Industrial Policy in the Context of Brexit

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Abstract

This paper reviews UK industrial policy in the context of Brexit and weak productivity performance. It considers proposals made in a recent White Paper as well as more general arguments for reform now that the 'post-Thatcher consensus' has ended. The desirability of improving horizontal policies in the areas of innovation, infrastructure and skills is noted. In the event of a hard Brexit, there would be an opportunity to return to 1970s-style selective industrial policies and public-interest-based competition policy. An advantage of a soft Brexit is that it would preclude interventionism of this kind.

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1. Introduction

UK productivity performance has been deeply disappointing in recent years. Naturally, this means that there are good reasons to review supply-side policy. Perhaps the 'post-Thatcher consensus' which prevailed prior to 2008 is past its 'sell-by date' and needs to be discarded. In particular, it is suggested by some that a return to more interventionist industrial policies may be desirable and the government has embarked on developing an 'industrial strategy'. Moreover, the challenges and opportunities presented by Brexit suggest that there may be good reasons to revise the UK's industrial policy stance. Notably, depending on the terms of Brexit there may be greater scope to implement selective industrial policies once outside the EU.

Against this background, this paper considers what an improved supply-side policy for growth might comprise and whether Brexit makes this more or less likely to be implemented. The paper explores the trade-off between the greater economic costs of a harder Brexit and the scope for productivity gains that might result from the freedom to implement a new industrial policy. In this context, lessons from the 1970s, when competition and industrial policy settings were very different from those which were in place post-Thatcher, are reviewed. This analysis suggests that a major advantage of a soft Brexit is that it would provide a 'commitment technology' to constrain the politicization of supply-side policy.

2. Why is Selective Industrial Policy Back in Favour?

'Industrial policy' is perhaps best defined in the manner of Caves (1987) 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. The classic justification for industrial policy is that it remedies market failures, for example, by providing public goods, solving coordination problems, or subsidizing activities with positive externalities.[1]

After the election of the Thatcher government, the stance of supply side policy changed markedly. Selective industrial policies were phased out, horizontal policies were downsized and narrowed in scope with the ending of most investment and employment subsidies, and competition in product markets was strengthened considerably, initially through reducing trade barriers and deregulation rather than by strengthening anti-trust policy. Privatization, industrial relations reform, and restructuring taxation were new priorities.

When Labour won a landslide victory in the 1997 election, it was possible to wonder whether in government it would revert to 'Old Labour' policies. The answer soon became apparent and was a resounding 'No'. 1970s-style policy was conspicuous by its absence: there was no nationalization programme, no move to subsidize manufacturing investment, no counterpart of the National Enterprise Board, no return to high marginal rates of direct tax, no attempt to resist de-industrialization by supporting declining industries, and no major reversal of industrial relations reform. Implicitly, the Thatcher supply-side reforms had been accepted and a 'post-Thatcher consensus' prevailed. The changes that 'New Labour' made were to strengthen some aspects of

[1] An excellent overview can be found in Warwick (2013).

horizontal industrial policies with a new emphasis on education, R & D, investing in public capital, and strengthening competition policy.

In the last ten years or so, however, there has been a renewed interest in and respectability of selective industrial policy among UK policymakers. This realignment of policy has been gradual and does not yet mark a return to the 1970s but has, nevertheless, gathered pace from Labour's *New Industry, New Jobs* (2009) through the Coalition's *The Plan for Growth* (2011) to the Conservatives' *Building Our Industrial Strategy* (Cm. 9528, 2017). Twenty years ago this would not have seemed very likely so what has changed?

First, and most obviously, productivity performance has been extremely disappointing and a strong contrast with a decent record in the years up to 2007, as is reported in Table 1. On the eve of the crisis, UK economic growth was generally seen as quite satisfactory (Van Reenen, 2013). Subsequent developments have come as a rude shock; in 2017 quarter 4, real GDP per hour worked was only 1.8 per cent above the pre-crisis peak level seen in 2007 quarter 4. It would have been 19.6 per cent higher if pre-crisis trend growth had been sustained (ONS, 2018). Of itself, this prolonged stagnation in labour productivity growth might signal the need for a re-think of supply-side policy.

A striking feature of the difference between pre- and post-2007 is the much diminished contribution from financial services in the latter period and associated with this the widespread feeling that the economy needed re-balancing – in Peter Mandelson's memorable phrase, there should be 'less financial engineering, more real engineering'. That said, productivity growth in manufacturing has also fallen sharply and this has contributed more to the overall slowdown in productivity growth (Table 2). This might also be seen as a further justification for a pro-active industrial policy.

A second important point is that Brexit makes a difference in at least two ways. On the one hand, depending on how Brexit is implemented, the UK may no longer be subject to the state-aid rules of the EU which preclude many forms of selective industrial policy. If this constraint is removed, it is natural that vote-seeking politicians will wish to explore the expanded policy space that results. On the other hand, Brexit may well make the UK less attractive as a destination for FDI. A recent estimate suggests that Brexit implies a potential reduction of 22 per cent in inflows of FDI (Dhingra et al., 2016). If so, the UK government would probably want to make a policy response but might well find horizontal policy too expensive.[2]

Last, but not necessarily least, memories of the 1970s have now faded. In the aftermath of that decade, well-informed commentators who had been quite sympathetic to selective industrial policy in principle concluded that in practice it appeared to be "directed at helping old industries to survive rather than encouraging new products and new technology" (Silberston, 1981, p. 49) and that, 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). But this is now distant history.

[2] For example, on the basis of the central estimate of the semi-elasticity of FDI flows of 3.7 in OECD (2007), to offset Brexit through reducing the corporate tax rate would require a cut of 6.5 percentage points which has an annual cost of about £16 billion. As the government said in the Green Paper on industrial strategy, 'we want to focus our efforts on strategic inward investment that most contributes to wealth creation in the UK'.

3. What Would Improve Supply-Side Policy for Growth?

Decent growth before the financial crisis occurred in the context of the 'post-Thatcher consensus' on supply-side policy which was shared by New Labour and the Conservatives. Equally, the subsequent productivity slowdown has developed under very similar policies since there has been substantial continuity in the last ten years. 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.

Banking crises reflect market failures in the banking sector combined with a failure of regulation to address them effectively. The problems arise from moral hazard and coordination failures in a context of asymmetric information. The typical pre-crisis symptom is rapid expansion of credit coupled with excessive risk taking. The likelihood of bank failures increases as leverage goes up and the ratio of equity capital to assets falls. Banking crises happen even in economies with very strong growth fundamentals if banks are badly regulated and under-capitalized. The classic example is the United States where about a third of all banks failed in the years 1929 to 1933.

The financial crisis of 2007-8 in the UK matches this familiar pattern. Regulation was deficient and leverage soared following the deregulation of the 1980s with the median ratio of total assets to shareholder claims increasing from around 20 in the 1970s to almost 50 at the pre-crisis peak (ICB, 2011). In effect, there was a huge implicit subsidy to risk-taking by banks that were too big to fail and were allowed to operate with inadequate equity capital. This was a major failure of the policy reforms undertaken in the 1980s. That said, it should not be inferred that pre-crisis growth was predicated on unsound finance even though the cost of capital would have been higher with resilient bank balance sheets. Miles et al. (2013) offer an illustrative calculation which suggests that the lower capital intensity entailed by the introduction of appropriate capital-adequacy regulation would have reduced the level of GDP by about 0.2 per cent.

It is well-known that financial crises can have permanent adverse direct effects on the level of potential output. The transition period while the levels effect materializes and during which growth rates are depressed may be quite long. Oulton and Sebastia-Barrel (2017) found a long-run impact on the level of labour productivity of 1.1 per cent per year that the crisis lasts. There is good reason to think that the crisis also had significant temporary effects on productivity performance which may not yet have completely evaporated as resource allocation has been seriously impaired. Redeployment of labour appears to have been a key issue as workers have moved to firms with inferior productivity characteristics (Schneider, 2018).[3]

In sum, it is not obvious that industrial policy needs to be completely re-thought with the attendant danger of 'throwing the baby out with the bathwater'. Even so, given that Brexit will have an adverse effect on productivity compared with the counterfactual of staying in the EU and given that productivity performance has been so disappointing in recent years, it is especially opportune to consider might be done to improve supply-side policy.

[3] However, shifts of labour between industries did not exacerbate the productivity slowdown (Riley et al., 2018).

Endogenous-growth theory suggests that policy interventions which raise the appropriable rate of return to innovation and/or investment can have positive effects on the rate of growth. A widely held view of the pre-crisis period is that horizontal industrial policies which may be important according to growth economics were something of a curate's egg. Strengths could be found in regulatory and competition policies with weaknesses in education and skills, infrastructure, taxation and, especially, innovation policies (Crafts, 2015) with the implication that a high priority for improved supply-side policy would be to address the latter group.

Table 3 reports the results of an admittedly crude attempt to perform a diagnostic check on this judgement with a benchmarking exercise which on the whole confirms much of the conventional wisdom.[4] Weaknesses in skills and innovation policies would be consistent with these scores. Transport infrastructure comparisons are notoriously difficult and the indicators shown here suggest a mixed picture but with a worrying tendency to road congestion. The corporate tax rate would be highlighted by ministers as a key UK strength, although this is not entirely borne out by the summary statistic used here, but a rounded view of the British tax system suggests that it could be made considerably more growth friendly without sacrificing other objectives (Mirrlees et al., 2011).

An important aspect of innovation policy in the UK where the vast majority of new technology originates from elsewhere in the world (Eaton and Kortum, 1999) is to facilitate technology transfer. Indeed, a substantial part of the social returns to R & D comes through its 'second face' in this activity (Griffith et al., 2004). More generally, 'absorptive capacity' is central to the effective assimilation and diffusion of new technology. Absorptive capacity is underpinned by education, skills and economic competences including organizational effectiveness, appropriate business models and training. Table 3 suggests a mixed but generally rather underwhelming position with regard to absorptive capacity – relatively low R & D spending, mediocre management quality, poor adult skills but strength in intangible investment.

4. Is the 'Industrial Strategy' a Step Forward?

A White Paper, *Industrial Strategy: Building a Britain Fit for the Future*, was published in November 2017. This section considers the general direction of the policy proposals which it sets out in the light of the preceding discussion. The context is that the need to address the UK's productivity performance has become more urgent while Brexit has increased the scope for changes to supply-side policy. A significant part of the new industrial strategy comprises an attempt to improve horizontal industrial policies relating to innovation, skills and infrastructure, all of which were noted above as areas of concern, but there is also a clear intention to move towards greater use of selective industrial policies. Nevertheless, there is acknowledgement at various points in the paper that competition is good for productivity performance and also an explicit statement that protectionism is not desirable. However, there is no suggestion of new institutional arrangements to monitor and de-politicize industrial policy.

Industrial Strategy announces increased government support for R & D, including public funding of £12.5 billion by 2021/22, with a target of raising total R& D expenditure to 2.4 per cent of GDP by 2027. Measures include increasing the R & D tax credit for large businesses to 1 per cent and a 20 per

[4] The scores in Table 4 are based on a distance measure similar to that used by the World Bank in its *Doing Business* evaluations. Scores indicate what percentage of the difference between the best and worst performers in the peer group has been achieved. A score of zero means that the UK is the worst in class.

cent rise in funding for the Research Councils by 2019/20. There is evidence to support both these proposals (Guceri and Liu, 2017; Haskel and Wallis, 2013). There will also be sector deals in which the government supports innovation by committing to complementary public investments and an Industrial Strategy Challenge Fund which will offer grant support on a competitive basis for research proposals in areas which are deemed to be Grand Challenges. There is clearly a significant element of selectivity but this might be thought of as 'soft industrial policy' with the government as a facilitator seeking to address coordination failures rather than to 'pick winners' or promote 'national champions' (Warwick, 2013).

Action to address the UK's R & D shortfall is welcome but nevertheless two critical comments on this update of innovation policy seem appropriate. First, the emphasis of these interventions seems rather skewed towards the 'first face' rather than the 'second face' of R & D, i.e., towards invention rather than diffusion and absorptive capacity. Second, it is not fully clear how the priority areas were chosen nor how policies favouring particular sectors or research activities will be evaluated.

Industrial Strategy describes policy changes designed to augment labour-force skills. There are proposals radically to reform technical education and a strong focus on improving STEM skills with an announcement of an additional £406 million for maths, digital and technical education. A target of 3 million apprenticeships starts by 2020 is highlighted. Reforms to technical education are intended to provide more rigorous training with a notable feature being the introduction of T-levels. The design of the new policies responds to criticisms made in the Sainsbury and Wolf Reports and aims to provide qualifications which will be valued by the labour market. It is also welcome that attention is to be paid to improving absorptive capacity in terms of management skills partly through the 'Be the Business' programme.

Effective action to remedy the relative shortfall of intermediate skills in the UK is surely desirable and there is much to like about these proposals. Nevertheless, some caveats seem in order. First, a key priority which is not given sufficient emphasis is to ensure a much higher proportion of workers are proficient in English and Maths to GCSE A-C standard (Vignoles, 2016). Second, there is a danger of endorsing too narrow a focus on STEM skills especially in the context of the needs of important parts of the services sector (Allas, 2014).

Industrial Strategy notes that public investment in infrastructure will be increased. In particular, the National Productivity Investment Fund will be raised to £31 billion to be committed by 2022/23. Aside from R&D allocations to date have been mainly to housing and to transport. A more strategic approach to Investment in infrastructure will be taken considering a broad range of objectives rather than appraising projects on a narrow assessment of benefits and costs. Infrastructure, especially transport infrastructure, is seen as central to 'rebalancing' the economy and strengthening growth across the UK.

Increased expenditure on infrastructure is surely justified after many years when investment in public capital has been squeezed. The establishment of a National Infrastructure Commission as an advisory body to oversee policy in this area has also been a useful step forward. Recognition that wider economic impacts matter is an important improvement in project appraisal and rigorous methodologies to augment traditional cost-benefit analysis of transport schemes are already quite well developed (Laird and Venables, 2017). At the same time, there is clearly a danger of increased politicization of decisions and marginalization of quantification of costs and benefits. HS2, which is

seen as a great triumph by *Industrial Strategy,* is surely a (very expensive) case in point with an outlay of £56 billion gross. A benefit cost ratio of 2.3 including wider economic benefits is claimed but rests on a seriously flawed cost-benefit analysis such that the project may well not pass the usual value-for-money test (House of Lords, 2015) and compares unfavourably with a BCR of 7.0 for the Road Investment Strategy.[5] Moreover, the claim that this project will contribute significantly to regional rebalancing is not evidence-based but a matter of faith (Tomaney and Marques, 2013).

The most controversial component of the policy package in Industrial Strategy is likely to be its commitment to 'sector deals', a new vintage of selective industrial policy. Four are announced, namely, artificial intelligence, automotive sector, construction, and life sciences with several more being discussed including creative industries, industrial digitalization, and nuclear. The general idea is of strategic partnerships where various kinds of government support are committed in return for action plans with clear leadership on the part of the private sector to raise productivity.

It was noted earlier that in some circumstances there may be a market-failure justification for selective industrial policy. In the case of these sector deals, however, it is not clear what market failure is being addressed and the process by which they have emerged is far from transparent. A recent review of the life-sciences sector deal suggests that the rationale is incoherent and that too much money will be given to low return R & D in pharmaceuticals (Jones and Wilson, 2018). It is also depressing to see the nuclear industry once again being favoured so soon after the debacle of Hinkley Point which represents a major failure in 'picking winners' in energy policy (Helm, 2017; Thomas, 2016). There is no suggestion of a competition impact assessment although potentially there may be competition issues. It appears that new institutional arrangements for proper oversight of sector deals are not envisaged. These are worrying proposals which fall far short of best practice in the conduct of industrial policy and which suggest that the extra policy space that Brexit possibly provides may not be used well.

5. What Difference Does Brexit Make?

Inside the EU the UK still has control over horizontal industrial policies. 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). 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.

Selective industrial policy, however, is largely precluded by EU rules. EU membership entails quite strict regulation of state aid to industry. State aid is defined by the EU as an intervention by the state which gives the recipient an advantage on a selective basis that has distorted or may distort competition and which is likely to affect trade between member states. Such measures, which are prohibited, can take a variety of forms including grants, subsidies, loans, guarantees, and tax credits.

[5] A recent unpublished report for the Infrastructure and Projects Authority states the costs of HS2 could be as much as £90 billion and that successful delivery of the project is not possible (Plimmer and Parker, 2018). None of this would be a surprise to Flyvbjerg (2009) who catalogues the disastrous cost-benefit outcomes of large bespoke infrastructure projects.

These rules apply to all sectors. There is, however, a General Block Exemption for a range of measures which are deemed to address market failures with relatively slight implications for trade. These include aid for research and innovation, regional development, training, risk capital in SMEs etc. State aid has to be notified to and approved by the European Commission whose decisions are subject to scrutiny by the EU courts. The rationale is to underpin the efficiency of the Single Market but, at the same time, this represents an important constraint on political discretion in economic policymaking.

Under this regime, UK expenditure on state aid has been relatively low. In 2016, state aid was 0.35 per cent of GDP in the UK. Table 4 reports the main categories of expenditure and also notes spending on sectoral development. This was only 22 million euros which was about 0.3 per cent of the total. This follows a general pattern since the 1980s that selective industrial subsidies have been conspicuous by their absence.

Depending on the type of Brexit that is negotiated, the rules with regard to state aid might change very little or quite considerably. To a first approximation, if the UK remains inside the European Economic Area (EEA), the status quo would prevail, although with different enforcement mechanisms. If, on the other hand, our relationship with the EU is based just on WTO membership, then there will be much greater scope for selective industrial policy, as is reflected in the recent surge in 'murky protectionism' highlighted by Global Trade Alert (Evenett and Fritz, 2016). Obviously, it is quite likely that Brexit will be on the basis of a trade agreement with the EU, in which case the regulation of state aid will be an important aspect to be decided. It seems almost certain, however, that the EU would insist on the continuation of the equivalent of EEA rules.[6]

The situation with regard to competition policy is similar in most respects. UK and EU law and perfectly aligned and if the UK remains in the EEA under a soft Brexit nothing much would change. In any event, when Brexit takes place initially competition policy will stay the same and the 1998 Competition Act and the 2002 Enterprise Act and the CMA will remain. This implies that anti-competitive agreements and abuse of a dominant position will still be prohibited and that merger control will continue to be based on a 'substantial lessening of competition' test (Vickers, 2017). In the longer term, however, the UK will be able to reform competition policy and diverge from the EU in the event of trading on the basis of WTO rules.[7] In that case, an obvious possibility is that the UK might return to a 'public interest' approach to competition policy in which implications for competition are not the sole criteria and issues such as impacts on prospects of realising scale economies or international competitiveness of UK firms or impacts on regional balance assume relevance, as in the 1960s and 1970s (Wilks, 1999). Theory and experience suggest that supranational competition policy design is more pro-competition and less favourable to producer interests than that enacted at a national level (Guttierrez and Philippon, 2018) - which implies that hard Brexit could be expected to lead to divergence from the EU.

So, there is an interesting trade-off for a government wishing to take competition and/or industrial policy in an interventionist direction. This would require a hard Brexit. A hard Brexit implies higher trade costs and lower trade volumes than a soft Brexit and can be expected to have a higher cost, perhaps by a factor of 2 or 3 equating to 3 or 4 per cent of GDP every year, in terms of a lower level

[6] The guidelines for Brexit negotiations issued by the European Council on April 29, 2017 state that "any deep and special trade agreement with the UK 'must ensure a level playing field in terms of competition and state aid'" (EUCO XT 200034/17).

[7] But probably not if there is a trade agreement, see footnote 6.

of productivity in the long run (Ebell and Warren, 2016).[8] The realised benefits of a different supply-side policy have to exceed this figure to make it worthwhile.

It should also be noted that, if Brexit significantly reduces the level of potential GDP relative to the counterfactual of staying in, then there will be an adverse effect on UK public finances. A reduction of 0.6% in GDP would approximately cancel out the improvement from ending the net budgetary contribution to the EU. If hard (WTO) Brexit reduces GDP by 7.5% and soft (EEA) Brexit by 3.8%, the net adverse impact on net public sector borrowing is 4.8 and 2.3% of GDP, respectively (Emmerson et al., 2016). Thus, the fiscal implications of hard Brexit make the subsidies required by an interventionist policy stance more difficult to deliver.

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. Otherwise, ideally, control of state aid would be by an independent agency with safeguards against either political pressure or private-sector lobbying. The minimal requirements for such an agency to be effective are clear enough from previous experience (Banks, 2015). Its remit should be to examine costs and benefits in terms of economy-wide effects on the basis of a transparent evidence-based process whose results are in the public domain both on an ex-ante basis and also through ex-post evaluation of policy interventions.[9] Ideally, the agency's approval should be required for state aid but this design may be infeasible given the current political climate. A second best would be for the agency's recommendations to be public and that government is required to explain any decision to over-rule them. Similarly, if a public-interest approach to competition policy is re-instated, the criteria need to be explicit, the assessment should be made transparently by an independent body and ministerial discretion should be minimal.

6. What are the Lessons from the 1970s?

The case for selective industrial policies has always been controversial. The modern literature highlights three pro-growth arguments in their favour, namely: infant-industry related capital market failures, agglomeration externalities, and rent-switching under imperfect competition (Crafts, 2010). However, it has been widely remarked that, in practice, support is disproportionately given to declining industries and some economists argue that 'government failure' is an inherent aspect of the political economy of industrial policy (Baldwin and Robert-Nicoud, 2007; Krueger, 1990). An important issue is whether industrial policy reduces competition. Ideally, industrial policy should be used in a competition-friendly way and not through aiming to create 'national champions' (Aghion et al., 2015).

The 1970s were an era when selective industrial policy was in vogue and when competition policy was framed in terms of interventions based on a public interest criterion. The decade also saw the UK

[8] This reflects the conventional wisdom that the extent of economic integration affects levels rather than growth rates of potential output (Badinger, 2005). If Brexit does affect the rate of productivity growth, as is argued by Erken et al. (2018), then the benefits of interventionist policies would need to be much larger; enough according to these authors to more than offset a fall of 0.8 percentage points per year in the rate of real GDP growth.

[9] The contrast with the way the secret Nissan deal was handled is stark.

enter the EEC in 1973, a policy change which significantly increased competition in product markets. Lessons can be taken from each of these three features of the period.

There was a very clear tendency for selective industrial subsidies to be skewed towards relatively few industries, notably aircraft, shipbuilding and, latterly, motor vehicles (Table 5). The high expenditure on shipbuilding is striking since this was clearly an industry in which the UK no longer had a comparative advantage in the face of Asian competition. More generally, there is 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), in the pattern of tariff protection across sectors (Greenaway and Milner, 1994), and also in the nationalizations of the 1970s where the prevalence of very poor rates of return reflected a lack of political will to eliminate productive inefficiency (Vickers and Yarrow, 1988).

Moreover, policies to subsidize British high-technology industries with a view to increasing world market share in sectors where supernormal profits might be obtained 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).[10] A combination of subsidies to American producers linked to defence spending and the relatively small size of the British market undermined these attempts at rent-switching. Attempts to promote 'national champions' resulted in expensive failures.

Two examples of selective industrial policy which are sometimes claimed to have been successful are pharmaceuticals and Rolls-Royce but in neither case is the evidence very persuasive. A major impact of government on pharmaceuticals may have come through the demand side and the drug-purchasing policies of the NHS. The Pharmaceutical Price Regulation Scheme (PPRS) has shaped the incentives facing pharmaceutical companies. It is suggested by some that over time this acted as a successful industrial policy which provided a distinctive form of rate of return regulation which could be manipulated by the Department of Health to encourage R and D in the UK (Thomas, 1994). Moreover, given that the industry has earned significant rents on its exports (Garau and Sussex, 2007) this might also be seen as an example of success with strategic trade policy. Other writers are sceptical of this view noting that the UK is a small part of the world market and arguing the quality of the science base is by far the most important factor in location decisions for R & D in pharmaceuticals (NERA, 2007). From this perspective, the most important aspect of government support has been the provision of elite research universities with world-class departments in the key sciences together with public funding for research through the Medical Research Council. This was the view taken by OFT (2007) in its report which argued for the end of the PPRS.

Rolls-Royce was nationalized in 1971 and successfully privatized in 1987. In one way, this can be seen as a success for selective industrial policy which saved a company that had made a disastrous error in signing a fixed price contract to supply the RB-211 engine to Lockheed. This bankrupted it when development and production costs rose far above initial estimates. Eventually, the sale of Rolls-Royce realized £1.36 bn. for the government compared with net subsidies of £0.83 bn. over the previous 20 years and Rolls-Royce went on to become the highly-profitable, second largest producer of civil-aircraft engines in the world (Lazonick and Prencipe, 2005). It should be noted, however, that it was

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

only as the prospect of privatization loomed in the mid-1980s that, under new management, the company developed a viable business strategy and worked out a cost-effective way of upgrading the RB-211 for the big-engine market.

Competition policy was inaugurated with the Monopolies and Restrictive Practices Commission in 1948, evolved through the Restrictive Practices Act (1956) and the Monopolies and Mergers Commission (1965), but was mostly ineffective (Clarke et al., 1998). Few investigations took place, very few mergers were prevented, the process was politicized, a variety of 'public-interest' defences for anti-competitive activities were allowed, and there were no penalties for bad behaviour. Not surprisingly, there is evidence that the British economy was characterized by substantial market power in this period (Crafts, 2012).

The difference-in-differences analysis in Symeonidis (2008) showed that when cartels were abandoned following the 1956 Restrictive Practices Act labour productivity growth in formerly-colluding sectors rose by 1.8 percentage points per year in 1964-73 compared with 1954-63. This finding suggests that a more vigorous competition policy would have improved productivity performance. This point is buttressed by findings that in the 1970s and 1980s greater competition increased innovation (Blundell et al., 1999) and raised productivity growth significantly in companies where there was no dominant external shareholder (Nickell et al., 1997). Both these results underline the role of weak competition in permitting principal-agent problems to undermine productivity performance.

Control of mergers was the aspect of competition policy which was notably undermined by the public interest test. This was not well specified but encouraged consideration of whatever was deemed relevant. As was confirmed by the Fair Trading Act of 1973, 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. Yet, 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). This was epitomized by the Industrial Reorganisation Corporation (1966-1971) which had a brief to accelerate restructuring of UK industry; none of the mergers that it promoted was referred to the MMC although many qualified in terms of their implications for market share.

Fairburn (1989) reviewed the overall record and noted that only 25 of 326 mergers which created a market share greater than 25 per cent were referred while at least half of those creating a market share of over 80 per cent were not referred. Only about 1.6 per cent of qualifying cases were either blocked or abandoned by the promoters. Yet, the ex-post evidence was that, on average, mergers did not generate significant improvements in productivity performance (Cowling et al., 1980; Kumar, 1984; Meeks, 1977). A 'lessening of competition' test would surely have been preferable.

Accession to the EEC made an important contribution to increasing competition in UK product markets, as proponents of entry had predicted (Williamson, 1971). It was an integral part of the Thatcher reforms as was underlined in the early 1980s by her enthusiastic support for the European Single Market. 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 must have been favourable dynamic impacts on productivity performance associated with the reduction in trade costs. This would be consistent with the finding of a paper using synthetic control group methodology which found that ten years after accession UK GDP was raised by 8.6 per cent (Campos et al., 2014).

The key message from the 1970s' experience is that using the policy freedom provided by a hard Brexit to return to heavy reliance on selective industrial policy and abandoning a lessening of competition test as the basis of merger control would be a serious error. The experience of that decade is consistent with the government-failure arguments made by Baldwin and Robert-Nicoud (2007) and supports the conclusion of Aghion et al. (2015) that competition policy should not be diluted by trying to promote national-champion firms.

7. Conclusions

The 'post-Thatcher consensus' on industrial policy has ended but the future direction of travel is not yet decided. Weak productivity performance gives some urgency to re-consideration of supply-side policy for growth while Brexit potentially opens the door to a return to the interventionist policy stance of the 1970s.

There are good reasons to improve horizontal industrial policies notably in the areas of education and skills, innovation and infrastructure. The proposals in the White Paper on industrial strategy represent some progress with a new approach to technical education, increased funding for R&D, and additional infrastructure investment. A greater emphasis on addressing issues of absorptive capacity would be welcome as the policies evolve. EU membership has not been the reason for failings in horizontal policies so Brexit does not really change anything in this respect.

Selective industrial policy is back in fashion and the scope for it would be substantially increased by a hard Brexit which would mean leaving the EU's state aid and competition policies. Some politicians may see this as a good reason to reject a soft Brexit. In the past, selective industrial policies have generally not been successful in terms of promoting better productivity performance and the use of public interest criteria in competition policy had unfortunate consequences. There are good reasons to keep the current competition policy regime and, in the event of a hard Brexit, it would be important to develop a new institutional architecture to mitigate government failure in industrial policy.

As HS2 and Hinkley Point remind us, the lessons of the 1970s should not be forgotten.

References

Aghion, P., Cai, J., Dewatripont, M., Du, L., Harrison, A. and Legros, P. (2015), "Industrial Policy and Competition", *American Economic Journal: Macroeconomics*, 7(4), 1-32.

Alemani, E., Klein, C., Koske, I., Vitale, C. and Wanner, I. (2013), "New Indicators of Competition Law and Policy in 2013 for OECD and non-OECD Countries", OECD Economics Department Working Paper No. 1104.

Allas, T. (2014), "Insights from International Benchmarking of the UK Science and Innovation System", BIS Analysis Paper No. 03.

Badinger, H. (2005), "Growth Effects of Economic Integration: Evidence from the EU Member States", *Review of World Economics*, 141, 50-78.

Baldwin, R. E. and Robert-Nicoud, F. (2007), "Entry and Asymmetric Lobbying: Why Governments Pick Losers", *Journal of the European Economic Association*, 5, 1064-1093.

Banks, G. (2015), "Institutions to Promote Pro-Productivity Policies: Logic and Lessons", OECD Productivity Working Paper No.1.

Bloom, N., Sadun, R. and van Reenen, J. (2017), "Management as a Technology", London School of Economics Centre for Economic Performance Discussion Paper No. 1433.

Blundell, R., Griffith, R., and van Reenen, J. (1999), "Market Share, Market Value, and Innovation in a Panel of British Manufacturing Firms", *Review of Economic Studies*, 66, 529-554.

Campos, N. F., Coricelli, F. and Moretti, L. (2014), "Economic Growth and Political Integration: Estimating the Benefits from Membership of the European Union using the Synthetic Counterfactuals Method", CEPR Discussion Paper No. 9968.

Caves, R. E. (1987), "Industrial Policy and Trade Policy: the Connections", in H. Kierzkowski (ed.), *Protection and Competition in International Trade: Essays in Honour of W. M. Corden*. Oxford: Blackwell.

Clarke, R., Davies, S. and Driffield, N. (1998), *Monopoly Policy in the UK: Assessing the Evidence*. Cheltenham: Edward Elgar.

Cm. 9528 (2017), *Industrial Strategy: Building a Britain for the Future*.

Corrado, C., Haskel, J., Jona-Lasinio, C. and Iommi, M. (2018), "Intangible Investment in the EU and US before and since the Great Recession and Its Contribution to Productivity Growth", *Journal of Infrastructure, Policy and Development*", 2, 11-36.

Cowan, R. (1990), "Nuclear Power Reactors: a Study in Technological Lock-In", *Journal of Economic History*, 50, 541-567.

Cowling, K., Stoneman, P. Cubbin, J., Cable, J., Hall, G., Domberger, S. and Dutton, P. (1980), *Mergers and Economic Performance*. Cambridge: Cambridge University Press.

Crafts, N. (2010), "Overview and Policy Implications", in *BIS Economics Papers No.* 6, 1-19. London: HMSO.

Crafts, N. (2012), "British Relative Economic Decline Revisited: the Role of Competition", *Explorations in Economic History*, 49, 17-29.

Crafts, N. (2015), 'UK Economic Growth since 2010: Is It as Bad as It Seems?', *National Institute Economic Review*, **231**, R17-R29.

Dhingra, S., Ottoviano, G., Sampson, T. and Van Reenen, J. (2016), "The Impact of Brexit on Foreign Investment in the UK", CEP Brexit Analysis No. 3, London School of Economics.

Eaton, J. and Kortum, S. (1999), "International Technology Diffusion: Theory and Measurement", *International Economic Review*, 40, 537-570.

Ebell, M. and Warren, J. (2016), "The Long-Term Economic Impact of Leaving the EU", *National Institute Economic Review*, 236, 121-138.

Emmerson, C., Johnson, P., Mitchell, I. and Phillips, D. (2016), "Brexit and the UK's Public Finances", IFS Report No. 116.

Erken, H., Hayat, R., Prins, C., Heijmerikx, M. and de Vreede, I. (2018), "Measuring the Permanent Costs of Brexit", *National Institute Economic Review*, 244, R46-R55.

European Commission (2017), *Transport: European Semester Thematic Factsheet*.

Evenett, S. J. and Fritz, J. (2016), *FDI Recovers? The 20th Global Trade Alert Report*. London: CEPR Press.

Fairburn, J. A. (1989), "The Evolution of Merger Policy in Britain", in J. A. Fairburn and J. A. Kay (eds.), *Mergers and Merger Policy*. Oxford: Oxford University Press.

Flyvbjerg, B. (2009), "Survival of the Unfittest: Why the Worst in Infrastructure Gets Built – and What We Can Do about It", *Oxford Review of Economic Policy*, 25, 344-367.

Garau, M. and Sussex, J. (2007), *Estimating Pharmaceutical Companies' Value to the National Economy*. London: Office of Health Economics.

Gardner, N. (1976), "The Economics of Launching Aid", in A. Whiting (ed.), *The Economics of Industrial Subsidies*. London: HMSO.

Gasiorek, M., Smith, A. and Venables, A. J. (2002), "The Accession of the UK to the EC: a Welfare Analysis", *Journal of Common Market Studies*, 40, 425-447.

Greenaway, D. and Milner, C. (1994), "Determinants of the Inter-Industry Structure of Protection in the UK", *Oxford Bulletin of Economics and Statistics*, 56, 399-419.

Griffith, R., Redding, S. and van Reenen, J. (2004), "Mapping the Two Faces of R & D: Productivity Growth in a Panel of OECD Industries", *Review of Economics and Statistics*, 86, 883-895.

Guceri, I. and Liu, L. (2017), "Effectiveness of Fiscal Incentives for R & D: Quasi-Experimental Evidence", IMF Working Paper No. 17/84.

Guttierrez, G. and Phillipon, T. (2018), "How EU Markets Became More Competitive than US Markets: a Study of Institutional Drift", NBER Working Paper No. 24700.

Haskel, J. and Wallis, G. (2013), "Public Support for Innovation, Intangible Investment and Productivity Growth in the UK Market Sector", *Economics Letters*, 119, pp. 195-198.

Helm, D. (2017), *Cost of Energy Review*.

Henderson, P. D. (1977), "Two British Errors: Their Probable Size and Some Possible Lessons", *Oxford Economic Papers*, 29, 159-205.

Hendry, J. (1989), *Innovating for Failure: Government Policy and the Early British Computer Industry*, London, MIT Press.

House of Lords Economic Affairs Committee (2015), *The Economics of High Speed 2*. HL Paper 134.

Independent Commission on Banking (2011), *Final Report*. London.

Jones, R. and Wilsdon, J. (2018), *The Biomedical Bubble*. London: NESTA.

Krueger, A. (1990), "Asymmetries in Policy between Exportables and Import-Competing Goods", in R. Jones and A. Krueger (eds.), *The Political Economy of International Trade*. Oxford: Blackwell.

Kumar, M. S. (1984), *Growth, Acquisition and Investment*. Cambridge: Cambridge University Press.

Laird, J. J. and Venables, A. J. (2017), "Transport Investment and Economic Performance: a Framework for Project Appraisal", *Transport Policy*, 56, 1-11.

Lazonick, W. and Prencipe, A. (2005), "Dynamic Capabilities and Sustained Innovation: Strategic Control and Financial Commitment at Rolls-Royce plc", *Industrial and Corporate Change*, 14, 501-542.

Meeks, G. (1977), *Disappointing Marriage: a Study of the Gains from Merger*. Cambridge: Cambridge University Press.

Miles, D., Yang, J. and Marcheggiano,G. (2013), "Optimal Bank Capital", *Economic Journal*, 123, 1-37.

Mirrlees, J., Adam, S., Besley, T., Blundell, R., Bond, S., Chote, R., Gammie, M., Johnson, P., Myles, G. and Poterba, J. (2011), "The Mirrlees Review: Conclusions and Recommendations for Reform", *Fiscal Studies*, 32, 331-359.

Morris, D. J. and Stout, D. (1985), "Industrial Policy", in D. J. Morris (ed.), *The Economic System in the UK*. Oxford: Oxford University Press.

Nickell, S.J., Nicolitsas, D., and Dryden, N. (1997), "What Makes Firms Perform Well?", *European Economic Review*, 41, 783-796.

OECD (2007), *Tax Effects on Foreign Direct Investment*.

OEC D (2014a), *Product Market Regulation Statistics*.

OECD (2014b), *Employment Protection Statistics*.

OECD (2016a), *PISA 2015 Results*.

OECD (2016b), *Skills Matter*.

OECD (2018), *Main, Science and Technology Indicators*.

Office for National Statistics (2017), *An International Comparison of Gross Fixed Capital Formation*.

Office for National Statistics (2018), *Labour Productivity UK: October to December 2017*.

Office of Fair Trading (2007), *The Pharmaceutical Price Regulation Scheme*. London.

Oulton, N. and Sebastia-Barriel, M. (2017), "Effects of Financial Crises on Productivity, Capital and Employment", *Review of Income and Wealth*, 63, S90-S112.

Oxford University Centre for Business Taxation (2017), *CBT Database*.

Plimmer, G. and Parker, G. (2018), "HS2 'Fundamentally Flawed' Warns Leaked Report", *Financial Times*, July 27.

Riley, R., Rincon-Aznar, A. and Samek, L. (2018), "Below the Aggregate: a Detailed Account of the UK Productivity Puzzle", ESCOE Discussion Paper No. 2018-06.

Schneider, P. (2018), "Decomposing Differences in Productivity Distributions", Bank of England Staff Working Paper No. 740.

Silberston, A. (1981), "Industrial Policies in Britain, 1960-1980", in C. Carter (ed.), *Industrial Policy and Innovation*. London: Heinemann.

Symeonidis, G. (2008), "The Effects of Competition on Wages and Productivity: Evidence from the United Kingdom", *Review of Economics and Statistics*, 90, 134-146.

The Conference Board (2017), *Total Economy Database*.
http://www.conference-board.org/data/economy/database/

Thomas, L.G. (1994), "Implicit Industrial Policy: the Triumph of Britain and the Failure of France in Global Pharmaceuticals", *Industrial and Corporate Change*, 3, 451-489.

Thomas, S., "The Hinkley Point Decision: an Analysis of the Policy Process", *Energy Policy*, 96, 421-431.

Tomaney, J. and Marques, P. (2013), "Evidence, Policy and the Politics of Regional Development: the Case of High-Speed Rail in the United Kingdom", *Environment and Planning C*, 31, 414-427.

Van Reenen, J. (2013), "Productivity under the 1997-2010 Labour Government", *Oxford Review of Economic Policy*, 29, 113-141.

Vickers, J. (2017), “Consequences of Brexit for Competition Law and Policy”, *Oxford Review of Economic Policy*, 33, S70-S78.

Vickers, J. and Yarrow, G. (1988), *Privatization: an Economic Analysis*. London: MIT Press.

Vignoles, A. (2016), “What Is the Economic Value of Literacy and Numeracy?”, *IZA World of Labor*, January.

Walshe, J. G. (1991), “Industrial Organization and Competition Policy”, in N. F. R. Crafts and N. W. C. Woodward (eds.), *The British Economy since 1945*. Oxford: Clarendon Press.

Warwick, K. (2013), “Beyond Industrial Policy”, OECD STI Policy Paper No. 2.

Wilks, S. (1999), *In the Public Interest: Competition Policy and the Monopolies and Mergers Commission*. Manchester University Press: Manchester.

Williamson, J. (1971), “Trade and Economic Growth”, in J. Pinder (ed.), *The Economics of Europe*. London: Charles Knight.

World Bank (2016), *Logistic Performance Index*.

World Bank (2018), *Doing Business*.

Wren, C. (1996a), "Grant-Equivalent Expenditure on Industrial Subsidies in the Postwar United Kingdom", *Oxford Bulletin of Economics and Statistics*, 58, 317-353.

Wren, C. (1996b), *Industrial Subsidies: the UK Experience*. London: Macmillan.

Table 1. Rates of Growth of Real GDP/Person and Real GDP/Hour Worked (% per year)

	Y/P	*Y/HW*
1950-1973		
France	4.02	5.29
Germany	5.00	5.91
UK	2.42	2.81
USA	2.45	2.57
1973-1995		
France	1.65	2.67
Germany	1.76	2.86
UK	1.76	2.40
USA	1.81	1.27
1995-2007		
France	1.70	1.77
Germany	1.54	1.70
UK	2.41	2.09
USA	2.18	2.30
2007-2016		
France	0.06	0.66
Germany	0.84	0.68
UK	0.19	0.09
USA	0.46	0.85

Note: Germany is West Germany prior to 1995.

Source: The Conference Board (2017)

Table 2. Contributions to Labour Productivity Growth: 2008-2015 vs. 1999-2007 (% per year)

	Contribution	Share of Total Decline (%)	Change in Labour Productivity Growth
Manufacturing	-0.8	17.0	-4.2
Financial & Insurance	-0.6	10.2	-5.6
Information & Communication	-0.5	8.7	-5.5
Rest of Economy	-0.9	63.1	-1.4
Total	-2.8	100.0	-2.8

Note: contribution is change in labour productivity growth multiplied by output share in market sector.

Source: Riley et al. (2018, Table 3.1)

Table 3. Indicators of Competitiveness

	DTF Score	***Performance Level***
Logistics Infrastructure (2016)	82.96	4.21 (1-5 scale)
Competition Law and Policy (2013)	82.85	0.123 (0-6 scale)
Product Market Regulation (2013)	80.49	1.08 (0-6 scale)
Intangible Investment (average 2000-13)	79.10	9.0 %GDP
Ease of Doing Business (2017)	76.63	7th/190 countries
Employment Protection (2013)	71.23	1.10 (0-6 scale)
Corporate Tax Rate (2017)	69.49	18.5% effective average tax rate
PISA Maths and Science Score (2015)	57.14	500.5 (500 OECD average)
Management Quality (average 2004-14)	53.23	3.033 (1-5 scale)
Adult Literacy and Numeracy Skills (2013)	42.40	267.2 (267 OECD average)
R & D (2016)	30.97	1.69 %GDP
Tangible Investment (average 1997-2017)	0.00	16.7 %GDP
Annual Hours in Congestion (2015)	0.00	41.5 hours/vehicle

Notes:

'Distance to frontier' (DTF) is calculated on a similar basis to World Bank (2018), namely, (Worst – x)/(Worst – Best) but on the basis of performance only in 'old OECD' countries.

'Competition Law and Policy' is an unweighted average of three components: scope of action, policy on anti-competitive behaviour, and probity of investigation.

Sources (in descending order):

World Bank (2016)
Alemani et al. (2013)
OECD (2014a)
Corrado et al. (2018)
World Bank (2018)
OECD (2014b)
Oxford University Centre for Business Taxation (2017)
OECD (2016a)
Bloom et al. (2017)
OECD (2016b)
OECD (2018)
ONS (2017)
European Commission (2017)

Table 4. UK Expenditure on State Aid, 2016 (million euros)

Environmental Protection and Energy Saving	3256.9
R & D and Innovation	2452.4
SME	2029.1
Regional Development	360.4
Sectoral Development	22.0
Other	180.8
Total	8301.6

Note: total excludes agriculture and transport.

Source: EU State Aid Scoreboard 2017. Brussels: European Commission, 2018.

Table 5. Grant-Equivalent Expenditure on Sectoral and Firm-Specific Industrial Subsidies (£mn. 1980 prices)

	Sectoral Schemes	*Industrial Expansion*	*Industrial Support*	*Civil Aircraft*	*Shipbuilding*	*Other*	*Total*
1964/5	14			62			76
1965/6	10			93	22		125
1966/7	1	1		144	25		171
1967/8		7		213	30		250
1968/9		48		272	56		376
1969/70		35		292	143	1	471
1970/1		33		269	124	8	434
1971/2		17		400	47	18	482
1972/3		32		345	102	25	504
1973/4		25	14	235	108	58	440
1974/5	5	21	7	276	232	17	558
1975/6	7	17	2	211	125	4	366
1976/7	18		33	67	128	1	247
1977/8	41		455	37	153	1	687
1978/9	70		273	83	84	1	511
1979/80	72		227	22	105	1	427
1980/1	65		307	7	108	1	488
1981/2	31		437	1	118	1	588
1982/3	30		291	7	78	1	407

Note: 'industrial support' excludes aircraft and shipbuilding and was mainly given to the motor industry.

Source: Wren (1996a, Table 3)