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The (Potential) Impact of Brexit on UK SMEs:
Regional Evidence and Public Policy Implications

Abstract

This paper examines the potential impact of Brexit on UK small and medium-sized enterprises (SMEs). Utilising a major longitudinal survey of UK SMEs, our analysis suggests that Brexit related concerns are escalating. Larger, export and import oriented SMEs are most concerned, as are those located in major urban and peripheral locations. Among SMEs with growth-related plans, many firms are scaling back on capital investment, innovation and (especially) exports. An appraisal of existing policy frameworks suggests that the devolved administrations seem better equipped to enact interventions in order to alleviate any negative effects arising from Brexit.

Keywords: Brexit, EU, Entrepreneurship, SMEs, Uncertainty, Public Policy

JEL 025 038 R11 R58

1. Introduction

This paper adopts a regional perspective to examine the potential impact and policy implications for UK small and medium-sized enterprises (SMEs) of the UK's decision to leave the European Union (EU). The June 2016 vote to leave the EU (henceforth Brexit) was an unprecedented political event with potentially seismic economic and societal consequences (Bailey and Budd, 2017). Owing to its highly politicised, contested and indeterminate nature (Jessop, 2017; Lee et al, 2018), Brexit has the potential to dramatically re-write the rules governing how UK firms conduct business both domestically and internationally. Indeed, the majority of research suggests Brexit will have substantial negative consequences for the UK economy (Bisciari, 2019; Crowley et al, 2019), especially peripheral geographic regions (Los et al, 2017a; Cambridge Econometrics, 2018; Chen et al, 2018; Pollard, 2018).ⁱ

Prior research regarding the likely impact of Brexit has often been rather speculative (Cumming and Zahra, 2016), sectorally-based (Bailey and De Propriis, 2017) and focused on larger foreign-owned firms (Dhingra et al, 2017). In contrast, the impact of Brexit for entrepreneurship and small business has been largely overlooked within the academic literature.ⁱⁱ This is surprising given that SMEs represent a core constitutive part of the UK economy and are crucial for job creation, innovation and productivity growth (Nesta, 2017). Indeed, the strategic importance of SMEs to the UK economy is underlined by the plethora of industrial and regional policy support mechanisms applied at both UK and EU levels (McCann and Ortega-Argilés, 2016; Bailey and Tomlinson, 2017).

This paper provides important and novel survey-based evidence regarding the potential impact of Brexit on UK SMEs from a regional perspective and discusses the policy issues arising therein.ⁱⁱⁱ Specifically, we investigate how concerns across UK SMEs regarding Brexit vary by firm size, geographic location, industry sector and firm orientation. We utilise the Longitudinal Small Business Survey (LSBS) compiled by the UK Department for Business Energy and Industrial Strategy (BEIS), one of the largest attitudinal surveys of SMEs undertaken in the UK. In the immediate aftermath of the EU referendum in 2016, a number of specific questions were added to this survey in order to gauge the nature and potential impact of Brexit on UK SMEs. These included specific questions asking whether entrepreneurs and small business managers perceive exiting the EU as a major obstacle to the success of their business.

The results of our descriptive analysis suggest that larger, internationally oriented and knowledge-based SMEs are particularly concerned about Brexit. SMEs located in key urban and peripheral geographic areas are the most concerned regarding the impact of Brexit. Moreover, Brexit-induced concerns have amplified considerably over the sample period (2016-2017). SMEs with growth-related plans affected by Brexit are scaling down their future plans of capital investment, innovation and exports. An analysis of existing policy frameworks and support mechanisms suggests that post-Brexit, SMEs are likely to face increased challenges related to: access to EU markets; access to finance (via EU regional and industrial funding schemes); access to raw materials and labour inputs; and increased regulatory barriers. Consequently, we suggest that UK public policy toward SMEs requires substantial recalibration in order to ensure that SMEs are not affected adversely by Brexit.

The remainder of the paper is structured as follows. Section 2 describes the data sources and results of a descriptive analysis. In section 3, we examine the implications of our results for four broad areas of public policy. Section 4 provides a summary and highlights key policy recommendations.

2. Empirical Evidence: Unpacking the (Potential) Impact of Brexit on UK SMEs

SMEs are a core part of the UK economy, accounting for 99% of all firms and 60% of total private sector employment (Nesta, 2017). Prior evidence suggests that SMEs (especially those with high levels of investment irreversibility) are disproportionately impacted by uncertainty given their limited resources and lower resilience to unexpected shocks (Ghosal and Ye, 2015). Such uncertainty has been shown to play a key role in shaping the decision-making processes of firms (Baker et al, 2016). Brexit therefore is likely to be highly salient given its potential to increase uncertainty surrounding the trading conditions facing SMEs.

Due to their financial and human resource constraints, it can be difficult for SMEs to undertake the types of contingency planning required to adequately deal with unforeseen events such as Brexit. For example, the Confederation of British Industry noted that fewer smaller firms have undertaken scenario planning for Brexit relative to larger corporate counterparts.^{iv} Moreover, the extent to which SMEs are impacted by Brexit is likely to depend not only on the final terms of any resultant deal between the UK and the rest of the EU, but

also their geographic location, industry sector and business orientation (especially in terms of their levels of internationalisation).

The data utilised in the present study is the LSBS produced by BEIS. Our data covers a total of 15,867 responses from UK small business owners and managers that were surveyed by BMG Research Ltd via computer assisted telephone interviews in 2016 (number of SMEs = 9,248) and 2017 (number of SMEs = 6,619). One of the innovative aspects of the 2016 version of the LSBS was the introduction of a specific question asking whether the UK exit from the EU is perceived by entrepreneurs and small business managers as a *major obstacle to the success of your business in general*. This question was also included in the 2017 version of the survey along with additional Brexit-related questions.

In the remainder of this section, we use the responses to the LSBS in order to assess the type of SMEs that perceive Brexit as a major obstacle to business success. Specifically, we assess the views of SMEs by region, industry sector and firm-specific characteristics. England, Northern Ireland, Scotland and Wales are used as the primary geographic unit of analysis.^v We also take advantage of the granular nature of the data and use postcode level data to examine the views of SMEs located in peripheral and non-peripheral areas.^{vi} The views of SMEs in urban and rural areas are also examined.

The extent to which SMEs perceive Brexit as a major obstacle to business success is summarized in Table 1. In order to conserve space, supplementary data referenced in this section are available in an online Appendix. We focus our discussion on the most recent data for 2017. Year-on-year changes between 2016 and 2017 are highlighted in Table 1. Notably, concerns regarding Brexit have increased (and in some cases markedly) between 2016 and 2017.^{vii}

As shown in Table 1, 23.1% (almost a quarter of SMEs) now view Brexit as a major obstacle to business success, a significant increase from 16% in 2016. Extrapolating this figure to the overall population of SMEs, suggests that over 1.25 million SMEs have significant concerns regarding the potential impact of Brexit on business success.^{viii} Moreover, and discussed in further detail below, the extent to which SMEs perceive Brexit as a major obstacle to business success varies markedly by location, industry sector and business orientation.

[Insert Table 1 about here]

Location

There are notable spatial variations across SMEs regarding whether Brexit is perceived as a major obstacle to the success of the business. Levels of concern in Scotland (26.1%) and Northern Ireland (23.6%) are slightly above the UK average. Table 1 shows that concerns across SMEs regarding Brexit increased considerably in England and Wales between 2016 and 2017, but declined slightly in Northern Ireland. However, just under half of all medium-sized enterprises in Northern Ireland (42.9%) view Brexit as a major obstacle to business success. Corresponding figures for medium-sized enterprises located in England, Scotland and Wales are 35.7%, 32.9% and 24.4% respectively. In the specific case of Northern Ireland, the views expressed by SMEs are likely to be correlated with the highly embedded nature of Northern Ireland within the wider Irish economy, and the ongoing concerns regarding arrangements for the border between Northern Ireland and Ireland post-Brexit.

There are also discernible differences between peripheral and non-peripheral geographic areas. The proportion of SMEs expressing concerns in peripheral areas is higher (25.5%) than counterparts located in non-peripheral areas (22.8%). This holds across almost all firm size bands and industries (see Table A1). SMEs operating in production and construction industries in peripheral areas are much more concerned (29.3%) about Brexit than counterparts located in non-peripheral regions (16.6%). This is unsurprising given the heavy reliance on EU nationals in the construction and food manufacturing industries (Prelec, 2018).

Urban SMEs (23.7%) are more likely to perceive Brexit as a major obstacle to business success than counterparts located in rural areas (21.8%). Urban SMEs (such as those located in London and other major cities) are more likely to be knowledge-based with a greater international exposure to markets for human capital, which may partly explain this distinction.^{ix} SMEs operating in service industries located in urban areas appear also much more concerned than counterparts located in non-urban areas (See Table A1).

Sectoral Specialisation

Prior research strongly suggests certain industries (such as professional services and food production) are more likely to be adversely affected than other sectors by Brexit (Los et al, 2017b; Prelec, 2018). Our analysis similarly reveals (see Table A1 in the online appendix) that there are clear differences between SMEs across broad industry classifications. SMEs operating in the distribution and business services sectors express greater overall concerns regarding the potential impact of Brexit. Other more locally oriented service sector SMEs in the arts, health and education express less concern regarding Brexit (see Table A1).

There are also strong regional variations across industry sectors. For example, around one-third of SMEs in the production and construction industries in Scotland view Brexit as a major obstacle compared to a mere 17.6% in England. Clearly, the underlying drivers of differing perceptions across SMEs are a function of how exposed each industry is to EU markets for goods, services and human capital.

Firm-level Characteristics

As shown in Table 1, there is a clear positive correlation between firm size and concerns regarding Brexit. While on average around a quarter of all SMEs (23.1%) view Brexit as a major obstacle to business success, this figure is more than a third for medium-sized SMEs (35.3%). Conversely, SMEs with zero employees (22%) and micro SMEs employing less than 10 employees (26.2%) view Brexit less negatively. These observed differences across the firm size distribution are likely to stem from differences in international exposure to output and input markets (in terms of exports and imports and labour). Exporters and importers relative to non-exporter and non-importer counterparts (discussed in further detail below) are more concerned about Brexit by a factor of three to one (see Table 1). This is very much an expected finding given the possible disruptions to trade resulting from Brexit. The increase in Brexit related concerns across the entire firm size distribution accords with other published survey evidence (RSM Brexit Monitor, 2018).

It is abundantly clear from the analysis thus far that certain types of SMEs are more concerned regarding the impact of Brexit than others. As noted in Table 1, innovators are almost twice as likely (31.5%) to view Brexit as a major obstacle to business success compared to non-innovators (18.9%).^x Concerns across innovative medium-sized ventures are even more pronounced with almost 37.4% viewing Brexit as a major concern. It is also noteworthy

that growth-oriented SMEs (26.7%) are less sanguine regarding Brexit than non-growth-oriented SMEs (20.2%).^{xi} This suggests that the SMEs often deemed most important for driving increases in productivity, such as innovative and growth-oriented SMEs (Schneider and Veugelers, 2010) are those with very significant concerns regarding the impact of Brexit.

Export and Import Orientation

The extent to which SMEs perceive Brexit as an obstacle to business success is likely to depend on their level of internationalisation and openness to trade via export and import activity. Prior surveys examining the likely impact of Brexit have focused on exporters, while importers have been somewhat overlooked. However, approximately two-thirds of exporters are also importers, so the two groups are not mutually exclusive (FSB, 2017).

As show in Table 1, almost double the number of exporting SMEs (40.4%) view Brexit as a major obstacle to business success compared to non-exporting counterparts (20.3%). This corroborates other recent survey evidence (FSB, 2017). The concerns of exporters are more pronounced for those SMEs that export predominantly to the EU (46.7%), but also for those who export to non-EU countries (38.1%). The fact that nearly half of UK exporters to the EU see Brexit as a major concern suggests that possible changes to the regulatory trading environment appear particularly worrisome for both export-oriented SMEs, and for those who conduct most of their trade with counterparts located in non-EU countries. These concerns are also evident for SMEs that import from EU and non-EU countries. As shown in Table 1, 43.5% of SMEs that import view Brexit as a major concern, an increase from the 32.7% reported in 2016. Levels of concern across SMEs that import from EU and non-EU countries are broadly similar, and have increased over time.

The LSBS dataset allows us to examine the differences in perception of Brexit across SMEs according to overall export intensity. In most prior empirical studies of SMEs, exporters and non-exporters are typically delineated in a binary fashion. However, the LSBS compiles information on the level of SME export-orientation (measured as the percentage of turnover generated by exports). As shown in Figure A1 in the online appendix, SMEs with modest levels of exports (equal to less than 5% of their turnover) in peripheral areas are considerably more concerned by Brexit (61%) relative to SMEs in non-peripheral areas (33.1%). For the most internationalised SMEs (that exports up to 75% of turnover) there is considerably more

concern regarding Brexit for SMEs located in peripheral locations (45.3%) relative to counterparts based in non-peripheral areas (30.5%). This suggests that “distance effects” may be at play in shaping Brexit-related concerns across peripheral SMEs. Clearly, the evidence above suggests that exporters and importers are likely to be the most heavily affected by Brexit, especially those located in peripheral parts of the UK.

Nature of Concerns and Potential Impact

In the discussion thus far, we have examined the types of SMEs that are most likely to be affected by Brexit. Table A2 (in the online Appendix) provides an overview of the underlying reasons cited by SMEs why Brexit is seen as an obstacle to business success. The single largest factor worrying SMEs is uncertainty regarding future regulatory change (73.9%). These concerns are more pronounced for micro and small SMEs (80.9% and 80%, respectively), exporters (85.8%) and those located in urban areas (76.1%). Other major concerns include increased import costs (52.1%) and uncertainty regarding future access to EU markets (59.2%). Concerns related to the recruitment of skilled labour were noted by around a fifth of SMEs (21%), while 10.4% of SMEs highlighted concerns around recruiting unskilled labour.

This begs a crucial question: how are these concerns being translated into the future investment plans and strategic activities of UK SMEs? Table A3 shows the proportion of SMEs with future plans (over the next three years) to undertake growth related activities which have been affected by Brexit.^{xii} This clearly shows that the growth-enhancing activity most impacted by Brexit is export sales, affecting 34.8% of SMEs but even higher in SMEs located in peripheral regions (41.7%).

Of this sub-sample of SMEs with plans affected by Brexit, the 2017 LSBS asks whether future plans will be: scaled up; scaled down; or remain the same. Figure 1 shows that plans for future capital investment have been scaled down by around two-thirds (62.3%) of SMEs reporting that Brexit affected their future capital investment plans. Similarly, future plans for the development and launch of new products and services, and investment in R&D have been scaled down by around two-thirds of the SMEs (see Figure 1). The growth-enhancing activity most affected is exports, where plans are being scaled down by over three-quarters (77.4%) of SMEs reporting that Brexit affected their future plans to increase export sales or begin

selling to new overseas markets. Figure A2 shows that the timing of these plans has been similarly pushed back by SMEs in equal measure.

What this evidence clearly shows is that plans for future investment and growth are being scaled back for SMEs reporting that Brexit affected their future plans. Scaling back in these strategic areas is likely to result in a significant and deleterious impact on the real economy in terms of reductions in aggregate investment, employment and output.

[Insert Figure 1 about here]

3. Public Policy Issues

The evidence presented above overwhelmingly suggests that location, sector and business orientation all shape the perceptions across SMEs of the likely impact of Brexit. While the challenges faced by SMEs are likely to change when the UK finally leaves the EU, we can see from our analysis these concerns coalesce around the following issues: reduced market access and increased costs for imported materials and labour inputs; reductions in capital investment; reduced expenditure on innovation; and increased regulatory barriers. In order to mitigate any negative effects arising from Brexit, we focus on four key inter-linked policy domains that could be used to mitigate some of the Brexit related obstacles facing SMEs.

Regional Policy

Prior research suggests the negative impact of Brexit will affect different regions unevenly (Cambridge Econometrics, 2018; Chen et al, 2018). In line with this, our findings suggest SMEs located in peripheral regions under the devolved administrations of Northern Ireland, Scotland and Wales appear particularly concerned by Brexit. The process of leaving the EU will have a significant direct effect in terms of reduced EU funding to UK regions, a process which is likely to further intensify interregional inequalities (Billing et al, 2019). While EU Structural Funding is relatively modest, it remains vitally important for some Objective 1 regions such as south Yorkshire and Cornwall (Di Cataldo, 2018).^{xiii} Within Scotland, the revitalisation of the Highland region has been attributed to the impact EU funding has had in promoting SMEs in new industry sectors such as life sciences and food production (McCullough, 2018). According to a spokesperson for the Federation of Small Business, SMEs

in Wales, North-east and the South-west have become '*very dependent on business support funded through structural funds.*'^{xiv} Therefore, the withdrawal of EU funding post-Brexit is likely to manifest itself in increased calls for a much stronger and more robust UK regional policy (Bachtler and Begg, 2017; Bell, 2017).^{xv}

The EU is a prodigious funder of SMEs via its extensive cohesion policies. The European Regional Development Fund (ERDF) is the largest EU financial tool supporting SMEs. The ERDF commits 20% of its overall total funding (equating to some €57 billion) to supporting SMEs (Szczepanski, 2017). These funding streams include various digital infrastructure programmes and financial instruments, which have been found to disproportionately benefit innovative SMEs (Brown and Lee, 2018). These interventions are typified by the current policy prioritisation under the auspices of '*smart specialisation*', which has placed '*entrepreneurship and SMEs centre-stage*' in EU policymaking (McCann and Ortega-Argilés, 2016, p. 537).

Going forward, there are likely to be a number of critical challenges facing UK policy makers tasked with managing the regional impact of Brexit on SMEs. A critical concern is the extent of institutional capacity at a sub-national level to assist SMEs. In the devolved administrations of Northern Ireland, Scotland and Wales, there are already strong levels of institutional capacity to deal with these types of potential shocks (Martin et al, 2016). Given the high degree of interdependency between the economies of Northern Ireland and Ireland, coupled with the ambiguity surrounding trading arrangements and the Irish border, there is likely to be a strong demand for bespoke support for SMEs based in Northern Ireland.

Following the decision in 2011 by the Conservative government to dismantle the English Regional Development Agencies (RDAs), the eight English RDAs were replaced with looser business-led Local Economic Partnerships or LEPs (Bailey and Tomlinson, 2017). This marked a significant shift from regional-level planning to a more localised and *ad hoc* focus within UK regional policy (Pike et al, 2018). Owing to the way in which LEPs are structured and funded, these organisations have little discretionary budget that could be used to assist SMEs facing challenges arising from Brexit. Moreover, the disconnect between LEPs and the Department for International Trade makes strategic policy interventions difficult. In contrast, Scotland has implemented bespoke measures (such as the provision of additional subsidies) to SMEs impacted by Brexit.

Observers have speculated on the need for a more ambitious UK regional policy post-Brexit (Pollard, 2018). The UK government has committed itself to creating a Shared Prosperity Fund to offset the decline in EU Structural Funds. While there have been calls for this to be targeted towards “inclusive growth” there is scant detail of how this will benefit SMEs across the UK.^{xvi} What seems certain, is that much greater levels of devolved autonomy are likely to be required in order to provide regions with the power and discretionary funding to mitigate any negative economic impact arising from Brexit. It seems unlikely that this could occur without a much greater redistribution of devolved powers across the UK, especially to English regions which currently have very limited institutional capacity to deal with Brexit (Martin et al, 2016; Billing et al, 2019).

International Trade Policy

Our analysis suggests that exporting and importing SMEs are most concerned about Brexit. Much of the debate surrounding the pros and cons of Brexit centre upon on trade related issues (FSB, 2017; Balls et al, 2018). Proponents of Brexit generally view the UK departure from the EU as an opportunity to pursue an independent trade policy. To achieve this, the UK would have to leave the Single Market and European Customs Union. Opponents of Brexit portray a much gloomier picture whereby the UK could lose access to the world’s largest economic zone resulting in a major disruption to its trading regime.

The bulk of survey evidence suggests that most SMEs express a strong preference for retention of UK membership of the Single Market and EU Customs Union.^{xvii} For most SMEs, maintaining frictionless and borderless trade is paramount (FSB, 2017). SMEs also express reservations regarding the potential impact of tariffs and customs controls post Brexit (Balls et al, 2018). Increased costs are a particular concern for SMEs embedded within complex EU-wide supply chains (FSB, 2017). SMEs located in Northern Ireland are likely to be particularly affected in this regard given that many products cross the Irish border several times during the manufacturing process (Nesta, 2017).^{xviii}

Overall, available evidence suggests that SMEs remain unconvinced of the potential opportunities arising from the pursuit of an independent trade policy (Balls et al, 2018). Given the likely destabilisation caused by extended and incomplete negotiations or long-term

transitional arrangements, it is important that UK policy makers put provisions in place to mitigate any negative impacts of Brexit for SMEs who trade internationally.

Given the acute concerns expressed by SMEs who trade internationally there may be both short and longer-term policy interventions that could help overcome some of the potential issues surrounding Brexit. In terms of the former, transitional support could be offered to exporters. This could take a similar form to an existing scheme operating in Scotland offering a small subsidy to SMEs exporting to the EU.^{xix} However, this scheme targets exporters only, and provides no support to importers who may also incur additional costs during any transition following Brexit. Another useful transitional measure would be the development of a national telephone or online helpline to help assist SMEs navigate this turbulent period with information about new customs arrangements or regulatory procedures emerging in the current opaque environment. The CBI has advocated such a measure so that *“small businesses can get questions answered quickly”* but to date no such measure has been enacted by the UK government.^{xx} In contrast, a dedicated telephone support helpline service has been established by the Scottish government and heavily resourced with 100 staff^{xxi}.

In terms of longer-term strategic forms of assistance to encourage SME internationalisation, UK policy makers may have to implement a more expansive and well-resourced overarching export strategy. To that end, the UK government has recently launched a new export strategy.^{xxii} A key aim of this aforementioned strategy is the acknowledgement that while less than one in ten UK SMEs currently exports, almost the same number (an estimated 300,000 SMEs) has the capacity to become internationalised. While encouraging these “dormant” or “discouraged” exporters seems a laudable policy aim in light of Brexit (Kalafsky and Brown, 2018), SMEs have highly varied capabilities and support needs, so interventions need to be carefully targeted (Wright et al, 2007).

In order to overcome the deep-seated reservations among SMEs toward greater internationalisation, a considerable uplift in institutional capacity across the UK is required. While, the devolved administrations such as Scotland have the institutional capacity to undertake this type of strategic targeted activity, the LEP network, which operates throughout England (in its current form), is resourced insufficiently to undertake this strategic

role. The RDAs by contrast, were much better equipped to make sound judgements about these types of locally customised support needed for local sectors (Bailey and Tomlinson, 2017). It would appear that in future the development of greater regional institutional capacity across England will also need to be augmented with much greater levels of support for SMEs around export development.

Industrial Policy

Given their large degree of international exposure, high-tech growth-oriented and innovative SMEs appear particularly concerned by Brexit. These firms have attracted considerable attention from policy makers in recent years, evidenced by the UK government's industrial strategy (*Building our Industrial Strategy*), which emphasises the need for more growth-oriented firms (BEIS, 2017).

Many growth-oriented SMEs find access to finance a significant obstacle. Brexit could exacerbate these matters further via a reduction in funding to SMEs by the European Investment Bank (EIB). It has been reported that funding from the European Investment Fund (which is majority-owned by the EIB) to the UK SMEs declined by 91% in 2016.^{xxiii} Consequently, Brexit is likely to have "dire consequences" for funding new ventures and start-ups (Cumming and Zahra, 2016, p. 690). Indeed, recent survey evidence suggests that around one third of UK SMEs expect greater difficulties accessing finance post-Brexit (British Business Bank, 2019). Moreover, the UK government has been criticised by the banking community for not implementing contingency measures to prevent a credit crunch and/or loan defaults if a disorderly Brexit occurs.^{xxiv}

While overall equity investment levels have not diminished across the UK as a whole since the Brexit vote, peripheral geographic areas may be disproportionately affected.^{xxv} Financial instruments such as public-sector venture capital schemes are a core part of EU industrial policy for developing equity markets especially in peripheral UK regions such as the North East of England, Scotland and Wales (Brown and Lee, 2018). Indeed, start-ups in areas such as Newcastle (in the North-east of England) have benefited significantly from EU funding (IPPR et al, 2018) leading one study to suggest that Brexit '*could be catastrophic for investment into high-growth businesses*' in the North-East region (Beauhurst, 2016, p. 14). At

the time of writing, it remains unclear as to whether the UK government will replace these instruments with like-for-like alternatives etc.

It is likely that the twin effects of increased uncertainty and reduced access to EU funding could heighten concerns across growth-oriented SMEs. Future industrial policy is therefore likely to play a powerful role in offsetting any negative impact of Brexit. The strong focus on growth-oriented SMEs within the UK Industrial Strategy seems appropriate given these firms are likely to be the most negatively affected by Brexit.

Nevertheless, Brexit offers UK policy makers much greater latitude in reforming industrial policy without having to adhere to strict EU state-aid requirements (Crafts, 2017). In this context, some have advocated enhanced capital allowances for SMEs embedded in supply chains heavily affected by Brexit (Bailey and De Propriis, 2017). These types of targeted bespoke interventions are likely to be critical for stimulating capital investment and alleviating chronic levels of uncertainty, especially given the reductions in planned capital expenditures reported in Figure 1.

Immigration Policy

Immigration is undoubtedly the most controversial and contested policy area surrounding Brexit (Lee et al, 2018). In recent years, many UK growth-oriented SMEs have overcome labour shortages by employing EU nationals. Any Brexit-induced migration reduction could potentially damage access to appropriate labour inputs, with resultant effects on output and productivity (Portes and Forte, 2017). However, the results of a recent survey of 600 companies across the UK suggests that reduced access to labour since the referendum has led to increased automation, which in turn could benefit longer-term productivity.^{xxvi}

Across the UK as a whole, EU nationals now account for one in ten UK manufacturing jobs (Miller, 2016). Indeed, the use of EU migrant labour has become prevalent in low paid and labour-intensive sectors such as food production (McCollum and Findlay, 2015). A recent study of the Scottish seafood-processing sector finds that approximately two-thirds of employees in this sector originated from EU countries, such as Poland, Latvia and Lithuania (Prelec, 2018). This could help explain the high levels of concern regarding Brexit in

peripherally based export-intensive SMEs (see Figure A1). Urban areas such as London also rely heavily on low cost sources of EU labour in sectors such as construction (Miller, 2016).^{xxvii}

SMEs located in these types of labour intensive industries may suffer major human capital resource constraints if alternative (non-EU) sources of labour cannot be accessed. Moreover, few if any SMEs have dedicated human resource management policies, and often adopt very piecemeal and reactive strategies in relation to these issues. Consequently, finding alternative sources of labour supply may prove disruptive, especially for SMEs located in peripheral regions. It is for these reasons the Scottish Government has campaigned vigorously for the devolution of immigration policy (Scotsman, 2018).^{xxviii}

Brexit may also affect the supply of skilled labour (IPP, 2018). According to a recent survey, almost 70% of creative industries firms employ EU nationals (Creative Industries Federation, 2017). Given the concentration of this sector in the South East, this may be an explanation behind the very high levels of concern expressed by SMEs in urban areas, especially those in the ICT and creative media sectors in London. Reduced access to talent has also been expressed by FinTech SMEs, prompting some to open offices elsewhere in the EU.^{xxix} A recent study by a UK think tank calls on the UK government to implement a less stringent and more transparent visa policy in order to help high-tech London start-ups recruit sufficient high-tech talent (IPPR, 2018). Organisations such as the UK ScaleUp Institute and the City UK lobby group have similarly advocated the need for new fast-track visas to aid the supply of high-tech talent. While these seem sensible steps, given the uneven requirements for human capital across the UK, greater devolution of immigration policy seems a logical step to help ameliorate any negative consequences of Brexit for different industries and regions.

4. Conclusion

This paper examines the potential impact and policy implications of Brexit for UK SMEs. Concerns amongst SMEs regarding the impact of Brexit on business success have amplified considerably over the time period examined (i.e. 2016 to 2017). Medium-sized, knowledge-based and internationally oriented SMEs are among those most concerned by Brexit, as are those located in urban areas such as London and peripheral parts of the UK. In terms of its impact, the ramifications for those affected by Brexit are potentially very detrimental and wide-ranging, especially in terms of future capital investment and export

plans. This corroborates other evidence which suggests that Brexit is likely to negatively impact those firms (such as innovators and exporters) with the highest levels of productivity (Bank of England, 2018).

The evidence presented in this paper suggests there is now an urgent and compelling need for a much more coherent and coordinated policy response from the UK government to allay the specific problems besetting SMEs. As discussed within the paper, this will probably necessitate a raft of different policy measures across the policy domains examined. Encouragingly, albeit rather belatedly, the UK government appears to acknowledge the particular concerns of SMEs as exemplified by the planned inception of a business council aiming to specifically examine the opportunities for SMEs post-Brexit.^{xxx}

We conclude that any new policy frameworks will need to be accompanied by significantly increased political autonomy and institutional capacity, especially in the peripheral regions of England. Worryingly, the UK's sub-national governance system appears largely unprepared for the forthcoming challenges post-Brexit (Billing et al, 2019). Ironically, while concern regarding Brexit is considerably higher in geographic areas overseen by devolved administrations, it is in jurisdictions such as Scotland which may be the best equipped to deal with any negative ramifications (via devolved powers and existing institutional frameworks).

Given the intensely politicised nature of Brexit, it is imperative future policy interventions and institutional arrangements are properly evidence-based. As the UK's departure from the EU beckons and Brexit-induced uncertainty intensifies further, more research is urgently required in order to help policy makers navigate this unprecedented and profoundly turbulent economic and political period.

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ⁱ For example, the UK government's recent forecasts of the impact of various Brexit scenarios strongly shows the geographic areas most likely to be hit the hardest by a "no deal" Brexit are Scotland, Wales, Northern Ireland and North-east England (HM Government, 2018).

ⁱⁱ A recent Parliamentary review of 20 policy areas affected by Brexit fails to mention SMEs, despite their pivotal role within the UK economy (Miller, 2016).

ⁱⁱⁱ SMEs are defined following the European Commission definition as a firm employing less than 250 employees. Similarly, we also adopt the delineation of different size categories within SMEs used by the European Commission (2016).

^{iv} <http://www.cbi.org.uk/businessvoice/latest/planning-for-brexit-smes/>

^v Unfortunately, due to the small numbers of firms sampled in some cases, we are unable to provide a reliable analysis by government office region.

^{vi} Using the approach outlined in Lee and Brown (2017), peripheral locations are defined as those in the lowest 10% in terms of geographical accessibility according to travel time using road, rail and air in the UK. Whilst comprising a sizeable area, we cannot guarantee that SMEs examined in peripheral regions are representative of the overall population of UK SMEs.

vii We thank an anonymous referee for suggesting the incorporation of a longitudinal dimension to the descriptive analysis.

viii Based on the UK SME population of 5,490,470 this roughly equates to 1,268,298 SMEs.

ix While lower than in urban areas, between 2016 and 2017, there was a marked uplift in concern in rural SMEs.

x Innovators are firms that have conducted either product (introduced any new or significantly improved goods or services) or process (introduced any new or significantly improved processes for producing or supplying goods or services) innovation in the last three years.

xi Growth-oriented SMEs are firms that aim to grow their sales over the next three years.

xii The proportion of the overall sample of SMEs reporting that their future plans have been affected by Brexit is as follows: capital investment = 14.7%; plans to develop and launch new products & services = 15.2%; investment in R&D = 14.4%; and increase export sales or begin selling to new overseas markets = 34.8% (see Table A3).

xiii Objective 1 regions are those with GDP per capita lower than 75% of the EU average. These regions receive the highest forms of funding under EU Cohesion policy.

xiv <https://www.parliament.uk/documents/lords-committees/eu-internal-market-subcommittee/brexit-smes-start-ups-scale-ups/Lord-Whitty-to-Kelly-Tolhurst-MP-250718.pdf>

xv Non-spatial EU programmes such as the European Social Fund, the European Agricultural Fund for Rural Redevelopment and the European Maritime and Fisheries Fund provide support for SMEs, especially in less prosperous peripheral regions (see Szczepanski, 2017).

xvi <https://www.jrf.org.uk/report/designing-shared-prosperity-fund>

xvii A recent survey of SMEs conducted by PWC found two-thirds of SMEs wanted the government to focus negotiations on ensuring continued access to the Single Market (PWC, 2017).

xviii According to data from the LSBS, SMEs in Northern Ireland rely on EU markets (53% only export to the EU) for their exports to a much greater extent than their English (27% only export to the EU) or Scottish (19% only export to the EU) counterparts (Nesta, 2017).

xix The pilot scheme launched in Scotland enables eligible SMEs a subsidy of £4,000 to assist with exporting to EU markets.

xx <https://www.parliament.uk/documents/lords-committees/eu-internal-market-subcommittee/brexit-smes-start-ups-scale-ups/Lord-Whitty-to-Kelly-Tolhurst-MP-250718.pdf>.

xxi <https://www.insider.co.uk/news/100-scottish-enterprise-staff-focused-14117333>

xxii While exports currently comprise 30% of GDP, the aim of the new strategy is to raise this figure to 35% primarily via increased levels of export finance and export insurance. <https://www.gov.uk/government/news/fox-launches-ambitious-new-export-strategy-to-boost-british-businesses>.

xxiii <https://www.telegraph.co.uk/technology/2018/04/21/eu-investment-fund-closes-door-uk-tech-start-ups/>.

xxiv <https://www.ft.com/content/69aa275e-2bbe-11e9-88a4-c32129756dd8>

xxv <https://home.kpmg.com/uk/en/home/media/press-releases/2018/10/brexit-fails-to-dent-venture-capital-appetite-for-uk-startups.html>.

xxvi <https://www.independent.co.uk/news/business/news/brexit-hastening-business-automation-study-suggests-a8656666.html>.

xxvii A recent survey of construction companies in London found that almost a third of the workforce comprises non-EU labour (Financial Times, 2018).

xxviii London's mayor, Sadiq Khan, has also called for immigration powers to be granted to London.

xxix <https://www.ft.com/content/7e7d4462-375f-11e8-8b98-2f31af407cc8>.

xxx https://www.gov.uk/government/news/five-new-business-councils-to-advise-the-prime-minister-on-post-brexit-opportunities?mc_cid=238a2bca2a&mc_eid=ea0e001cad.