income rather than the long-run growth rate; the implication is that the establishment of the EEC had a temporary impact on the growth rate of its members.

4 An alternative method to estimate the impact of EEC accession is the synthetic counterfactuals method in Campos *et al.* (2018); coincidentally, this also finds that after ten years the level of income was raised by 8.6 per cent.

5 Sectors which experienced a reduction of 10 percentage points or more in the effective rate of protection saw an additional increase of 1.4 percentage points in the rate of labour productivity growth in 1979–86 over 1968–79.

6 It also implies that Williamson (1971) was basically right in his assessment of the possibility of benefits from entry into the EEC but nevertheless significantly underestimated their magnitude.

7 In the 1960s and early 1970s, the vast majority of the Conservative Party and especially economic liberals such as Enoch Powell and Margaret Thatcher saw EEC membership

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as a way to stimulate growth and modernise British industry through competition from Europe. The infamous conflict between Thatcher and Jacques Delors was way in the future as was Thatcher's Euroscepticism. In the 1975 referendum, Thatcher was strongly pro staying in.

8 State aid is defined by the EU as interventions including grants, subsidies, loans, guarantees and tax credits which give the recipient an advantage on a selective basis that has distorted or may distort competition and which are likely to affect trade between member states.

9 Concorde and the Advanced Gas-Cooled Reactor were egregious policy errors (Henderson, 1977).

10 Trade liberalisation including EEC membership was part of the antidote along with de-regulation, elimination of subsidies and a less permissive attitude to mergers.

11 Feinstein *et al.* (1982); then the shortfall compared with the pre-existing trend was around 0.7 per cent per year, now it is 1.8 per cent.

12 Bean (2016) estimated that measured growth in 2005–14 would probably have been about 0.35 per cent per year (with an upper bound of 0.66 per cent) higher if incremental gains in consumer surplus from internet use had been treated as part of GDP; for a fuller discussion, see Crafts (2018).

13 If, on the other hand, Brexit has growth-rate, rather than levels, effects the adverse impact would be much greater; Erken *et al.* (2018) estimate productivity growth could be reduced by 0.8 percentage points per year.

14 An interesting example is the ending in 1979 of the long-standing currency union between Ireland and the UK. Econometric analysis suggests that this had no effect at all on trade (Thom and Walsh, 2002) even though, on balance, the literature predicts that a significant reduction was to be expected.

15 'Industrial policy' is perhaps best defined to encompass public sector intervention aimed at changing the distribution of resources across economic sectors and activities. Thus, it includes both 'horizontal' policies which focus on activities such as innovation, provision of infrastructure and so on, while 'selective' policies aim to increase the size of particular sectors.

16 Pro-productivity reforms in these areas are not constrained by EU state aid rules which apply to selective industrial policies with direct implications for trade within the single market; see Heimler and Jenny (2012).

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