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Mitigating the impact of tariffs on UK-EU trade

Report: January 2017

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Summary

- Previous research from Civitas[1] has revealed that post-Brexit, in the event of there being no trade treaty, UK exports to the EU-27 could expect to suffer tariff costs in the region of £5.2 billion, but the corresponding exports from the EU-27 to the UK would face costs in the region of £12.9 billion. These figures were advanced as a strong argument that it is in the best interests of the EU-27 to agree a trade treaty to permit tariff-free access to their markets to the UK.

- This paper considers the policy responses open to the UK in the event that a trade treaty is not reached, in terms of mitigating the cost of these tariffs for UK businesses.

- After Brexit, the UK will be bound by the rules of the World Trade Organization (WTO). It will be prevented from offering 'prohibited subsidies', linked directly to export performance, and will be at risk from retaliation by foreign governments if it offers 'actionable subsidies', those which cause injury to a foreign business by providing specific benefits for UK industries.

- Provided the UK establishes mitigation schemes which are non-specific, economy-wide measures, foreign governments will not be able to retaliate.

- Freed from the EU rules on state aid, the UK will be able to implement greater tax incentives for research and development expenditure for all businesses. This policy is justifiable in its own right. The cost would be in the region of £2.9 billion, of which £2.1 billion (73%) would go to industries suffering EU-27 tariffs.

- Freed from the EU rules on state aid, the UK will be able to operate a more extensive regional aid programme. Using simple rules acceptable to the WTO, areas covering 65% of the population could receive assistance worth £3.8 billion, of which £3.1 billion (82%) would go to exporting industries. At present EU rules limit the UK to assisting areas covering only 27% of the population.

1 Protts, 'Potential post-Brexit tariff costs for EU-UK trade' (October 2016) available at http://www.civitas.org.uk/reports_articles/potential-post-brexit-tariff-costs-for-eu-uk-trade/

- Freed from the EU rules on state aid, the UK can redesign its energy policy. Whatever it decides to do about emissions trading, and wider climate change policy, abolition of the damaging carbon price floor mechanism makes sense in its own right. It would release £1.2 billion in costs, including £392 million for domestic users of electricity.

- These measures would be supplemented by a Transitional Assistance Programme (TAP), a discretionary economy-wide scheme making payments to aid adjustment costs arising from Brexit, capped in practice at 1% of the value of a business' exports. Set at that level, the scheme would not infringe WTO rules on actionable subsidies.

- The exports that would be affected by EU-27 tariffs are best considered in four main categories: (i) agricultural products, including food and beverages, which have their own WTO rules; (ii) 'seriously-affected' non-agricultural products, which face tariff costs in excess of 5% of the value of exports; (iii) 'middle products', where the tariff burden would be between 1%-5%; and (iv) 'de minimis products', where the tariff burden would be below 1% of the value of exports.

- Outside the EU, the UK would have to negotiate the assessment of its own 'Total Aggregate Measure of Support (AMS) Commitment', the WTO ceiling on permitted subsidies for agriculture. This threshold is likely to be the equivalent of €5 billion. Given WTO rules on the categorisation of agriculture support (the so-called Green Box, Amber Box and Blue Box), this will be more than sufficient to both implement a UK replacement for the EU Common Agriculture Policy and to mitigate the £1.7 billion tariff costs this sector would face.

- The 'seriously-affected non-agricultural products' (motor vehicles, most textiles, some chemicals, plastics, fishing, ceramics and aluminium) face total tariff costs of £2.3 billion. Because of the locations in which these businesses are based, and because of their R&D expenditure and electricity usage, it would be possible for the UK government to completely mitigate the impact of EU tariffs through R&D tax incentives, the abolition of the carbon floor price, the TAP and through regional aid.

- The 'middle products' and 'de minimis products' groups face EU tariff costs of £1.2 billion in aggregate. The same policies would not only mitigate the cost of tariffs, but would actually leave these industries with slight net gains.

- These mitigation measures are better considered not as a stop-gap response to an immediate problem, but as part of a co-ordinated long-term industrial strategy to improve British competitiveness for a global market. That is also the best means of matching up 'winners' and 'losers' from the tariffs and the mitigation measures.

- Such a strategy would have to be based on a horizontal, economy-wide approach. It would not represent a return to 1970s-style 'picking winners', if only because such an overt targeting of benefits would be heavily constrained by the WTO rules.

- Hitherto, discussion of the UK's departure from the EU has focussed upon the risks of 'Hard Brexit' and the need to soften this by avoiding costs for business such as tariffs being levied upon exports to the EU-27.

- The real question is not ‘how soft a Brexit can we achieve?’ but rather ‘how hard a negotiation do we wish to drive with the EU?’ The balance of negotiating strengths is far more favourable to the UK. If the EU-27 decide to levy tariffs on British exports, Britain has little to fear.

- The UK should stop obsessing about the EU and worrying about how they will react. We should get on with the task of managing our own affairs in our own interests, and leave the EU to worry about their own problems.

- What does ‘Brexit’ mean? It means having nobody else to blame.

Part One: The Nature of the Problem

Previous research by Civitas[2] has provided an estimate of the tariff costs that could arise for both the UK and the EU on the trade between them in the event that a free trade agreement is not reached as part of the Brexit negotiations. In such a situation, what is sometimes called Brexit on the 'WTO-only basis', the UK would inherit the current EU tariff schedule on the goods it currently imports from the other EU-27. The relevant findings for each exporting sector are summarised in Table A1 of Appendix I to this paper. That research highlighted the likely costs as constituting a strong argument for the conclusion of such a deal.But what if, despite this, no deal could be reached, and the two sides were forced to suffer these costs? What scope would the UK government have to offer compensation to the affected businesses?

The WTO regime on subsidies

The UK is a member of the World Trade Organisation (WTO) in its own right. This would not be affected by Brexit, although it would entail some bureaucratic adjustments because the exercise of its membership has been conducted through the medium of the EU. UK policy is therefore subject to the constraints – and benefits from the protections – of a complex series of international agreements.

Base case: the SCM Agreement

The starting point for policy is the WTO Agreement on Subsidies and Countervailing Measures 1994 ('the SCM Agreement'). This limits both subsidies for exports and the scope to retaliate against the trade policy of other states.

A 'subsidy' is defined as a public financial contribution (whether a grant, a direct investment, a loan guarantee, a tax incentive, or purchases and sales of goods and services) or a price/income support mechanism which in either case confers a 'benefit' on an industry.[3] What constitutes a benefit is not defined in the agreement, but WTO case law and the context of assessing justifiable countervailing measures establishes that in essence a benefit is conferred when an industry receives a non-arms' length gain compared to prevailing market terms and conditions.

There are two types of subsidy which invoke WTO consequences. 'Prohibited subsidies' are directly linked (either legally or in practice) to the volume of exports or which encourage locally produced goods over imports.[4] No WTO member is permitted to operate such schemes. An aggrieved country can take a case to the WTO for an adjudication under an accelerated procedure.[5] If the defendant country is found to be operating prohibited subsidies, they must be removed immediately, or other member states are entitled to retaliate.

'Actionable subsidies' are those which entitle other WTO members to retaliate where those measures cause them 'adverse effects',[6] either:

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2 Protts, 'Potential post-Brexit tariff costs for EU-UK trade' (October 2016) available at http://www.civitas.org.uk/reports_articles/potential-post-brexit-tariff-costs-for-eu-uk-trade/
3 SCM Agreement 1994, Article 1.
4 SCM Agreement 1994, Article 3.
5 SCM Agreement 1994, Article 4.
6 SCM Agreement 1994, Article 5.

- injury to a domestic industry; or
- nullifying or impairing the effects of the GATT 1994 Agreement; or
- serious prejudice to its interests.

The onus of proof is on the complaining country to demonstrate by an investigation that an actionable subsidy exists, using tests set out in the SCM Agreement. If the countries in dispute cannot resolve the matter by mutual agreement, the complaining country can take its case to the WTO for a ruling. This requires the submission of detailed supporting evidence.[7] A country found to be in breach has six months to remedy the situation before other countries may retaliate.[8]

There was originally a third category, 'non-actionable subsidies' which governments were specifically permitted to operate, provided such programmes were given prior clearance by the WTO:[9]

- research and development (personnel; equipment and land; technical services and consultancy; overheads and running costs) – for subsidies in value up to 75% of research costs and 50% of pre-competitive development costs[10]
- assistance to disadvantaged regions, i.e. contiguous geographical areas with their own administrative and economic identity, selected on 'neutral and objective' criteria, including income per capita not exceeding 85% of the national average or an unemployment rate exceeding 110% of the national average[11]
- adaptation to cope with the costs of new environmental regulations, provided (i) it is one-off in nature; (ii) it does not exceed 20% of the cost; (iii) it does not cover the replacement cost of capital investment; (iv) it is linked to planned pollution reduction; and (v) it is available to all firms.[12]

The exemption for non-actionable subsidies has been abolished since 31 December 1999. A sunset clause[13] took effect to terminate the provisions when the relevant WTO Committee was unable to reach a consensus as to their extension or modification.[14] R&D support, regional policy and compensation for environmental policy are therefore subject to the risk of countervailing action under the WTO regime.

The criteria for qualification as an actionable subsidy are subject to objective testing. 'Injury to a domestic industry' is judged by reference to changes in import volumes and domestic market prices.[15] The complainant country has to demonstrate a causal link

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7 SCM Agreement 1994, Article 11.
8 SCM Agreement 1994, Article 7.
9 SCM Agreement 1994, Article 8.3.
10 SCM Agreement 1994, Article 8.2(a).
11 SCM Agreement 1994, Article 8.2(b).
12 SCM Agreement 1994, Article 8.2(c).
13 SCM Agreement 1994, Article 31.
14 Broadly speaking, developing countries regarded non-actionable subsidies as devices to entrench the commercial advantage of developed countries, and considered themselves less able to exploit measures to support R&D.
15 SCM Agreement 1994, Article 15.1.

between the foreign subsidy and the alleged injury,[16] taking into account all relevant economic factors which might otherwise be affecting the domestic industry concerned.[17] Countries cannot use the WTO to protect, for example, declining industries which are becoming obsolescent anyway.

'Nullifying or impairing' involves measuring the effective increase in the tariff on imports through subsidising the prices of domestic sellers, to assess whether a government has covertly reversed any reductions in tariffs it has promised on joining the WTO.

'Serious prejudice' occurs when the exports of a complaining state have been impeded, whether to the offending country or a third country (in the latter case, judged by comparative market share over at least one year[18]), or suffered significant price-undercutting, or there was a consistent trend for the subsidised product to increase its world market share.[19] Serious prejudice is not created by a state monopoly deciding to switch supplier, force majeure disruptions of trade or a failure to conform to new standards or regulatory requirements[20] (although in the last case, the parallel WTO Agreement on Technical Barriers to Trade would prevent a country from using impossibly high standards as camouflaged protectionism).

Until 31 December 1999, serious prejudice was deemed to have been automatically proved if the price of a product was subsidised by more than 5%; an industry's operating losses were covered; an individual business' operating losses were covered (other than one-off transitional measures to avoid acute social problems); there was forgiveness of government debt or grants are made to cover debt repayment.[21] These provisions were a quid pro quo for the exemption of non-actionable subsidies, and they fell away as part of the same process. Thus, if there is narrower scope for a country to offer subsidies, it also slightly harder for complaining states to take action against them.

Furthermore, a country's ability to retaliate against the 'adverse effects' is only triggered if an alleged actionable subsidy is 'specific', i.e. targeted at designated businesses, industries or regions.[22] Governments are permitted to provide subsidies if they are based on 'criteria or conditions which are neutral, which do not favour certain enterprises over others, and which are economic in nature and horizontal in application, such as number of employees or size of enterprise'.[23] A cut in corporation tax for all companies would not be specific,[24] and neither would a tax allowance aimed at businesses below a certain turnover, or size of workforce. WTO case law has held that a subsidy is 'specific' if it benefits the producers of particular types of products which are known and particularised, but that at some point, judged on a case-by-case basis, when a subsidy is sufficiently broadly available so as not to benefit a limited group of products, it becomes non-specific.[25]

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16 SCM Agreement 1994, Article 15.5.
17 SCM Agreement 1994, Article 15.4.
18 SCM Agreement 1994, Article 6.4.
19 SCM Agreement 1994, Article 6.3.
20 SCM Agreement 1994, Article 6.7.
21 SCM Agreement 1994, Article 6.1.
22 SCM Agreement 1994, Article 2.
23 SCM Agreement 1994, Article 2.1(b) and explanatory footnote 2.
24 SCM Agreement 1994, Article 2.2: "It is understood that the setting or change of generally applicable tax rates by all levels of government entitled to do so shall not be deemed to be a specific subsidy for the purposes of this Agreement."
25 See the Panel Report in US – *Upland Cotton* and the Appellate Body Report US – *Anti-Dumping and Countervailing Duties (China).*

There is nothing to prevent a government *excluding* a specific industry from a subsidy scheme. That is, for instance, how the UK structures its tax-favoured investment schemes such as the Enterprise Investment Scheme, which excludes 16 different categories of business.[26] The only limit would be whether the list of exclusions was so extensive that, in fact, the un-excluded remnant was being specifically targeted with the benefit on offer.

The SCM Agreement also provides that retaliation is not considered justified where, on investigation, the subsidy complained of has a beneficial value which does not exceed a de minimis threshold, or if the volume of sales being subsidised are 'negligible'.[27] For a developed country like the UK, the de minimis threshold is 1% of the value of the exports. There is no definition of what 'negligible' means in this context in the SCM Agreement, nor has it yet been considered by WTO case law.

The SCM Agreement does define how these criteria apply to a developing country. They enjoy a de minimis threshold of 2%, and their exports to a country are considered negligible if they amount to less than 4% of the imports of those goods by that country (unless the aggregate imports from all 'negligible' developing countries exceeds 9% of the total).[28] It is also worth noting that the adjudication provisions of the SCM Agreement shadow closely those of the Anti-Dumping Agreement, where the de minimis threshold for a developed country is 2%, and sales are considered negligible if they do not exceed 3% of the market (provided the aggregate sales by such negligible exporters do not exceed 7% of the total).[29] It is always dangerous to mount an argument from implication and silence where the law is untested, but it is not unreasonable to suppose that UK exports of a commodity would be considered negligible in a country where they achieved less than 1.5% to 2% of the imports of that good.

Retaliation may only be taken by a complainant country on behalf of a domestic industry, and it is necessary to demonstrate the action has the support of the domestic producers of at least 25% of the product in question.[30] A complainant country may levy preliminary countervailing duties, i.e. tariffs to reverse the impact of the offending subsidy, provided it gives notice to the foreign government and an opportunity for negotiated remedy.[31] Once the domestic authorities have determined that an offending subsidy exists, they must first consult the other government (and provide access to the supporting evidence).[32] Only if no undertaking to remove the subsidy is obtained can the countervailing duty be imposed, at a level not exceeding the offensive subsidy (quantified according to the SCM Agreement).[33]The levies must be removed

26 Income Tax Act 2007, sections 192-199: (1) dealing in land, in commodities or futures in shares, securities or other financial instruments; (2) dealing in goods, other than in an ordinary trade of retail or wholesale distribution; (3) financial activities; (4) leasing or letting assets on hire, except certain ship-chartering activities; (5) receiving royalties or licence fees (except exploitation of an intangible asset which the company itself has created); (6) providing legal or accountancy services; (7) property development; (8) farming or market gardening; (9) woodlands, forestry activities or timber; (10) shipbuilding; (11) coal; (12) steel; (13) operating or managing hotels; (14) operating or managing nursing or residential care homes; (15) generating or exporting electricity which will attract a Feed-in Tariff, unless generated by hydro power or anaerobic digestion, or carried on by a quasi-charity; (16) providing services to another person whose trade consists of excluded activities, and the person controlling that trade also controls the company providing the services.

27 SCM Agreement 1994, Article 11.9.

28 SCM Agreement 1994, Article 27.10.

29 Agreement on Implementation of Article VI of the General Agreement on Tariffs and Trade 1994, Article 5.8

30 SCM Agreement 1994, Article 11.4.

31 SCM Agreement 1994, Article 17.

32 SCM Agreement 1994, Article 13.

33 SCM Agreement 1994, Article 19.4.

as soon as the offensive subsidy is withdrawn[34] and there is an automatic requirement that countervailing duties should expire after five years unless a fresh investigation demonstrates that their removal would lead to recurrence or continuation of the offensive subsidy.[35]

Taken together, the qualification requirements for another country to take countervailing measures, and the exemptions and defences within the WTO regime itself, create considerable scope for government policy. Mitigation measures implemented as outright 'compensation' for loss of tariff-free access to the EU-27 would qualify as a prohibited subsidy. But provided such measures were drafted to satisfy the criteria of non-specificity and non-severity, they would be within the WTO rules.

A horizontal, economy-wide policy, supplemented by focused measures within WTO-approved exemptions, would be immune from challenge – and retaliation – from the EU-27. Clearly, notwithstanding the abolition of non-actionable subsidies exemption, governments world-wide provide state aid through support for R&D and regional policy.

The point is not uncontentious. The most protracted and detailed case ever taken through the WTO has been the dispute between the US and the EU over their respective assistance for the Boeing and Airbus companies, which has been conducted through challenges to R&D grants and regional assistance at federal and state level. The WTO will investigate whether in practice any measure predominantly or disproportionately favours an explicit group, but a carefully crafted policy should not be difficult to implement. That is likely to be attractive for a government which in any event was intending to adopt a new industrial strategy.

Special rules for 'agricultural products'

A standalone Agreement on Agriculture 1994 embraces 'agricultural products'. These are defined quite widely.[36]

The Harmonised Commodity Description and Coding System (HS) divides all traded goods into XXI high-level Sections, which are then sub-divided into a further 96 Chapters.[37] The Agriculture Agreement covers the trade in all commodities within Section I (Live Animals & Animal Products), Section II (Vegetable Products); Section III (Animal and Vegetable Fats and Oils); and Section IV (Prepared Foodstuffs, Beverages and Spirts, and Tobacco) – but excluding fish and fish products – together with some organic compounds from Section VI (Chemical Products), such as essential oils, modified starches and glues; hides and raw furskins from Section VIII (Leather and Travel Goods); and the raw base materials of silk, wool, hair, cotton, flax and hemp from Section XI (Textile and Textile Products). In total 33 Chapters are caught to some degree, including items which would not immediately be thought of as agricultural.[38]

Interaction with the SCM Agreement is complicated. The Agriculture Agreement does not include an equivalent of prohibited subsidy, and the SCM Agreement rules in that area do not apply.[39]

34 SCM Agreement 1994, Article 21.1.
35 SCM Agreement 1994, Article 21.3.
36 Agriculture Agreement 1994, Article 2 and Annex 1.
37 For some reason Chapter 77 has never been assigned and is left blank, so the Chapters actually number from 01 to 97.
38 The full description of commodities covered by the Agriculture Agreement is given in Appendix III.
39 SCM Agreement 1994, Article 3.1.

Instead, the founding WTO members made a commitment to commence a phased reduction in export subsidies on qualifying agricultural products, to reach binding limits by 2003.[40] During this implementation period a so-called 'peace clause'[41] exempted agricultural products from the SCM Agreement regime on 'adverse effects'[42] and 'serious prejudice'[43]. Although agricultural products are exposed to countervailing action under the SCM Agreement, and cases involving such commodities are taken to the WTO, a country's right to retaliate is subject to the provisions of the Agriculture Agreement.[44]

The Agriculture Agreement provides constraints on how countries are permitted to use their maximum subsidy allowance (and as with the SCM Agreement, the restrictions are more relaxed for developing countries). UK agricultural subsidies, via its membership of the EU, are covered by three provisions:

- Exempt Domestic Support Measures (the so-called 'Green Box')[45]

  This covers public money used for general services such as research, disease control, training, information, inspection, marketing and infrastructure; together with the accumulation of emergency food stockpiles and provision of domestic food aid to the needy (at market price, in reasonable quantities). Also permitted are direct payments to producers: 'decoupled income support'[46] i.e. a minimum income level not linked to production amounts; 'income safety-net programmes'[47] i.e. which compensate for annual losses within prescribed limits; relief for the effects of natural disasters, nuclear accidents and wars;[48] 'structural adjustment assistance' designed to encourage the retirement of producers or products or to enable investment for modernisation (again, decoupled from any production level);[49] environmental or conservation programmes;[50] and regional assistance on objective criteria with no connection to price or production levels.[51]

  There is no restriction on subsidies in this category, provided that they do not have the effect of distorting trade, encouraging production or acting as price supports.[52]

- Production-limiting Programmes (the so-called 'Blue Box').[53]

  This covers payments to producers to limit production, based on fixed area and yields, which do not exceed 85% of the base level of production, or they are made for a fixed head of livestock.

  There is no restriction on subsidies in this category.

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40 Agriculture Agreement 1994, Article 3 and Article 9.
41 Agriculture Agreement 1994, Article 13.
42 SCM Agreement 1994, Article 5.
43 SCM Agreement 1994, Article 6.9.
44 SCM Agreement 1994, Article 10.
45 Agriculture Agreement 1994, Article 6 and Annex 2.
46 Agriculture Agreement 1994, Annex 2, para 6.
47 Agriculture Agreement 1994, Annex 2, para 7.
48 Agriculture Agreement 1994, Annex 2, para 8.
49 Agriculture Agreement 1994, Annex 2, paras 9-11.
50 Agriculture Agreement 1994, Annex 2, para 12.
51 Agriculture Agreement 1994, Annex 2, para 13.
52 Agriculture Agreement 1994, Annex 2, para 1.
53 Agriculture Agreement 1994, Article 6, para 5.

- Restricted Domestic Support Measures (the so-called 'Amber Box').[54]

  This covers all other domestic support measures. WTO members are subject to a binding commitment to reduce over time the Aggregate Measurement of Support ('Total AMS') paid to producers.[55] This catches more than just the payment of government grants, as there is a valuation method for e.g. price support systems.

  Nevertheless, there are further exemptions available. Excluded from counting towards the Total AMS threshold are 'de mininis' support measures: (a) for specific products, not exceeding 5% of the value of the country's production of that good, priced at first-sale; (b) for non-specific support, not exceeding 5% of the value of the country's total annual agricultural product. There is also an exemption for emergency tariffs introduced under the 'special safeguard provisions'.[56]

The Agriculture Agreement came into force as a consequence of the protracted Uruguay Round trade negotiations in which countries agreed to reduce agricultural subsidies and permit greater market access for imports. WTO members retained the right to implement special safeguards. Emergency tariffs may be levied where either import volumes rise above a certain trigger level, or import prices fall below a different trigger level, such levels varying depending on the degree of market access conceded by the country in question.

The restrictions discussed above are policed by the WTO through a system of annual reporting by members – and by members reporting each other to the WTO for any infringements. Complaining countries are only entitled to take countervailing action in the event that the anti-dumping provisions of the main GATT 1994 Treaty are violated.[57]

A post-Brexit UK will almost certainly wish to continue with agricultural support measures in some form. If not an exact replica of the EU Common Agricultural Policy (CAP), something similar will be implemented for at least a transitional adjustment period. The preceding summary indicates that there will be considerable flexibility for the UK to do so – after all the CAP itself is being operated within WTO rules (albeit not without outside challenge). The question is how much flexibility the UK Government will have to go beyond the CAP.

The critical component is the Total AMS Commitment level which the UK will enjoy, i.e. the maximum subsidies payable under the Agriculture Agreement. Because the UK was a member of the EU when that agreement came into force it has never had a standalone Total AMS Commitment. The UK was included in an aggregate AMS Commitment awarded to the EU-12 as it then was. This position has not been amended. Although the EU has subsequently expanded to 28 members, from a regulatory perspective it is still treated as having 17 subsidy allowances under the Agriculture Agreement: that of the original EU-12, plus the 16 separate AMS levels for each new member state.

In many cases the EU has calculated an estimate of what AMS Commitment a new accession state would have been entitled to had it been an original signatory to the Agriculture Agreement in 1994. The same principles have been applied: a Base Total is set by reference to the state's actual AMS averaged over the years 1986 to 1988, which is then reduced by 20% and that level remains fixed for 2000 onwards.

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54 Agriculture Agreement 1994, Article 6.
55 Calculated according to Agriculture Agreement 1994, Annex 3 and Annex 4.
56 Agriculture Agreement 1994, Article 5.
57 Agriculture Agreement 1994, Article 13(b)(i).

Part Two: Devising a Solution

The way forward under the WTO regime

UK exports to the EU should be treated as comprising four broad categories:

- 'Agricultural products', which are subject to a separate regime – and the priority being to negotiate an apportionment of the EU-12 Total AMS Commitment.

  This covers 24 HS Chapters, representing 9% of UK exports to the EU by value, listed in Table 9.

- 'Seriously-affected non-agricultural products', those non-agricultural goods where the level of EU tariffs exceeds 5% of the value of current sales.

  (Although the rule no longer applies that a subsidy in excess of 5% is automatically deemed to be impermissible serious prejudice, it is still a convenient threshold to identify where special care is required in devising mitigation measures.)

  This covers 21 HS Chapters, representing 24% of UK exports to the EU by value, listed in Table 15.

- 'Middle products', those non-agricultural goods where the tariff cost lies between 1% and 5% of the value of the exports.

  This covers 39 HS Chapters, representing 55% of UK exports to the EU by value, listed in Table 28.

- 'De minimis products', those non-agricultural goods where overseas governments would be precluded from retaliatory measures because the cost being 'compensated' by the UK would be less than 1% of the value of the exports.

  This covers 12 HS Chapters, representing 13% of UK exports to the EU by value, listed in Table 30.

As discussed previously, there is a further defence where UK exports to any country are negligible, which for the purposes of discussion can be taken as less than 1.5% of all imports by that country. However, it would be unwise to base policy upon this. Aside from the inherent unpredictability, the defence only works on the facts of each overseas market. Country X might be precluded from retaliation against the same measure where Country Y was not. In this context, it is a nice question whether the defence is tested against the EU Single Market or each of the EU-27 individually, and it can be assumed that the EU-27 will adopt whichever interpretation causes most disruption.

It is unclear why the government should want to reward exporters who were not very successful. If their failure to achieve more than negligible sales in an overseas market is due to foreign subsidies then the correct response, once the UK has regained sovereignty over its own trade policy, is to pursue counteraction for foreign misdeeds through the WTO regime, not to subsidise domestic failure. In any event, an analysis of the UK market share for 96 commodities in each of 27 EU member states is outside the scope of this paper.

The attitude of policy-makers towards cross-subsidisation also requires clarity. Suppose Industry X would suffer from £1 million of tariffs being levied on its exports to the EU, but the corresponding imports from the EU-27 would generate £2 million from tariffs. Industry X could be considered a 'winner' – except that the costs are being borne by exporting businesses and the revenues are all being received by HM Treasury. This provides a resource from which government can fund mitigation measures to 'compensate' Industry X. But should the whole of the revenue be ear-marked for Industry X?

The contrary case suggests not. Industry Y, which incurs the impact of £2 million in tariff costs, where there is only £1 million in balancing import tariffs, is likely to expect the government to make good the missing 'compensation', which will require all tariff revenue to be pooled and thus surplus receipts from Industry X can be directed towards Industry Y. Such an aggregated approach still ignores the issue that the businesses within Industry X will incur direct cash losses but, because of the WTO rules, and especially so in the case of the highest losers, are unlikely to be receiving a direct infusion of cash. Instead they will benefit indirectly, from horizontal, non-specific programmes which not every individual business may be able to exploit as well as others. We have to think in terms of assisting industries which export rather than specific exporters as such.

The previous Civitas research indicates that in fact HM Treasury is likely to receive surplus funds, in that the total receipts on imports from the EU-27 would be in the region of £12.9 billion as against total tariffs on UK exported goods of £5.2 billion.[58] That leaves policy-makers some freedom of manoeuvre. But it still ignores a very pertinent issue.

The fortunate cash-flow consequence for HM Treasury is not something which suddenly falls from the sky out of a helicopter, or is found in a crock at the end of a rainbow. If government finds itself in surplus funds, that resource has been provided by the purchases of imports, i.e., ultimately, by UK consumers. Just as with any individual exporter affected by tariffs, there is no automatic netting-off between the cash costs that consumers will suffer and benefits provided to someone else. Since they will be subsidising this exercise to the tune of £12.9 billion, at some point UK consumers might not unreasonably ask when and how someone is going to 'compensate' them.

A pro-Brexit argument which was aired occasionally during the referendum campaign is the possibility of substitution: that UK exporters may lose sales, but so will their EU competitors, and this creates space to make good losses through increased domestic sales (and judging by the anticipated tariff costs for both sides, previous Civitas research suggests that UK businesses will have more 'space' to exploit). That may be so, although it begs the question that, if true, we might as well leave all 'compensation' to market adjustments of this kind.

Whether desirable or not, this still ignores the problem that winnings and losses are very unlikely to match up and net off for every UK business. It also ignores the fact that often the reason UK consumers buy EU-27 goods in the first place is because there is no local alternative. By definition, there is no UK producer of French champagne. Your daughter – perhaps more importantly, her prospective mother-in-law – is unlikely to be impressed to learn that only fermented fizzy apple juice from Hereford will be served at the wedding.

58 See Table A1 in Appendix I.

Mitigation of the immediate trade costs of Brexit, then, raises wider political issues which go beyond the scope of this paper. A difficult balance must be struck between the short-term political imperative to reassure UK business in the event of anything other than a very 'soft' Brexit, and the longer-run interests of the tax-paying consumer. Ultimately, no mitigation programme can be implemented until those questions are addressed.

For the purposes of discussion, this paper confines itself to the narrower – and much simpler – question of how without breaching WTO rules government can deliver mitigating benefits at least equal in value to the costs which UK business is likely to incur.

Options for mitigation

Non-agricultural exports do not enjoy the benefit of a single magic bullet solution. Instead government will have to devise a series of overlapping programmes which in aggregate relieve the impact of the EU-27 tariffs. Care would still have to be taken to ensure that in practice these measures were non-specific. For example, if the UK's only factory manufacturing super-widgets happened to be located in Barchester, a programme which declared Barchester to be a special Enterprise Zone with valuable rebates for the essential components of super-widgets, is likely to be challenged. Assistance has to be delivered through objective, horizontal measures delivering benefits across the whole economy.

As this paper will make clear, such an approach is possible. The major constraint on government is not whether non-specific measures to assist Industry X can be devised, but whether HM Treasury can afford the cost of delivering 'unnecessary' windfalls to other businesses. For example, in 2015/16 UK corporation tax raised £44.4 billion in revenue.[59] The abolition of corporation tax would therefore deliver a benefit far in excess of the cost of tariffs on exports to the EU-27. The main drawback, however, is that with at most only £12.9 billion revenue being contributed by imports from the EU-27, this policy has created a £31.5 billion black hole in the public finances – and Ministers will have to explain to the country why they are now expected to fill it. The secondary drawbacks are that domestic businesses who have no intention of exporting receive an 'undeserved' windfall, whilst a loss-making exporter receives no benefit at all, because corporation tax is only levied on profits. That is doubly unfair on an exporter if (as some would undoubtedly claim) it has been the imposition of EU tariffs which pushed their finances into the red in the first place.

A sense of perspective is essential. Very few British businesses actually engage in overseas trade. The latest ONS data suggests that at most only 10.6% of UK enterprises export abroad.[60] The proportion which engages only with the EU-27 is probably around a third of that, or about 4% of the total.[61] ONS survey data indicates that exporters are disproportionately likely to be larger enterprises (with more than 250 employees or a turnover in excess of £25 million), more

59 Autumn Statement 2016, Table C.5, page 58.

60 ONS "Annual Business Survey importers and exporters", release 10 November 2016, Table 1 Exporters and Importers of Goods and/or Services Provisional 2015 figures. Out of 2,153,600 UK businesses registered for VAT and/or PAYE only 228,700 exported either goods or services.

61 It is difficult to verify precise numbers on this topic. The Department for Business, Innovation & Skills (as it then was) formerly published Regional Economic Performance Indicators which covered this topic, but the series has been discontinued. The last available figures, for 2011 Q4, suggest that of 50,433 UK companies involved in exporting goods (Table F2i), only 17,679 exported them to the EU (Table F2ii), which would be around 35% of total exporters. The documents may be found at < https://www.gov.uk/government /statistics/repi-exports> (accessed 17/11/16).

than 20 years old and under foreign ownership.[62] In contrast, on a comparable survey basis, in so far as there is a ‘typical’ UK business, it tends to have fewer than 10 employees, a turnover of less than £1 million, to be less than 10 years old, and to be British-owned.[63] Without downplaying the importance of export earnings for UK plc, the media attention which the tariff issue has attracted should not permit the tail to wholly wag the dog.

The objective, then, is to identify measures which assist exporters but which also have a merit in their own right. That would justify the leakage of public funds on windfall gains for non-exporters. It would also enable the programme to carry the support of the vast majority of UK businesses who are not directly affected and who if anything might be expecting Brexit to deliver the benefit of, for example, escape from the burdens of EU regulation.

So what the overall mitigation programme amounts to is, in fact, a UK industrial strategy. It is therefore worthwhile canvassing candidate programmes for their suitability.

Scope for mitigation through assistance for R&D

Although the non-actionable subsidy exemption is no longer available, R&D support is still the most attractive route for mitigating EU-27 tariff costs. Public intervention to support an expansion of the UK’s innovation base is likely to be a key element of any industrial strategy. Mitigation through R&D would seem to tick every possible box.

We know from bitter experience that merely throwing public money at something is no guarantee of success. Whilst individual businesses might enjoy spill-over benefits from funding given to an industry as a whole, for example through public funding of a research institute, there is a practical maximum to the amount of research and development that can be undertaken in

Table 1: Expenditure on R&D by UK businesses (£ million)

		2012	2014	2015
All businesses *of which*		18,617	19,819	20,885
Agricultural products		558	566	562
	Share	3%	3%	3%
Seriously-affected non-agriculture		3,032	3,373	3,747
	Share	16%	17%	18%
Middle products		5,529	5,821	6,061
	Share	30%	29%	29%
De minimis products		4,370	4,246	4,525
	Share	23%	21%	22%
	Share excluding pharmaceuticals	2%	2%	2%
Excluded services		5,129	5,811	5,989
	Share	28%	29%	29%

Source: ONS “UK Business Enterprise Research and Development”, Table 2 dataset released 17 November 2016.

62 ONS “Annual Business Survey importers and exporters”, release 10 November 2016, Table 1 Exporters and Importers of Goods and/or Services Provisional 2015 figures.
63 ONS “Annual Business Survey importers and exporters”, release 10 November 2016, Table 1 Exporters and Importers of Goods and/or Services Provisional 2015 figures.

any year before spending ceases to provide any useful results. Beyond that point money is simply being wasted (or inflates the salaries of the researchers). That raises the question of Britain's current capacity to absorb an expansion of research & development.

Table 1 summaries the most recent figures, analysed by reference to the categories of export discussed in this paper. A full analysis by business sector is given in Table B1 in Appendix II.

The categories in which the ONS reports the data for Table 1 do not dovetail exactly with the HS Classification used to derive the tariff cost estimates.[64] The major difference is the presence of 'Excluded services', which are not affected by tariffs at all and yet account for a considerable proportion of total R&D, outweighing any of the individual non-agricultural categories. The figures given should therefore be treated as ball-park estimates rather than hard numbers.

It is interesting that, once Excluded services are discounted, the share of total R&D spending between the categories is not too dissimilar to their share of exports to the EU-27. The major discrepancy is caused by exports in Chapter 30 (pharmaceuticals), which face minimal tariff costs, hence its inclusion in the de minimis category, whilst being responsible for around 20% of total R&D. An economy-wide mitigation scheme based on R&D is therefore going to deliver a significant windfall to this sector. Pharmaceuticals could, of course, be expressly excluded from the programme, but Ministers will likely consider that in a post-Brexit environment, this would send the wrong signals to the outside world.

The most obvious point to draw from Table 1 is that the UK, facing post-Brexit tariffs on exports to the EU costing in the region of £5.2bn, currently spends several multiples of this sum on R&D. Would Brexit alter that?

One argument advanced for voting Remain in the referendum was that UK business benefits greatly from EU grants to assist, among other things, research and development. But the actual total grants received by UK businesses from the EU in recent years have amounted to no more than £67 million.[65] In the context of the sums in Table 1, this is insignificant – and the argument presupposes that post-Brexit the UK will be permanently locked-out of participation in any EU programmes. That is unlikely since a good number of these schemes are currently open to residents of non-EU members. In any event, since the UK is a net contributor to the EU Budget, one consequence of Brexit will be a net cash saving for HM Treasury, and so it will be in a position to make good any shortfall from that source.

Table 2 summarises the sources of the spending in Table 1 for the most recent available year, 2015, analysed by our five broad categories. A full analysis by industry is given in Table B2 in Appendix II.

These figures should be taken with the same caution applied to Table 1 in regards to classification. But even with imprecise estimates, Table 2 indicates that all sectors derive the bulk of the funding for R&D from their own resources. Indeed, the more affected by tariffs an industry is, it is far more likely to be doing so. Members of the seriously-affected non-agricultural

64 The assignment criteria are discussed more fully in the Technical Note in Appendix III.

65 2013: £65 million; 2014: £65 million; 2015: £67 million. Source: ONS "UK Business Enterprise Research and Development", Table 3 dataset released 17 November 2016. EU funds may have reached UK businesses indirectly, e.g. via Research Councils, but the general point holds good.

Table 2: Sources of funds for R&D performed in UK businesses, 2015 (£ million)

	UK Govmt.	Overseas	Own Funds	Other	Total
All businesses	1,818	3,790	14,657	622	20,885
Share of the total	9%	18%	70%	3%	
Agricultural products	5	167	380	10	562
Share within category	1%	30%	68%	2%	
Seriously-affected non-agriculture	47	466	3,162	72	3,747
Share within category	1%	12%	84%	2%	
Middle products	1,089	912	3,863	168	6,061
Share within category	18%	15%	64%	3%	
De minimis products	11	1,316	3,125	73	4,525
Share within category	0%	29%	69%	2%	
excluding Pharmaceuticals	2%	21%	78%	0%	
of which, Pharmaceuticals	5	1,243	2,856	73	4,178
Shares	0%	30%	68%	2%	
Excluded services	651	928	4,130	283	5,989
Share within category	11%	15%	69%	5%	

'Other' includes funds from other UK sources and international organisations. EU Commission grants fall within 'Overseas'.
Source: ONS "UK Business Enterprise Research and Development", Table 13 dataset released 17 November 2016.

Table 3: Analysis of UK R&D expenditure, 2015 (£ million)

	Total	Capital	Salaries/ Wages	Other Current
All businesses	20,885	1,691	10,238	8,956
Share of the total		8%	49%	43%
Agricultural products	562	43	265	254
Share within category		8%	47%	45%
Seriously-affected non-agriculture	3,747	326	1,486	1,933
Share within category		9%	40%	52%
Middle non-agriculture	6,392	446	3,228	2,718
Share within category		7%	51%	43%
De minimis non-agriculture	4,525	314	1,969	2,243
Share within category		7%	44%	50%
excluding Pharmaceuticals		12%	50%	38%
of which, Pharmaceuticals	4,178	271	1,796	2,111
Shares		6%	43%	51%
Excluded services	5,659	562	3,290	1,808
Share within category		10%	58%	32%

Source: ONS "UK Business Enterprise Research and Development", Table 10 dataset released 17 November 2016.

group are also far less likely than the average UK business to be already in receipt of a government grant.[66]

The ONS publishes data from which it is possible to analyse how individual industries allocate their R&D expenditure. Table 3 breaks down the spending in the most recent available year, 2015, for the broad categories of product. A full analysis by industry is given in Table B3 in Appendix II.

There is no obvious differentiation between the behaviour of the categories, except perhaps a suggestion that the least-affected industries have a slight bias to above-average capital and staff spending. That possibly reflects economies of scale within the more-affected sectors, and also in pharmaceuticals, allowing them to operate R&D on a less capital- and labour-intensive basis.

Table 4 further dissects current expenditure by area of research. A full analysis by industry is given in Table B4 in Appendix II.

Here there are two clear outliers: agricultural products (specifically, food products, beverages and tobacco) require a much higher-than average outlay on basic research, and the seriously-affected businesses devote a disproportionate amount of current R&D work on experimental development. The drawback in directing support at those sectors is the leakage to other areas of the economy. Agriculture accounts for only 6% of all basic research and seriously-affected non-agriculture for only 22% of experimental development.

Table 4: UK R&D current expenditure by type, 2015 (£ million)

	Total	Basic	Applied	Experimental Development
All businesses	19,194	1,276	7,996	9,922
Share of the total		7%	42%	52%
Agricultural products	519	86	240	193
Share within category		17%	46%	37%
Seriously-affected non-agriculture	3,421	50	897	2,447
Share within category		1%	26%	72%
Middle non-agriculture	5,944	420	2,845	2,704
Share within category		7%	48%	45%
De minimis non-agriculture	4,211	170	1,660	2,382
Share within category		4%	39%	57%
excluding Pharmaceuticals		5%	55%	41%
of which, Pharmaceuticals	3,907	156	1,494	2,257
Shares		4%	38%	58%
Excluded services	5,099	550	2,354	2,196
Share within category		11%	46%	43%

Source: ONS “UK Business Enterprise Research and Development”, Table 11 dataset released 17 November 2016.

66 This last factor may in part be attributable to EU rules on State Aid. By definition these industries are ones where the EU levies relatively higher tariffs, to protect against foreign competitors. Attracting such political sensitivity means that the EU Commission might be equally keen to police “unfair competition” as between member states in these sectors.

That may be less of a problem in practice. 'Research' for agricultural products falls within the Green Box of exempt subsidies under the Agriculture Agreement, meaning that they can be specifically targeted, provided that the assistance does not have the effect of distorting trade, encouraging production or acting as a price support. In regard to 'experimental development', over half of it is accounted for by three industries: pharmaceuticals; motor vehicles; and computer programming and information services.[67] Although two of these three are not materially inconvenienced by EU-27 tariffs at all, they are probably sectors which government would want to encourage anyway. Leakage towards those industries could be politically tolerable.

R&D expenditure is, not unexpectedly, concentrated in the largest businesses. In 2015 the Top 5 companies were responsible for 19.7% of all UK R&D, and the Top 100 for 59.8%.[68] Businesses with fewer than 250 employees accounted for only 23.0%[69]. ONS data suggests that enterprises with fewer than 400 employees bear 29.7% of the burden[70] but they do not publish information for those below of 500 employees which, as shall be discussed later, is an important threshold for tax purposes.

It is also geographically concentrated. Table 5 indicates that R&D is mainly undertaken in the South East and East regions, although there are a few variations in particular industries (Transport R&D, for instance, is more heavily skewed towards the West Midlands).

Table 5: UK R&D expenditure and employment by region and country, 2015

Region/Country	Expenditure		Employment	
	£ million	Share	thousand	Share
UNITED KINGDOM	20,885		206	
ENGLAND	19,150	91.7%	183	88.8%
North East	306	1.5%	4	1.9%
North West	2,113	10.1%	17	8.3%
Yorkshire & the Humber	779	3.7%	11	5.3%
East Midlands	1,515	7.3%	16	7.8%
West Midlands	2,166	10.4%	19	9.2%
East	4,178	20.0%	35	17.0%
London	1,912	9.2%	20	9.7%
South East	4,709	22.5%	44	21.4%
South West	1,472	7.0%	17	8.3%
WALES	362	1.7%	5	2.4%
SCOTLAND	871	4.2%	11	5.3%
NORTHERN IRELAND	501	2.4%	6	2.9%

Source: ONS "UK Business Enterprise Research and Development", Tables 18 and 19 dataset released 17 November 2016.

Unfortunately, the ONS only publishes R&D data at the regional level, and then only by reference to much broader industry categories which lack the detail available for the

67 See Appendix II, Table B4.
68 ONS "UK Business Enterprise Research and Development", Table 20 dataset released 17 November 2016.
69 ONS "UK Business Enterprise Research and Development", Table 26 dataset released 17 November 2016.
70 ONS "UK Business Enterprise Research and Development", Table 21 dataset released 17 November 2016.

previous tables. But Table 5 is sufficient to illustrate that, if R&D activity is concentrated in the most prosperous parts of the UK, it will be difficult to frame an objective policy based about assistance for deprived areas through enhanced R&D. Ironically, of course, this concentration would indeed have knock-on disadvantages for businesses, if only because they will have to pay their R&D staff above-average salaries. Public opinion across the nations and regions of the UK is unlikely to tolerate a policy which targeted assistance at the most prosperous areas precisely because they were more successful.

Taken together, these tables indicate that UK business is already undertaking R&D from its own resources at a level which dwarfs the likely cost impact of EU tariffs. Furthermore, the industries which invest the largest aggregate sums on R&D are also those which are exposed to the highest impact from EU tariffs.[71]

The main mechanism by which the UK government encourages innovation is the R&D Tax Credit. The operation of this varies depending on the size of the business claiming it.

- Small or Medium-Sized Enterprises (SMEs):

  Defined as: a business with fewer than 500 employees and either (a) annual turnover under €500 million; or (b) a 'balance sheet total', i.e. gross assets, under €86 million. In applying this test, businesses with common ownership over 25% are aggregated, with more relaxed provisions applying to investments by public corporations, venture capital houses, business angels, universities, institutional investors and local authorities.

  The relief was first introduced in 2000.[72] It has been raised substantially in Budgets ever since. From April 2015 the business is entitled to claim a deduction in computing its taxable profits equal to 230% of qualifying R&D expenditure, in addition to the deduction which such expenditure would have entitled anyway. Alternatively, if it has made a loss, the business can surrender this entitlement for a cash repayment equal to (at present) 14.5% of the enhancement.

  Suppose the business had income of £1 million, R&D expenditure of £100,000 and other deductible expenditure of £750,000. Normally, it would be liable to tax on its trading profit of £150,000 (£1 million - £850,000). By claiming an enhanced R&D relief, this becomes a loss for tax purposes of £80,000 (£150,000 – 230% x £100,000) which can either be carried forward against profits in future years or converted into a repayment of £11,600 (14.5% x £80,000 loss).

- Large Companies

  Defined as: any business which is not an SME for R&D credit purposes.

  Originally, from 2002 large businesses could claim a further enhanced deduction of (eventually) 130% of the qualifying R&D, or claim a repayment worth 11% of any surrendered credits. This provision has now been phased out, after an overlap period from April 2013 when businesses could opt-in early to the new scheme.

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71 See Table B2, Appendix II.
72 The legislation is contained in Finance Act 2000, Schedule 20 (as amended).

> From April 2016 large businesses fall within the R&D Expenditure Credit Scheme (RDEC),[73] where the business receives an 'above the line' credit against its tax liability equal to 11%[74] of the R&D expenditure. This is treated as taxable income which is netted-off against any tax liabilities due from the business. Surplus amounts can be carried forward, or repaid (but repayments are only made up to a ceiling equal to the PAYE and NIC attributable to employees whose working time is spent on R&D activity).

For these purposes 'research and development' means activities that fall to be treated as research and development in accordance with normal accounting practice,[75] modified as appropriate by regulations. Only revenue expenditure on staffing and consumable stores qualifies for relief, and among other conditions there are limits on the ability of a business to count R&D which has been subcontracted to a third party, or paid for by state grants. BEIS guidelines[76] establish that this requires a project to achieve an advance in science or technology, and only activities which resolve a scientific or technological uncertainty, and a closed list of indirect ancillary costs, are eligible.

R&D Capital Allowances cater for capital expenditure.[77] This covers capital expenditure on R&D, but not on the acquisition of rights or of land. As a one-off claim, an amount up to 100% of the qualifying expenditure can be deducted against taxable profits. On a subsequent disposal, the business is deemed to receive taxable income if the sale proceeds exceed the written-down value of the asset in question (which will equal any unclaimed amount of R&D). So, if a business spent £1,000,000 building a new research facility, and claimed 100% of the cost, for tax purposes the building is valued at zero and on a subsequent sale all of the proceeds would be taxable income. On the other hand, if the business had only claimed 75% of the potential allowance, the building would have a value for capital allowances purposes of £250,000 (£1,000,000 less the 75% claimed as a one-off allowance), and only sale proceeds in excess of that amount would be taxable.

The 2016 Autumn Statement announced the launch of a National Productivity Investment Fund, amounting to £23 billion over the period 2017/18 to 2021/22, of which £4.7 billion was allocated to research and development funding.[78] The stated reason for this is that the UK does not invest enough in research, development and innovation and in order to remain competitive "we must build on our strengths in science and tech innovation to ensure that the next generation of discoveries is not only made here, but developed and produced in Britain".[79] Government thinking is focused on two new schemes by which public bodies will direct grants and other assistance to facilitate the take-up of pure science.[80] In terms of the more every day, humdrum end of the spectrum, the Autumn Statement merely says "To ensure the UK tax system is

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73 The legislation is contained in Corporation Tax Act 2009, Part 13, cross-referring to the definition in Income Tax Act 2007 section 1006, which contains the power to issue regulations. Income tax is relevant because the same tax credits are also available to unincorporated businesses.

74 Originally 10% when first introduced.

75 Now found in FRS102 (intangible assets other than goodwill), section 18, and FRS105 (intangible assets other than goodwill for micro-entities), section 13; and IAS38 (intangible assets) for enterprises which have adopted international accounting standards.

76 "Guidelines on the Meaning of Research and Development for Tax Purposes", issued 5 March 2004, updated 6 December 2010, available at < https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/71260/bis-10-1393-rd-tax-purposes.pdf > (accessed 8/11/16).

77 The legislation is contained in Capital Allowances Act 2001, Part 6 (as amended).

78 Autumn Statement 2016, Table 3.1, page 26.

79 Hansard, House of Commons Debates, 23 November 2016, col.899 at col. 902.

80 Autumn Statement 2016, para 3.29, page 30.

strongly pro-innovation, the government will review the tax environment for R&D to look at ways to build on the introduction of the 'above the line' R&D tax credit to make the UK an even more competitive place to do R&D."[81]

The best way to complement the Government's plans for cutting-edge discovery is to make it more attractive for all business to carry out the basic bread-and-butter work that will do more to immediately improve productivity across the board. Why not just increase the level of tax credit? Assistance for R&D qualifies as state aid for EU purposes and this area of policy is currently controlled by the EU Commission. The definition of a 'Small and Medium-Sized Enterprise' is derived from EU Recommendation 2003/361/EC, which is specifically referenced in UK tax legislation as determining eligibility for relief.[82] In the context of Brexit, there is no longer any obligation to be bound by these limits. The only constraint is set by the WTO rules.

It would be unwise to tamper with the definition of 'research and development' set by accounting standards. Aside from the complication which would ensue for businesses attempting to follow two competing definitions, accountancy standards have the merit from a WTO perspective of being objective and neutral. An overseas government could not accuse the UK of deliberately rigging its post-Brexit tax system to favour specific industries.

The cost to HM Treasury of the current R&D tax credit system is assessed at £1,750 million for 2014/15 and forecast to be £1,955 million for 2015/16.[83] (There are no standalone figures for R&D Capital Allowances, but Table 3 indicates that, whilst not negligible, capital R&D is a comparatively minor component.) These figures cover the transitional period when larger companies could choose between the new RDEC process and the original enhanced deduction similar to, but less generous than, what is available for SMEs. The increase broadly reflects the impact on the public finances anticipated when RDEC was first mooted,[84] adjusting for changes in other projections.

When George Osborne, as Chancellor, announced the intention to introduce RDEC he stated that he did so in response to representations from the CBI, the IoD and the Engineering Employers Federation.[85] That raises the questions of whether there are advantages in putting all businesses, irrespective of size, onto an RDEC-type above-the-line credit, or indeed, post-Brexit, whether there is any need to retain an EU-driven distinction between SMEs and Large Companies. The Autumn Statement suggests that the Treasury is open to such suggestions. That requires an assessment of the relative attractions of the two schemes.

Although a headline enhanced R&D relief for SMEs at 230% of actual expenditure is very eye-catching, the cash value to the enterprise is the corporation/income tax not paid – much lower,

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81 Autumn Statement 2016, para 3.30, page 30.

82 Strictly speaking, not accurately. The criteria for SME R&D relief discussed above extends to "Larger SMEs" which have staff counts, turnover and gross assets all higher than the maximum thresholds set out in Recommendation 2003/361/EC. The Commission agreed in 2008 these limits could be exceeded, without updating the original source of the law. To further add to the confusion, the ONS still compiles data on the basis of the original thresholds, because that is what the written authority says, making it frustratingly difficult to assess how many businesses actually qualify for the SME R&D relief in the UK.

83 HMRC "Estimated costs of the principal tax expenditure and structural reliefs", December 2015, available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487119/Dec15_expenditure_reliefs_Final.xlsx.pdf> (accessed 8/11/16).

84 Budget Report 2013, Table 2.2, page 66, line item x.

85 Hansard, House of Commons Debates, 21 March 2012, col 802.

especially since, historically, SMEs and basic rate income taxpayers have tended to be charged to tax at rates lower than the main corporation tax rate. Putting all businesses within the Large Company RDEC scheme ought to deliver greater benefits for SMEs.

The drawback is that an SME would lose the current ability to cash-out surplus losses. The provision within the current RDEC scheme to cap the amount of credit which can be claimed each year is clearly designed to control the annual impact on the public finances. The New RDEC would have to include a facility for surplus credit to be repaid, up to some annual maximum for each business, most probably set by reference to its eligible R&D spending. Setting such a threshold would require detailed HM Treasury modelling, and consultation with business.

It is a reasonable working assumption that most R&D relief will be claimed by larger companies. On that basis, the numbers work out more or less exactly. The most recent figure for current R&D expenditure (2015) is £19,194 million (see Table 4). The estimated cost to the Treasury of £1,955 million is therefore equivalent to just under 10.2%, quite close to the headline RDEC rate for large companies in 2015/16 of 11%. It is a reasonable planning assumption that a scaling factor of $^{10}/_{11}$ths applies, so a 1% increase in the headline RDEC rate equates to a cost of $^{10}/_{11}$% of current R&D expenditure, or, on 2015 figures, £174.5 million.

On a crude rule of thumb, referring back to Table 1, if 'Excluded services' are responsible for 29% of all R&D expenditure, then we should expect any additional across-the-board support for R&D to incur a 29% leakage rate.

The following measures would therefore appear viable:

1. All businesses to be eligible for a New RDEC scheme, with credit at a rate of 22% (i.e. an increase of 11% on the current rate)

   Estimated cost: £1,889 million

   Leakage: £541 million (29%)

   Since this is an economy-wide measure, it is not specific.

2. Agricultural products businesses (as defined by the WTO) to be eligible for Enhanced RDEC at a rate of 33% for revenue spending on 'basic research'.

   Estimated cost: £8 million

   Leakage: £nil

   All of this would count as part of the New UK Total AMS Commitment governed by the Agriculture Agreement, as the CAP is at present. In practice there would be difficulties in drafting the tax legislation, and doubtless this would open planning opportunities for businesses at the margin, but in principle there would be zero leakage of support. By definition, it is targeted at industries which would suffer reasonably high EU-27 tariffs. As the figures suggest, agricultural products groups do not actually undertake much research, so there is not much cost exposure.

3. All businesses to be eligible for Enhanced RDEC at a rate of 33% for revenue spending on 'experimental development'

   Estimated cost: £954 million

   Leakage: £233 million (24%)

   Since this is an economy-wide measure, it is not specific. In principle it might be possible to reduce the leakage by excluding services, or some sub-set of them, but the industries likeliest to receive the greatest windfall benefits are those which government would most probably wish to support in any event. The fact that there is a lower leakage rate for this enhanced support compared to the basic increase indicates that the measure achieves its objective of being slanted towards the industries affected by tariffs.

The total cost, then, would come to £2,851 million, of which £774 million (27%) would count as leakage. The costings for the proposal are explained in the Technical Note in Appendix III.

Scope for mitigation through regional policy

Regional policy was the other major non-actionable subsidy formerly available to WTO member states (now abolished). Clearly however, governments operate assistance for disadvantaged regions, and the criteria set out in the SCM Agreement can still be regarded as the international standard against which national programmes are judged.

UK regional policy is currently governed by the EU and covered by its rules on state aid.The legal framework is set out in Article 107.3 of the Treaty on the Functioning of the European Union, which permits two forms of regional aid 'compatible with the internal market', known as "a" areas and "c" areas by reference to the subsections in which they are listed:

> (a) aid to promote the economic development of areas where the standard of living is abnormally low or where there is serious underemployment, and of the regions referred to in Article 349[86], in view of their structural, economic and social situation;
>
> (c) aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest

The EU Commission issues bespoke 'guidance' to member governments on regional aid.[87] Among a wide range of other things (including banning any assistance for steel and synthetic fibres[88]) this lays down the criteria for designating areas eligible for regional aid.

"a" areas are:[89]

- NUTS 2 regions[90] whose GDP per capita in purchasing power standards (PPS) is below

86 Guadeloupe, French Guiana, Martinique, Réunion, Saint-Barthélemy, Saint-Martin, the Azores, Madeira and the Canary Islands.
87 "Guidelines on regional state aid for 2014-2020", 2013/C 209/01, 23 July 2013.
88 "Guidelines on regional state aid for 2014-2020", paragraph 9.
89 "Guidelines on regional state aid for 2014-2020", paragraph 151.
90 NUTS: *Nomenclature des unités territoriales statistiques* or "Nomenclature of Territorial Units for Statistics", i.e. the EU coding system for compiling area data. NUTS 2 units are roughly equivalent to an English county, although low-population counties and unitary authorities are grouped together.

or equal to 75% of the EU average (based on the average of the last three years for which Eurostat data are available); or

- An ‘outermost region’ (i.e. the Article 349 territories).

Predefined “c” areas, which can be designated by a member state on its own discretion, are:[91]

- NUTS 2 regions that were designated as “a” areas during 2011-2013; or

- sparsely populated NUTS 2 regions with less than 8 inhabitants per km^2 or NUTS 3 regions[92] with less than 1.5 inhabitants per km^2 (based on Eurostat data on population density for 2010).

Non-predefined “c” areas are subject to an overall ceiling such that the aggregate population covered by the “a” and “c” areas in all member states does not exceed 47% of the EU-28 population using 2010 data. This is then carved up between the various countries in a rough and ready effort to be fair to all of them. Although it is strictly for a member government to justify designation in terms of the Treaty, the Guidelines provide helpful prompts:[93]

- Criterion 1: contiguous areas of at least 100,000 inhabitants located in NUTS 2 or NUTS 3 regions that have a GDP per capita below or equal to the EU average, or an unemployment rate above or equal to 115% of the national average.

- Criterion 2: NUTS 3 regions of less than 100,000 inhabitants that have a GDP per capita below or equal to the EU average, or an unemployment rate above or equal to 115% of the national average.

- Criterion 3: islands or contiguous areas characterised by similar geographical isolation (e.g. peninsulas or mountain areas) that have a GDP per capita below or equal to the EU average, or an unemployment rate above or equal to 115% of the national average, or less than 5,000 inhabitants.

- Criterion 4: NUTS 3 regions, or parts of NUTS 3 regions that form contiguous areas, that are adjacent to an “a” area or that share a land border with a country outside either the EEA or EFTA.

- Criterion 5: contiguous areas of at least 50,000 inhabitants that are undergoing major structural change or are in serious relative decline, provided that such areas are not located in NUTS 3 regions or contiguous areas that fulfil the conditions to be designated as predefined areas or under Criteria 1 to 4.

The upshot is that the UK is left with permitted Assisted Areas covering 27.05% of the UK population, living in Northern Ireland, most of Wales, most of Scotland, Cornwall and scattered areas concentrated in Northern England and the Midlands. Government is permitted to make

91 “Guidelines on regional state aid for 2014-2020”, paragraph 158.
92 NUTS 3 units are equivalent to an English unitary authority or district council, although they may be grouped in order to reach a certain significant population size.
93 “Guidelines on regional state aid for 2014-2020”, paragraph 168.

discretionary grants to businesses in these areas, provided it does not breach specified ‘grant intensity thresholds’ (in essence, the proportion of costs borne by the taxpayer), which are more relaxed for SMEs and also for assistance towards investment in ‘green technologies’[94]. For these purposes, ‘SME’ means the original narrow definition based on 250 employees, not the relaxed and wider definition which the EU permits for R&D. Regulation 651/2014 permits a general block exemption for most aid to assisted areas provided public authorities satisfy the criteria laid down. Assistance requires prior clearance if the public authority wants to award grants to a company to start up a new establishment when it is closing a similar one elsewhere in the EU, or if over a 3 year period the same commercial group receives more than a certain amount for activities in the same area.[95]

- In “a” areas, any company can receive grants towards investment in a new establishment, the expansion or diversification of an existing establishment or for fundamental changes in processes.

- In “c” areas, any SME can receive grants towards investment in a new establishment, the expansion or diversification of an existing establishment or for fundamental changes in processes – but a large company can only receive grants for investment in a new establishment or diversification if it passes further tests to demonstrate the genuine novelty of the activity.

- Business Premises Renovation Allowance is a special capital allowance available for bringing back into use a derelict or unused property within an Assisted Area. 100% of the costs may be deducted against tax immediately.

Regional policy is, perhaps inevitably, a devolved matter. The main vehicle for the delivery of regional aid is the Regional Growth Fund (RGF) in England. As at 31 March 2015, £2,050 million had been drawn down in RGF co-financing of private sector projects, of which £906 million was drawn down in 2014/15. As at 3 March 2015, £1,340 million had been drawn down for payment to programmes run by intermediary bodies, of which £486 million was paid out during 2014/15. That gives an annual cost of £1,392 million for 2014/15.[96]

The corresponding programme in Scotland, Regional Selective Assistance, delivered £57.8 million during 2014/15,[97] in Northern Ireland the Selective Financial Assistance Scheme delivers around £50 million p.a.[98] and the amount in Wales, delivered through Business Wales, appears to be of an equivalent amount.[99]

94 Covered by their own rules: “Guidelines for State Aid for environmental protection and energy 2014-20”, 2014/C 200/01.
95 For “a” areas: £14.5 million; for “c” areas: £6 million.
96 All figures taken from BIS “Regional Growth Fund: Annual Monitoring Report 2014-15”, page 5.
97 “Regional Selective Assistance 2014/15 Annual Summary”, page 2.
98 Invest NI “Selective Financial Assistance Scheme”, July 2014, available at < http://secure.investni.com/static/library/invest-ni/documents/selective-financial-assistance-scheme-information.pdf> (accessed 30/11/16).
99 It is not always easy to follow the spending of the Welsh Government. They disclose all of their programmes which claim block exemption from EU state aid rules at < http://gov.wales/funding/state-aid/gber/schemes/?lang=en > (accessed 30/11/16), on the basis of aggregate budgets for 2014-20, covering funding from all sources. Only some of these schemes qualify as ‘regional aid’ using the same measures as the English scheme, and not all of them are confined to ‘assisted areas’, but a crude annual average would not be materially different from the Scottish or Northern Irish spending levels.

Since 2012 the Government has launched a programme of Enterprise Zones. These are specific sites, selected or nominated by the Local Enterprise Partnership (LEP). In total 48 are expected to have been designated in England by April 2017.[100] The equivalent devolved scheme in Scotland covers 16 sites,[101] and in Wales covers 8 sites.[102] A scheme for Northern Ireland is not yet operational. The intention is to encourage clusters dedicated to particular specialisms. The benefits available vary from site to site, but in general:

- Enterprises moving to the Zone can receive a discount of up to 100% on business rates, up to £275,000 per business over a 5-year period.
- Simplified local authority planning for automatic permission for certain development (such as new industrial buildings or changing how existing buildings are used) within specified areas.
- In one of 8 designated Zones within Assisted Areas, 100% enhanced capital allowances are available for businesses investing in plant and machinery.
- A variety of central Funds make grants and loans available to support local housing development (Local Infrastructure Fund) and infrastructure projects (Capital Grants Fund). There is no automatic entitlement, as applications have to be made either by the individual enterprise or by the LEP.
- Government support (if necessary involving public funding) to ensure that superfast broadband is connected throughout the Zone.

The cost of this package is estimated to amount to £259 million. This is made up by the initial estimated cost for 2015/16 of the business rates measure at £80 million,[103] and the subsequent extension of the scheme, a further £5 million;[104] capital allowances for 2015/16 of £15 million.[105] The Local Infrastructure Fund was set at £59 million and the Capital Grants Fund at £100 million.[106]

Being a creature of EU membership, these rules on Assisted Areas fall away on Brexit. However, the UK would then be faced with implementing a scheme of its own along similar lines. Although the Commission polices EU regional policy to ensure that there is no ‘unfair competition’ between member states, it does so with an eye to the WTO. The underlying criteria for selecting “a” and “c” areas has clearly been inspired by the non-actionable subsidy provisions originally in force through the SCM Agreement. What Brexit will give to the UK is the ability to draft its own bespoke eligibility criteria for regional aid, based on average conditions in the UK, not across the whole EU, and freedom from having to forfeit part of its scope to utilise regional policy as part of a pan-EU carve-up.

Map 1 reproduces the official UK Government map of Assisted Areas permitted by the EU regime. For comparison, Map 2 indicates the Areas which would be covered by a UK regional

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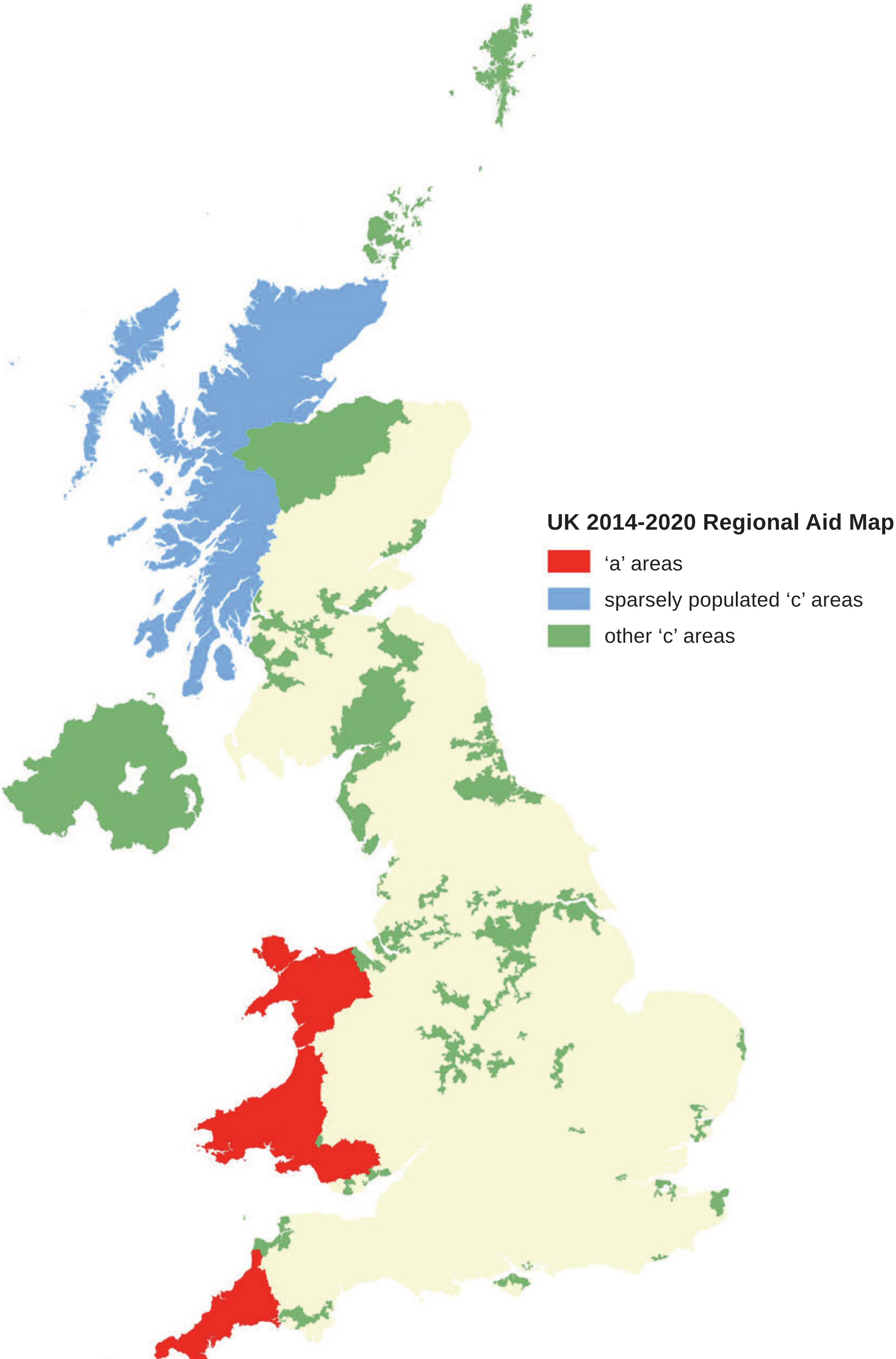
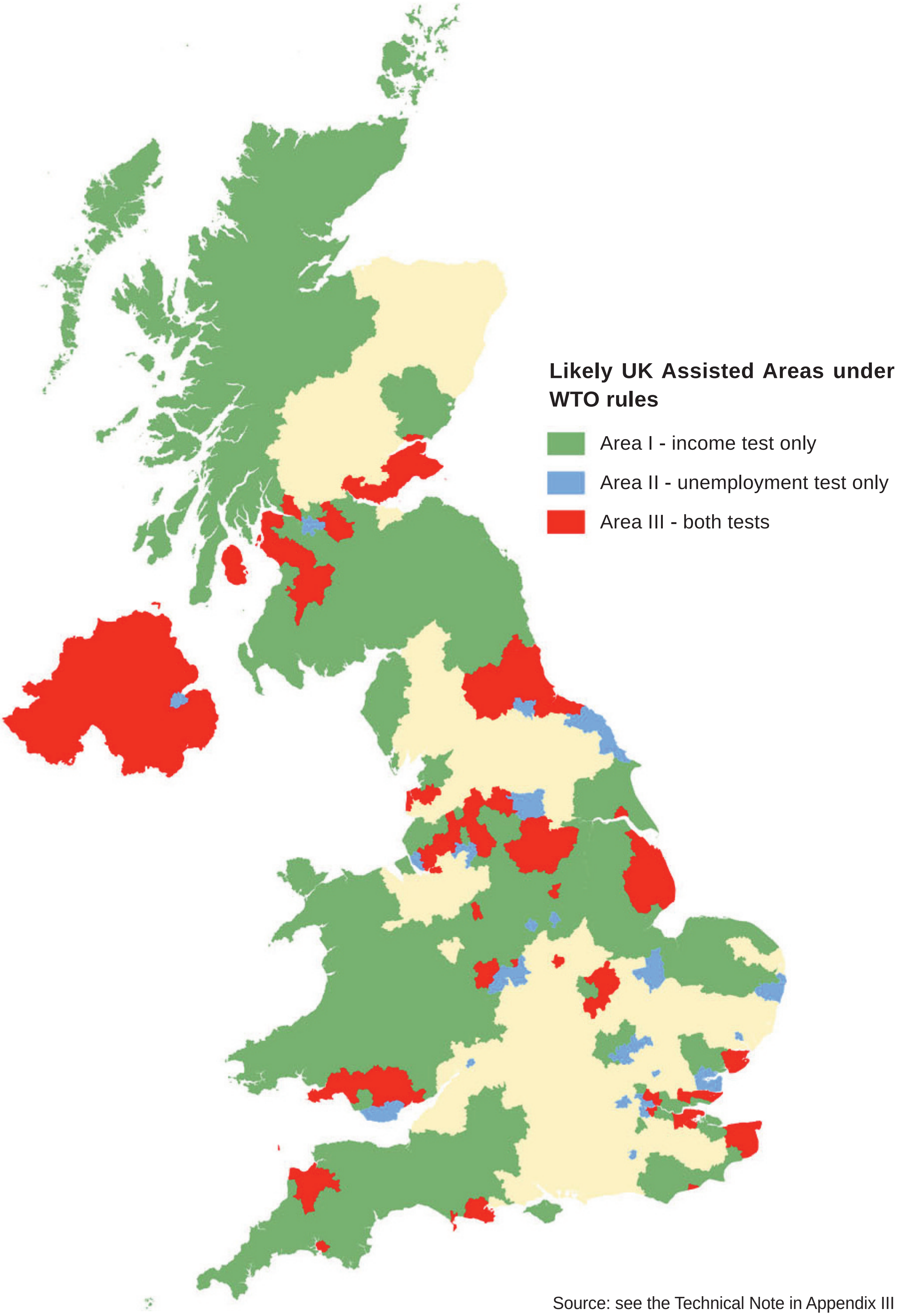
100 Source: http://enterprisezones.communities.gov.uk/about-enterprise-zones/ (accessed 9/11/16).
101 Source: http://www.gov.scot/Topics/Economy/EconomicStrategy/Enterprise-Areas (accessed 9/11/16).
102 Source: https://businesswales.gov.wales/enterprisezones/reasons-locate/support-and-incentives (accessed 9/11/16).
103 Budget Report 2011, Table 2.1, item 11, page 42.
104 Budget Report 2014, Table 2.1, item 19, page 56.
105 Budget Report 2012, Table 2.1, item 11, page 50.
106 House of Commons Library Briefing Paper 5942 “Enterprise Zones”, 17 March 2016.

Map 1. Current UK coverage of Assisted Areas under EU state aid rules



Source: BIS “An Introduction to Assisted Areas” (October 2014).

Map 2. Likely UK coverage of Assisted Areas under WTO rules



Source: see the Technical Note in Appendix III policy based on the original criteria in the SCM Agreement: (i) income per capita not exceeding 85% of the national average; and (ii) an unemployment rate exceeding 110% of the national average. These are measured as far as possible at an actual local authority level, not the imposed groupings used by the NUTS system. The supporting data is given in Table B5 in Appendix II for the income test and in Table B6 for the unemployment test. Table B7 summarises the results depicted in Map 2 by local authority. [107]

Regional aid is a devolved matter and the construction of a new UK-wide approach would doubtless require considerable negotiation between the various authorities. For the purposes of this paper it is assumed that a consistent policy would be applied across the nations and regions:

Area I: a local authority satisfying the income test only;
Area II: a local authority satisfying the unemployment test only;
Area III: a local authority satisfying both tests.

Using these two tests to derive three Areas would amount to a very basic and rudimentary regional policy. Other neutral and objective tests could be used, such as the low population density and geographical isolation criteria in the existing EU rules, to extend the coverage for different purposes. Further tests for factors such as educational attainment could be used to create tiers within the Areas to denote qualification for greater levels of support. The two tests discussed in this paper are for illustration only, as an indication of the flexibility which arises on Brexit.

Table 6 gives the potential population coverage of the new areas. The total coverage, 64.85%, is significantly wider than the 27.05% maximum permitted under current EU-controlled policy.

Table 6: UK UK population coverage of potential New Assisted Areas

	Population	Area I		Area II		Area III		Coverage	
United Kingdom	65,110,034	17,138,692	26.3%	8,945,826	13.7%	16,136,280	24.8%	42,220,798	64.8%
of which									
England	54,786,327	13,903,621	25.4%	7,515,827	13.7%	12,120,954	22.1%	33,540,402	61.2%
of which									
North East	2,624,621	517,757	19.7%	105,389	4.0%	2,001,475	76.3%	2,624,621	100.0%
North West	7,173,835	1,753,268	24.4%	1,254,486	17.5%	2,364,860	33.0%	5,372,614	74.9%
Yorkshire & the Humber	5,390,576	1,149,228	21.3%	881,962	16.4%	2,658,155	49.3%	4,689,345	87.0%
East Midlands	4,677,038	2,178,085	46.6%	573,152	12.3%	820,854	17.6%	3,572,091	76.4%
West Midlands	5,751,000	1,863,493	32.4%	1,174,094	20.4%	1,495,209	26.0%	4,532,796	78.8%
East	6,076,451	1,562,191	25.7%	845,499	13.9%	408,048	6.7%	2,815,738	46.3%
London	8,673,713	1,198,691	13.8%	2,443,223	28.2%	1,044,745	12.0%	4,686,659	54.0%
South East	8,947,913	948,305	10.6%	110,864	1.2%	887,253	9.9%	1,946,422	21.8%
South West	5,471,180	2,732,603	49.9%	127,158	2.3%	440,355	8.0%	3,300,116	60.3%
Wales	3,099,086	1,154,191	37.2%	484,752	15.6%	1,169,422	37.7%	2,808,365	90.6%
Scotland	5,373,000	2,080,880	38.7%	606,340	11.3%	1,333,190	24.8%	4,020,410	74.8%
Northern Ireland	1,851,621			338,907	18.3%	1512714	81.7%	1,851,621	100.0%

Source: Mid-2015 population estimates. For Great Britain: ONS dataset MYEDE. For Northern Ireland: data downloaded from NINIS website (accessed 17/11/16)

107 The methodology for the compilation of Map 2 is explained at length in the Technical Note in Appendix III.

This presupposes, however, that any of the industries we were concerned to help would benefit from any assistance directed at these particular localities. The ONS produces data on 'location quotients' for local authorities, which are a measure of the relative concentration of each industry. The industry with the largest quotient could be seen as a business in which that district specialises (which is not necessarily the same as the largest employer[108]) and it would certainly provide a convenient identifier for areas where that industry would disproportionately benefit from assistance.

Tables B8, B9 and B10 in Appendix II list the industries with the highest location quotients for each of the authorities in Areas I, II and III respectively. Table 7 below summarises the results by industry category, supplemented by ONS data about the industries in each authority which have the second and third highest quotients.

Table 7: Distribution of industries across the potential New Assisted Areas

	Area I	Area II	Area III	Total
Number of authorities	121	31	86	238
First ranking to:				
Agricultural products	15	2	4	21
Seriously-affected non-agricultural	30	4	32	66
Middle products	25	4	12	41
De minimis products	18	3	14	35
Excluded services	33	18	24	75
Agricultural products in Top 2 ranking	26	4	5	35
Agricultural products in Top 3 ranking	37	5	7	49
Seriously-affected in Top 2 ranking	44	8	41	93
Seriously-affected in Top 3 ranking	59	9	48	116
Top 3 ranking are all Excluded services	12	10	5	27

Source: Tables B8-B10, Appendix II, supplemented by original source data from ONS location quotients for each local authority, derived from Business Register and Employment Survey, 2011. See the Technical Note in Appendix III.

The three highest-quotient industries in an area can be considered to be the most influential.[109] It is therefore significant that over two-thirds of these authorities specialise in industries which, to limited or greater degree, will be affected by EU tariffs. If funding were spread evenly across all three Areas, then Table 7 would support the belief that over half of the resources would assist industries where EU tariffs have the greatest impact (the agricultural and seriously-affected categories). It is particularly interesting that those sectors are weighted more heavily towards Area III, the most 'deprived' regions where assistance is most justifiable objectively. Policy-makers could be confident that 'leakage' could be controlled. Their role, essentially, is to set the budget.

108 See the Technical Note in Appendix III.

109 The ONS source data indicates that once the fourth-ranking industry in an area is reached, on the whole its degree of concentration does not materially differ from the national average, i.e. there is no particular local specialisation in that industry.

It would still be possible to create a high degree of leakage depending on the means through which assistance is delivered. For example, suppose that the current Enterprise Zone strategy of discounting business rates were to be applied to the whole of Area III. Apart from being extremely expensive, in a context where less than 11% of UK businesses are engaged in export, the overwhelming majority of benefit will be passed to enterprises who are not directly affected by EU-27 tariffs at all. Such a policy could not be justified by the need to deal with post-Brexit costs alone.

But there is no reason why regional policy should take such a broad-brush form. All that is required is objective national criteria for selecting the areas to receive assistance (such as those discussed in this paper), with perhaps some additional metrics to justify why some areas should receive higher funding than others. Once this framework has been set, assistance can be delivered on a discretionary basis, via grants or loans as appropriate, in response to applications and perceived need. If, say, this were devolved to a body such as a Local Enterprise Partnership, with a remit to assist businesses within its area, and it so happened that those businesses were ones which were disproportionately affected by EU-27 tariffs, who is in a position to quibble? Having ensured that there is no automatic entitlement for exporters to benefit under the scheme, the only constraint is to ensure that in practice ‘discretion’ is not exercised in such a way that it amounts to a de facto export subsidy.[110]

In practice, then, there will be ‘leakage’, if only as the price to be paid to ensure that the scheme does not breach the WTO rules. For the purposes of this paper a planning assumption as to the level of this leakage has to be made. Table 7 indicates that in 75 out of 238 local authorities eligible for post-Brexit regional aid (31.5%), the dominant local industry is an ‘Excluded service’ which would not be subject to EU-27 tariffs. Although it somewhat twists the data, this provides a crude rule of thumb for the following assumptions in costing that aspect of the overall mitigation programme to be delivered through regional aid:

- In Area I, a leakage of 27.3% (33/121), i.e. it will be assumed that to deliver £1.00 of ‘compensation’ benefit it will require £1.38 of funding;

- In Area II, a leakage of 58.1% (18/31), i.e. it will be assumed that to deliver £1.00 of ‘compensation’ benefit it will require £2.04 of funding – which reflects the fact that Area II authorities tend to be service-dominated urban areas with high unemployment;

- In Area III, a leakage of 27.9% (24/86), i.e. it will be assumed that to deliver £1.00 of ‘compensation’ benefit it will require £1.39 of funding;

- If funds were deployed proportionately across all Areas, the average leakage rate would be in the region of 31.5%, i.e. to deliver £1.00 of ‘compensation’ benefit it will require £1.46 of funding.

Assistance to ‘agricultural products’ could however be regarded as having zero leakage as this would be covered by the less-stringent terms of the WTO Agriculture Agreement.

110 The numerous judgments in the interminable US/EU dispute over support for either Boeing or Airbus should be required reading for Ministers and their advisers.

Some commentators would consider this to be an unacceptably high level of leakage. If the programme is seen purely as a benefit scheme for less than 11% of UK business, that criticism has some force. But this discussion has established two points:

- It is quite feasible to use regional aid to mitigate the costs of EU tariffs post-Brexit – provided the degree of 'leakage' involved is considered acceptable; and

- Post-Brexit, the UK's scope for implementing regional aid has expanded far more than is the case within the constraints of EU rules on state aid – assuming that regional aid is something which you want to deliver in the first place.

A rather significant point risks being overlooked in the discussion over Brexit. If, as Table 6 suggests, nearly two-thirds of the UK population live in areas which on objective and neutral criteria can be regarded as 'disadvantaged', then perhaps that ought to be more of an immediate priority for government than the comparatively niche issue of tariffs on exports to the EU-27?

The natural conclusion is that regional aid is not something which should be designed with the objective of mitigating the effect of EU tariffs. Rather, a comprehensive scheme should be designed within a coherent industrial strategy, one of whose incidental benefits is the mitigation of the consequences of Brexit.

Scope for mitigation through energy policy

Compensation for the adaption costs of pollution reduction measures was one of the now abolished categories of non-actionable subsidy,[111] albeit limited to one-off measures and subject to strict cost limits. Governments are still able to offer environmental 'compensation', provided that any scheme is non-specific.

In the modern era this is largely a matter of energy policy. This is currently controlled by the EU,[112] the legal authority for which is originally derived from the Single European Act to implement the single market. The cornerstone is the EU Emissions Trading System (ETS), which is regarded as an element of climate change policy.[113] The ETS has evolved since 2005 and it now covers around 11,000 power stations and industrial plants in the EU-28, Iceland, Liechtenstein and Norway, together with airlines flying between these countries and perhaps further afield from 2017.

The key features of Phase III, covering the period 2013-2020, are:

- There is a single ETS-wide cap on emissions, which is set to fall over time.

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111 SCM Agreement 1994, Article 8.2(c).

112 The EU Commission's own publication, "EU ETS Handbook" (available at https://ec.europa.eu/clima/publications/docs/ets_handbook_en.pdf, accessed 19/11/16), makes it quite clear that, as an environmental matter, energy policy is not set by Member States. See page 9 of the handbook.

113 The legal authority is set out in Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003, as amended by Directive 2004/101/EC, Directive 2008/101/EC, Regulation (EC) No 219/2009, the Treaty of Accession of Croatia (2012), Directive 2009/29/EC, Decision No 1359/2013/EU, Regulation (EU) No 421/2014 and with typographical errors in the text corrected by Corrigendum OJ L 140, 14/5/2014, page 177.

- This covers CO_2 emission[114] by fuel combustion above 20MW thermal input (i.e. power stations, but excluding municipal and hazardous waste incineration); oil refining; the production of coke, metal ore, pig iron and steel, ferrous metals and alloys, aluminium, non-ferrous metals and alloys, cement, lime, dolomite, glass and glass fibre, ceramics, mineral wool insulation material, gypsum and plasterboard, wood pulp, paper, cardboard, nitric acid, adipic acid[115], glyoxal[116] and glyoxylic acid,[117] ammonia, bulk organic chemicals, hydrogen, soda ash (in each case, above qualifying size thresholds); the capture, transport and storage of greenhouse gases; and aviation (subject to a wide range of exemptions[118]).

- It also covers NO_2 emission in the production of nitric acid, adipic acid, glyoxal and glyoxylic acid, and of perfluorocarbons in the production of primary aluminium.[119]

- Inclusion in the scheme is mandatory, although Member States are allowed to exclude 'small installations' (i.e. hospitals and also plants with a track record of emitting less than 25,000 tonnes of CO_2 or equivalent per annum for at least three years) provided they can demonstrate that the installation is subject to "measures that will achieve an equivalent contribution to emission reductions".[120] Judging by their website, the EU Commission primarily envisages these measures as being fiscal in nature.[121]

- Businesses caught by the EU-ETS are required to report their annual emissions and to the extent this exceeds the amount of allowances held by them, they are subject to a fine. Unused allowances may however be traded with other businesses or carried forward to a later year.

- Some allowances are made available by free allocation, using a formula which varies according to the specific sector and its energy-efficiency, and which is meant to taper out over time. Power stations no longer receive free allocations, whereas manufacturers are set to have their free allocation capped at 30% by 2020, and aviators at 82%. There are special rules for 'new entrants', i.e. installations entering the EU-ETS for the first time or undergoing significant capacity changes.

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114 Directive 2003/87/EC (as amended), Annex I.

115 $(CH_2)_4(COOH)_2$. Used mainly in the production of nylon and polyurethane, but also as a coating for tablets to ensure delayed release of drugs in the stomach and as a food flavouring. So industries using those products enjoy costs from the EU-ETS passed on by their suppliers.

116 OCHCHO. Used for coating paper and textiles. So those industries enjoy costs from the EU-ETS passed on by their suppliers.

117 $OCHCO_2H$. Used in the production of cosmetics, agro-chemicals and pharmaceuticals. So those industries enjoy costs from the EU-ETS passed on by their suppliers.

118 Excluded are: flights for official, military, customs, police, search and rescue and humanitarian purposes; within the visual flight rules in Annex 2 of the Chicago Convention on International Civil Aviation; where the plane returns to the aerodrome it started from without landing anywhere else first; training flights; scientific research and prototype testing; low-weight aircraft; public service flights to Guadeloupe, French Guiana, Martinique, Réunion, Saint-Barthélemy, Saint-Martin, the Azores, Madeira and the Canary Islands or where annual capacity is below 30,000 seats; and low-volume, low-emission flights, with different thresholds for commercial and non-commercial operations.

119 Directive 2003/87/EC (as amended), Annex I.

120 Directive 2003/87/EC (as amended), Article 27.

121 See "Sectors and gases covered" in the on-line summary of the ETS, available at < https://ec.europa.eu/clima/policies/ets/index_en.htm> (accessed 19/11/16).

- For the main part, businesses are supposed to acquire allowances either by bidding for them in an auction process, buying surplus capacity from other businesses or (in limited circumstances) purchasing them through international carbon off-setting schemes.

- Member states retain the proceeds of auctions, subject to a percentage which is allocated to a New Entrants Reserve used to fund development of carbon capture and storage techniques and the deployment of renewable energy technology. In typical EU fashion, the Directive declares that “Member States shall determine the use of revenues generated from the auctioning of allowances” and in the next sentence instructs them to use 50% of the proceeds on nine environmental objectives.[122]

- There are extensive measures to police and prevent ‘carbon leakage’, i.e. the offshoring of production to territories outside the remit of the scheme.

The underlying ‘cap and trade’ philosophy is fairly clear: to use a market-style mechanism to price inefficient energy-usage out of business and indirectly promote ‘clean’ technology and processes. The implementation has been criticised, not least for being designed by people who do not understand how markets actually work.[123] The allocation systems for allowances seem to have led to a highly volatile EU ‘carbon price’. As will be seen later in Part III, energy-intensive industries are among those most seriously affected by tariffs and they have complaints about the costs imposed on them by the scheme as it is presently operated. The EU-ETS has achieved the worst of all possible worlds: imposed costs are high enough to alienate business; the carbon price is not consistently high enough to satisfy environmentalists; and there has not been the long-term stability (here used as a euphemism for ‘subsidy’) to support the development of alternative technologies.

This is not the place to redesign the EU-ETS. Post-Brexit, the UK would be in principle outside the scheme, although any trade treaty governing continued access to the single market would almost certainly require British re-inclusion. The absence of any such treaty would not necessarily mean the end of emissions trading in the UK. There might be perfectly sound arguments for voluntarily staying within the EU-ETS. Alternatively, as the UK will almost certainly end up doing in the field of agricultural support, we could launch a ‘Son of ETS’. After all, in 2002 the UK launched the world’s first national multi-sector emissions trading scheme, which was only folded into the EU-ETS in 2007.[124] There would be nothing to prevent a fully-sovereign UK returning to its own local emissions scheme, as many countries now do. Brexit could be seen as offering an opportunity to solve the flaws in the current EU model.

Not an insignificant factor is the £500 million which the UK Government currently receives from the sale of emissions allowances.[125] Concern for the future of the planet will doubtless force HM Treasury to ensure that this revenue stream continues after we have left the EU.

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122 Directive 2003/87/EC (as amended), Article 10.3.

123 See for example, among an extensive literature, Sinclair “Let Them Eat Carbon” (Biteback, 2011). Although that book discusses an earlier iteration of the EU-ETS, the author’s criticisms of the structural economics of the scheme retain their force.

124 A fact which is somehow omitted from the official history in the EU ETS Handbook. Slightly earlier, another pilot scheme was launched in Denmark, but it only covered electricity generation.

125 Source: OBR November 2016 Economic and Fiscal Outlook, Table 4.6 Current Receipts, outturn receipts for 2015/16. Using current futures markets prices, receipts are projected to taper off to £300 million by 2021/22. As the OBR explain “In the absence of clear statements of Government policy in this area, we continue to include EU-ETS revenue in our fiscal forecast.” (para 4.86, page 133).

Therefore, it would be unwise to assume that Brexit will lead to the elimination of costs imposed through participation in the EU-ETS. But there is one area which is open to discussion: Carbon Price Support (CPS).

This acts as an adjunct to the Climate Change Levy (CCL), which since 2001 has been charged, with some exemptions, on supplies of electricity, gas, liquid petroleum gas, solid fossil fuels, including from nuclear and (since 2015) renewable energy sources. With effect from 2013, a further levy, the CPS, is charged on supplies of gas, liquid petroleum gas and solid fossil fuels if they are intended to be used for producing electricity, again with exemptions.

The avowed purpose of this is to inflate the price of electricity in the UK because the EU-ETS was not doing so by itself. As George Osborne explained when announcing the measure in the 2011 Budget: "First, as I have long argued, investment in green energy will never be certain unless we bring some stability to the price of carbon. Today we become the first country in the world to introduce a carbon price floor for the power sector... That will provide the incentive for billions of pounds of new investment in our dilapidated energy infrastructure."[126]

Whether the measure has achieved this objective, and whether this was the best means of doing so anyway, are beside the point. The justification for the CPS levy is the need to encourage investment in 'green energy' because of deficiencies in the EU-ETS setting of a carbon price. Post-Brexit, the UK will have the freedom of action to either design a 'Son of ETS' without such flaws or to encourage investment without the fetters of the EU rules on state aid.

Even if the UK is still inside the EU-ETS in some form after Brexit, since the CPS was implemented unilaterally, it can be revisited unilaterally. Rigging the electricity market at an artificially high price is a very bad way to encourage investment in green technology. All consumers bear the cost. Industrial users have higher input costs, making their end-products less competitive in world markets. Domestic customers suffer what amounts to a regressive tax, disproportionately hitting the lowest-income households. Developers of green energy do not receive a penny directly, and their long-term investment plans still have hanging over them the threat that one day this 'temporary' measure will be reversed should it become politically expedient to do so (such as the circumstances envisioned in this paper).

Table B11 in Appendix II analyses the usage of electricity produced in the UK during 2015. Table 8 below summaries the results by broad category.[127]

UK industry spent £6,825 million on electricity in 2015, domestic consumers £16,725 million and other final users (which for these purposes includes farming) a total of £10,865 million.[128] The CPS raised £1.2 billion for HM Treasury in 2015/16.[129] Over the near term, CPS broadly doubles the receipts expected from CCL.[130] In the 2016 Autumn Statement, the Chancellor confirmed his intention to retain the measure until 2020, describing capping it in real terms as

126 Hansard House of Commons Debates, 23 March 2011, col. 951 at cols. 289-290.
127 See the Technical Note in Appendix III.
128 Source: BEIS "Digest of UK Energy Statistics", Table 1.1.6, released 28 July 2016.
129 Source: OBR Economic and Fiscal Outlook March 2016, Fiscal Supplementary Tables, Table 2.13.
130 Source: OBR Economic and Fiscal Outlook November 2016, Fiscal Supplementary Tables, Table 2.13. Over the period 2016/17 to 2018/19, receipt from CPS and 'core CCL' are equal, with CCL proceeds increasing in importance after 2019/20 as CPS is fixed in real terms and so fails to keep up.

Table 8: Usage of UK electricity supplied by industry, 2015

Industry		Usage (GWh)	Share
TOTAL		330,905.0	
of which			
	Agricultural products	14,816.7	4.5%
	Seriously-affected non-agricultural products	33,552.1	10.1%
	Middle products	41,292.2	12.5%
	De minimis products	11,740.7	3.5%
	Excluded services	121,345.9	36.7%
	Domestic users	108,157.3	32.7%

Source: BEIS "Digest of UK Energy Statistics", Table 5.1, released 28 July 2016.

one of "the commitments we have made to the oil and gas sector"[131] which have to be kept – a somewhat disingenuous way of viewing the matter. Even though the CPS is a self-inflicted wound by the UK, a reduction in rates would have to be non-specific. It is a reasonable planning assumption that any cut in CPS revenues would be shared in the proportions given in Table 8. CPS is charged at differential rates for each type of commodity on which it is levied, but since the Treasury were able to set those rates with the intention of forcing a specific minimum carbon price for electricity, it should be mechanically possible for them to reverse the process in order to set a lower floor price.

That implies a leakage rate of 69.4%, which makes a reduction in the carbon price an extremely inefficient way of 'compensating' businesses for EU tariffs, even if it is the sectors most likely to be affected by those tariffs who are calling most loudly for a reduction in the carbon floor. Conversely, a cut in CPS would be a means of sharing the proceeds of Brexit among the consumers who would be ultimately funding the new tariffs.

They do things differently in Germany. The Renewable Energy Sources Act 2000 *(Erneuerbare-Energien-Gesetz* or 'EEG'), building on and extending the Electricity Feed-In Act 1991, prioritised the use of renewable energy by guaranteeing their generators long-term purchasing contracts at generous prices with the distribution networks. This was funded by a surcharge levied by the networks on other electricity generators, which in turn was passed on to their customers. The law has been revised and amended many times,[132] chiefly to tweak mechanical problems in its operation, and unintended consequences around the explosion of the domestic solar energy sector, but in 2003 a significant refinement was introduced through the 'special equalisation scheme' (*Besondere Ausgleichsregelung*). This entitled 'energy-intensive industries', which by an interesting coincidence turned out to be key German manufacturers (and after 2004, railways), to claim an automatic rebate on their surcharge.

Throughout all the amendments and re-workings of the EEG scheme, this feature has remained intact. How, you might ask, has the German government managed to get away with such a blatant subsidisation of its exporters by domestic consumers?

131 Hansard House of Commons Debates, 23 November 2016, Vol. 617, col. 899 at cols. 906-907.
132 In 2003, 2004, 2009, 2010, 2011, 2012, 2013, 2014 and a forthcoming amendment will be enacted in 2017.

Because they also do things more cleverly in Germany. The special equalisation scheme involves not a penny of public money. There is authority of an ECJ judgment[133] (and who could quibble with that?) that a law which obliges a private sector distribution network to purchase electricity from one private sector energy supplier, and to pay for it by levying surcharges on other private sector energy suppliers, is not a 'public subsidy' for the purposes of EU state aid. Funds do not pass through the government account. Hence, mandating a rebate on that surcharge is not a subsidy, either. And for the same reasons, on this aspect at least, the EEG also falls outside the definition of 'subsidy' in the SCM Agreement. The EU Commission may not like the special equalisation scheme, and from time to time it nudges the German government to tweak the EEG scheme in a less generous direction, but it has never dared to take them on directly.

You might next ask, why doesn't the UK have its own version of the EEG scheme? It's a good question. A cynic could even be tempted to speculate that George Osborne was more interested in getting his hands on the CPS revenue than in helping the renewable energy industry. At least the German system has ensured that money has gone to develop and sustain a pet industrial sector, to the extent they are now having to cope with the problems of success. It should be clear from this broad-brush outline, however, that a UK EEG would entail a significant overhaul of the UK energy industry and markets. That is not something which should be done lightly, or for the narrow purposes of compensating a few sectors for the costs of Brexit.

Once again we reach the conclusion that there is indeed a wide scope to mitigate the tariff costs of Brexit, but that the more appropriate response is to first devise a comprehensive industrial strategy for the whole of UK business.

Scope for mitigation through other non-specific measures

Infrastructure spending

There is now an established cross-party consensus that government intervention is needed to improve our nation's (or, if you prefer, our nations') infrastructure. This consensus is so deep and solid, it is something of a mystery as to how that infrastructure became so dilapidated in the first place.

A case can be made for public support for any specific project. Compelling evidence can be compiled as to how 'everyone' in any given area will benefit from it. From the perspective of the WTO regime, infrastructure spending has the great merit of not being 'specific', in the sense that an identifiable business or industry will benefit to the exclusion of any other.[134] It is the perfect example of a horizontal, non-specific programme where 'everyone' benefits.

But for precisely these reasons, infrastructure spending is too imprecise as a mechanism for Brexit 'compensation'. The Autumn Statement 2016 unveiled a number of infrastructure schemes which will be supported over the medium term. These were justified as measures to improve the overall productivity of the domestic economy,[135] which they may well do.

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133 *PreussenElektra AG v Schleswag AG*, Case C-379/98, 13 March 2001. The case actually involved a German energy company challenging the predecessor 1991 statute, but the same principle applies to the current law.

134 Presumably if any business or industry would so benefit, they would have paid for the project with their own money by now.

That, however, is a distinct issue to ‘compensation’ for exporters and should be treated separately as such.

A new UK definition of SME

Politicians are always keen to offer help to ‘small businessmen’. The UK already provides a wide range of support for ‘small businesses’. A total of 533 schemes are available to help launch and sustain a new enterprise in one region or nation of the UK.[136]

As we have seen in considering R&D, ‘small business’ ultimately derives from EU legislation – and there is no consistent single definition. With Brexit, that falls away, and the UK has regained the ability to set its own regulations. In the event of a UK-EU trade treaty, in particular one which permitted some form of access to the Single Market, that freedom would probably be curtailed. The premise of this paper, however, is that no such deal is reached.

An example of the flexibility that becomes available can be seen in the US. The Small Business Act of 1953 authorised assistance to enterprises which are independently owned and operated and which are not dominant in their field of operation, meeting criteria for size in regulations issued by the Small Business Administration (SBA). The SBA has used its remit to, more or less, specify different size criteria for each of the US equivalent of SIC coded activities, which can be remarkably lenient in terms of turnover and workforce. Hence, an aircraft manufacturer only ceases to be small when it exceeds 1,500 employees, or a family clothing store when it exceeds a turnover of $38.5 million, and a bank is not ‘big’ until it has more than $550 million in assets.[137]

A similar exercise should be undertaken in the UK post-Brexit. But more important than the ‘who’ is the ‘what’: how is assistance to be delivered? The answer is, pretty much the same as at present, a variety of grants, loans and helplines, except to a wider range of eligible enterprises and with slightly more money on offer.

A new definition, or series of definitions, would play a part in, for example, regional policy by scoping the enterprises which were eligible for assistance in any particular Area, but by itself this measure is unlikely to achieve much. If there exists an onerous regulation from whose cost British businesses could be exempted by widening the definition of SME, the correct remedy in a post-Brexit environment is to review whether the regulation in question is still necessary. That is an across-the-board exercise outside the scope of this paper.

A Transitional Assistance Programme (TAP)

The WTO regime provides that where, on investigation of a complaint, it is found that the subsidy does not exceed the de minimis level of 1% of the value of the exports, countervailing action by other governments must stop. This creates scope for small-value direct payments as ‘compensation’ for exporters.

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135 Autumn Statement 2016, Chapter 3, pages 25-34.
136 See “Finance and support for your business” at < https://www.gov.uk/business-finance-support-finder/search > (accessed 19/11/16).
137 The full list may be consulted at the Federal Code of Federal Regulations: < http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=7780ee089107f59ef3f78b938e2282b7&r=PART&n=13y1.0.1.1.17#se13.1.121_1201 > (accessed 19/11/16).

Merely because an exporter could be compensated at less than 1% of the value of their sales does not give the government a completely free hand. A programme which, say, permitted each business to reclaim costs up to the lower of actual tariffs suffered and 1% of export sales would be directly-linked to export performance. It would therefore count as a prohibited subsidy, on which there is no de minimis level.

But it would be possible to establish a Transitional Assistance Programme (TAP), limited for say five years (to minimise the room for foreign objections). The remit of the TAP would be to make discretionary grants to any UK business, to assist them with the transition costs of Brexit if they could justify their case against published criteria. This would not be specifically limited to exporters, although they would obviously have an easier time of demonstrating that they had suffered one-off costs. As with regional policy, there would be no de jure specificity and care would have to be taken in operation, but this would be a mechanism for handling any business on a case-by-case basis that did not come within the new SME definition or which benefited from any of the other mitigation schemes.

In theory, then, the TAP could be designed to have a leakage rate of 0%, with discretion being used to award funding solely to ‘compensation’ cases. It would be more prudent, however, to make the planning assumption of a 20% leakage rate, i.e. that £1.25 has to be spent in order to deliver £1 to businesses suffering EU-27 tariffs.

Part Three: Application of the Solution

This part of the paper reviews the individual categories of exported product and discusses particular issues which arise in delivering ‘compensation’ to each of them.

Mitigation measures for ‘agricultural products’ under WTO rules

Table 9 summarises the estimated tariff position under the WTO-only basis for EU-27 exporters to the UK of ‘agricultural products’ and the corresponding position for UK exporters to the EU-27.

Table 9: Estimate of annual tariffs payable on UK-EU agricultural products (2015, £ millions)

	EU GOODS			UK GOODS		
Product Description	**UK Imports**	**Tariffs Payable**	**Average Tariff Rate**	**EU Imports**	**Tariffs Payable Estimate**	**Average Tariff Rate**
Live animals	427	23	5.5%	286	6	2.2%
Meat	3,163	1,023	32.3%	999	378	37.8%
Dairy produce (including Eggs)	2,394	956	39.9%	840	331	39.4%
Products of animal origin	68	0	0.4%	82	0	0.2%
Live trees and other plants	932	70	7.5%	46	3	6.9%
Edible vegetables	2,154	326	15.1%	204	24	11.8%
Edible fruit and nuts	1,660	168	10.1%	200	15	7.5%
Coffee, tea, maté and spices	396	22	5.6%	191	9	4.7%
Cereals	599	79	13.1%	322	77	23.9%
Products of milling (e.g Flour)	253	64	25.2%	124	32	25.5%
Oil seeds, straw and fodder	318	10	3.3%	217	2	1.1%
Vegetable saps and extracts	68	3	4.6%	32	0	1.4%
Other vegetable products	4	-	0.0%	3	-	0.0%
Animal or vegetable fats and oils	820	122	14.8%	316	28	8.8%
Preparations of meat or fish	1,771	563	31.8%	386	154	39.9%
Sugars and sugar confectionery	719	217	30.2%	310	98	31.6%
Cocoa and cocoa preparations	1,440	16	1.1%	468	6	1.3%
Preparations of cereals, flour, starch or milk; pastrycooks’ products	2,554	303	11.9%	953	121	12.7%
Preparations of vegetables, fruit, nuts or other parts of plants	1,893	372	19.7%	352	62	17.7%
Miscellaneous edible preparations	2,140	192	9.0%	889	79	8.9%
Beverages, spirits and vinegar	4,159	240	5.8%	2,148	60	2.8%
Residues and waste from the food industries	1,160	214	18.4%	539	123	22.8%
Tobacco and manufactured tobacco substitutes	333	132	39.5%	208	91	43.7%
Albuminoidal substances; modified starches; glues; enzymes	451	35	7.8%	221	16	7.2%
TOTAL	**29,875**	**5,147**	**17.2%**	**10,336**	**1,716**	**16.6%**

Source: data derived from Protts “Potential post-Brexit tariff costs for EU-UK trade” (Civitas, October 2016).

This category of goods accounts for about 9% of the UK's exports to the EU-27 in 2015 but would have suffered 33% of the total tariff costs potentially payable under the WTO-only basis. That is a good illustration of how, despite two decades of the WTO, agriculture is still heavily affected by 'un-free' trade. It can be seen that of the 24 business sectors covered, in 23 (highlighted red) the UK are 'winners' (i.e. EU-27 exporters incur higher aggregate tariff costs). But there are still 15 sectors in which UK producers face a higher effective tariff than their EU-27 counterparts. British businesses are only 'winners' in the tariff sense because their EU competitors are better exporters.

The first step for policy-makers is to negotiate a new Total AMS Commitment for the UK. There is no prescribed method for doing this, and it can be expected that the method will itself become a negotiating issue. Since WTO membership has been exercised through the EU, the figures for allowances are all stated (and calculated) in euros. What is unclear is the sterling equivalent which would apply, since the calculation of the actual exchange rate for the conversion would doubtless be another matter for negotiation in its own right. Until that is decided there is little point in converting the allowance figures into sterling.

Two viable methods of assessment would be:

- Apportion the original EU-12 Total AMS Commitment

The original EU-12 threshold negotiated in 1994 was set to fall to €61.2 billion in 2000 and remain at that level. This sum could be apportioned between the 12 constituent countries according to an average of their recent agricultural production. Table 10 indicates that the UK has a fairly consistent share of the total:

Table 10: EU-12 agricultural production at producer prices (EUR million)

Year	2011	2012	2013	2014	2015	Average
EU-12	314,064	326,714	334,467	330,145	324,184	325,915
UK	27,007	29,539	30,293	31,678	29,143	29,532
UK share	8.6%	9.0%	9.1%	9.6%	9.0%	9.1%

Source: Eurostat database "Output of the agricultural industry - basic and producer prices". 2015 figures are estimates.

That would suggest a UK Total AMS Commitment of €5.5 billion.

- Ab initio calculation for the UK

A UK Commitment could be calculated as if the country had been an independent signatory to the Agriculture Agreement from the outset. This would be a complex exercise beyond the scope of this paper, involving assessing the differences between local and prevailing world prices, and UK market consumption, of every single agricultural product in 1986-88 to assess what the standalone UK AMS would have been. Again there is scope for argument as to which currency should be used for measurement.

Table 11 uses the UK share of total CAP spending as a crude proxy.

Table 11: UK deemed AMS (ECU million)

Year	1986	1987	1988	Total
Total CAP spending	22,840.6	23,811.4	27,525.0	74,177.0
UK CAP receipts	2,062.1	1,828.1	1,929.5	5,819.7
UK share	9.0%	7.7%	7.0%	7.8%
EU-12 Commitment				73,530.0
UK Total AMS				5,768.9
20% reduction to 2000 ceiling				4,615.2

'CAP spending' measured as the reported expenditure under the European Agricultural Guarantee and Guidance Fund (EAGGF). Source: Annex 4 to the EU Budget 2008 Financial Report, pages 96-97.

This method suggests a UK Total AMS Commitment of €4.6 billion.

These are very ball-park estimates. The answers suggested by these two calculation methods probably represent the two extremes of the UK/EU-27 negotiating spectrum. A final figure near the mid-point, in the region of €5 billion, is not unreasonable to take as a working assumption.

Post-Brexit, the UK will be faced with implementing a British-CAP as well. As Table 12 shows, UK receipts are in the region of £3 billion.

Table 12: UK agricultural receipts from the EU (£ million)

Year	2012	2013	2014	2015
European Agricultural Guarantee Fund	2,753	2,747	2,595	2,544
European Agricultural Fund for Rural Development	291	619	567	556
Total	3,044	3,366	3,162	3,100

Source: House of Commons Briefing Paper 7602 "EU Referendum: Impact on UK Agriculture Policy" (26 May 2016).

It might be thought that if the government also has to accommodate mitigation measures with a value of at least £1.7 billion, and has a working limit under the WTO rules of only €5 billion, the scope for UK action could become constrained.

Table 13: WTO status of EU agricultural support

Marketing Year	2009-10	2010-11	2011-12	2012-13
EU Total AMS Commitment, € million	72,244.0	72,244.0	72,244.0	72,379.0
Amber Box measures, € million:				
Gross	12,285.2	7,894.8	7,861.7	7,679.6
Less: disregard of de minimis items	- 1,402.0	- 1,393.0	- 1,002.8	- 1,780.5
Blue Box measures, € million:	5,323.6	3,141.8	2,981.1	2,754.2
Green Box measures, € million:	63,798.1	68,051.5	70,976.8	71,140.0
Total EU Agricultural Spending	80,004.9	77,695.1	80,816.8	79,793.3
Proportion counting as WTO 'subsidies'	14.0%	8.0%	8.0%	7.4%

Note: The EU Total AMS Commitment increased for 2012/13 due to the accession of Croatia.

Source: EU Commission notifications to the WTO Agriculture Committee G/AG/N/EU/10/Rev.1 (2009/10), G/AG/N/EU/17 (2010/11), G/AG/N/EU/20 (2011/12) and G/AG/N/EU/26 (2012/13)

Table 13 summarises the EU's total agricultural spending in terms of the WTO subsidy regime for the four most recent available years. A full analysis can be found in Table B12 in Appendix II.

The EU has followed a deliberate policy of shifting payments under the CAP towards the Blue Box (production-limitation) and Green Box (exempt payments). Gaming the system in this way means that the EU uses less than 10% of its WTO Total AMS Commitment, whilst managing to spend in aggregate more than that limit, either in cash or through equivalent support mechanisms.[138] Since the UK participates in the CAP, it is reasonable to suppose that the agricultural subsidies which it receives have the same general profile. At the very least, it should be easy to scope a UK-CAP which replicates those features.

Thus, if post-Brexit the UK Government inherits a ceiling on agricultural subsidies of the then-sterling equivalent of approximately €5 billion, it should be able to deliver a UK-CAP worth around £3 billion and expend little more than €500 million of its WTO capacity.[139] Armed with £1.7 billion of import duties, Government should experience little constraint in mitigating the cost of tariffs for industries exporting the whole range of agricultural products.

For example, overseas marketing and promotion initiatives would be scored as Green Box expenditure and as such not subsidies for WTO purposes at all. These will be exactly the measures that would be needed to explain why EU-27 consumers should continue to buy British even though the price is now higher, or to assist in finding replacement buyers in third countries. That would greatly assist businesses operating within Chapter 09 (coffee and tea), Chapter 18 (chocolate) and Chapter 22 (beer and whisky) – although ministers might not want to choose this precise route to help those in Chapter 24 (tobacco). Depending on how the UK-CAP were to be structured, the Blue Box offers considerable scope for retirement schemes as part of a wider rationalisation of farming, or existing CAP programmes could be extended.

As discussed in Part II, such measures could be delivered under the regional policy wrapper with greater targeting and minimal leakage. They should, however, be delivered via Defra in order to sustain the defence that they are agricultural measures.

If the Government were too overt in exploiting the Amber Box for direct payments to producers they could expect resistance from other WTO members over the medium to longer term, as this would mark a breach of the aspiration to lower agricultural subsidies worldwide. Nor should we ignore the danger that any 'compensation' offered to UK farmers is likely to provoke a hostile reaction within the EU-27, given the political sensitivity of agriculture.

The basic point remains valid. The current operation of the EU indicates that post-Brexit the UK will be able to manage the transition to unfree trade with the EU for some of the industries most disproportionately hit by tariffs.

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138 Which explains why Lord Mandelson, when EU Trade Commissioner, was able to make the extravagant gesture of offering to surrender 70% of the EU's Total AMS Commitment as part of the on-going WTO agricultural negotiations. He knew perfectly well that it would make no difference to the support available to EU producers. So, unfortunately, did his negotiating counterparts.

139 There is not a simple read-across to say that £3 billion of CAP-style payments would translate to only £300 million of AMS Commitment because that overlooks the monetary value of any market intervention measures which the UK would inherit or introduce on Brexit, and cash payments within the £3 billion receipts are likely to be skewed more towards the Amber Box. But UK farmers and producers clearly currently enjoy the benefit of programmes which are scored within the Blue Box (production-limitation) and Green Box (exempt), so not all of the £3 billion will count towards the new UK Total AMS Commitment.

Table 14 summarises the expected compensation costs for this category of product. Because of the non-discretionary nature of the CPS and R&D measures, some of the industries would make a slight overall net gain. A full analysis for all industries is found in Table B13. The costing approach is explained later in Part IV.

Table 14: Impact of mitigation for agricultural products (£ million)

		Tariff costs	Tariff revenues
		1,715.60	5,147.32
CPS abolition	50.34		
Increase in general R&D credit	48.48		
Enhanced R&D credit for basic research	7.85		
Enhanced R&D credit for experimental development	17.95		
TAP payments	94.44		
Regional grants	1,504.62		
		-1,723.68	
(GAIN)		-8.08	
Gain to the Exchequer			3,423.63

Source: Table B13 and supporting calculations.

Mitigation measures for 'seriously-affected' non-agricultural products

Table 15 summarises the estimated tariff position under the WTO-only basis for UK exporters of non-agricultural products to the EU where the tariff is estimated to exceed 5% of the value of the sales, and the corresponding position for EU exporters to the UK.

Some observations immediately prompt themselves. The first is that a single sector, Chapter 87 (vehicles) attracts by itself over a quarter of the total EU tariff costs for the UK. The second is that over half of the seriously-affected sectors, 12 out of 21, fall within the same HS Section, XI (Textiles and Textile Products), with which it is convenient to also group Chapter 64 (footwear). There is another cluster of four industries from Section VI (Chemical Products), to which Chapter 39 (plastics) is clearly related.[140]

Apart from these, the three other components of Table 15 (fish; ceramics; and aluminium) are one-off outliers without any obvious connecting theme. It is also helpful that, whilst being proportionately severe, the median point for the absolute cost involved is only £17 million which, in the context of most government programmes, is a comparatively trivial sum.

This concentration is helpful for ministers, because it means that a small number of schemes could have considerably wide impact among the most highly-affected industries. But it also creates a danger, because the very specificity of any assistance makes it more likely to offend against the WTO rules. Furthermore, potentially all measures to benefit a particular industry would be aggregated in assessing whether 'serious prejudice' has been suffered by foreign competitors – and, by definition, all of these industries in Table 15 would be expecting to receive benefits equivalent to at least 5% of the value of their exports, a material figure.

140 Strictly that Chapter falls within Section VII.

Table 15: Estimate of annual tariffs payable on UK-EU non-agricultural exports (£ million)

Product Description	EU GOODS UK Imports	Tariffs Payable	Average Tariff Rate	UK GOODS EU Imports	Tariffs Payable Estimate	Average Tariff Rate
Fish and crustaceans	514	45	8.8%	924	87	9.4%
Dyeing extracts and colouring matter; paints and varnishes; putty and other mastics; inks	1,309	79	6.0%	1,200	72	6.0%
Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations	10	1	6.3%	25	2	6.3%
Photographic or cinematographic goods	211	13	6.2%	268	16	6.1%
Plastics and articles thereof	8,125	498	6.1%	4,656	286	6.1%
Silk	19	1	5.7%	7	0	6.6%
Cotton	105	7	6.7%	65	5	7.5%
Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn	26	2	6.2%	8	1	6.5%
Man-made filaments; strip and the like of man-made textile materials	273	15	5.4%	396	22	5.5%
Man-made staple fibres	204	11	5.3%	144	9	6.3%
Carpets & other textile floor coverings	595	47	7.9%	72	6	7.7%
Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery	143	11	7.7%	64	5	7.4%
Impregnated, coated, covered or laminated textile fabrics; textile articles suitable for industrial use	183	12	6.8%	238	17	7.1%
Knitted or crocheted fabrics	60	5	8.0%	65	5	8.0%
Articles of apparel and clothing accessories, knitted or crocheted	1,940	230	11.9%	859	102	11.8%
Articles of apparel and clothing accessories, not knitted or crocheted	2,428	283	11.7%	979	113	11.5%
Other made-up textile articles; sets; worn clothing and worn textile articles; rags	271	28	10.2%	243	21	8.5%
Footwear, gaiters and the like; parts of such articles	1,896	209	11.0%	723	83	11.4%
Ceramic products	748	38	5.1%	141	10	6.8%
Aluminium and articles thereof	2,186	149	6.8%	1,174	66	5.7%
Vehicles other than railway or tramway rolling stock modified starches; glues; enzymes	43,111	3,896	9.0%	15,439	1,348	8.7%
TOTAL	**64,355**	**5,579**	**8.7%**	**27,690**	**2,274**	**8.2%**

Source: data derived from Protts “Potential post-Brexit tariff costs for EU-UK trade” (Civitas, October 2016)

Nevertheless, these broad groupings provide a suitable basis for considering what mitigation measures could be implemented by Government through the gateways permitted in the WTO regime: non-specificity and non-severity. That involves considering the locations in which these industries are found, to check the ability to assist them through regional policy. It is unfortunate that the available data only extends to Great Britain, but since the discussion in Part II indicated that the whole of Northern Ireland would qualify for extended assisted area status anyway, this is less of an issue in practice. It can be assumed that any industry with a presence in that region can benefit from the mitigation measures. Where possible, reference is made to the government assistance which industry trade bodies have requested.

Motor vehicles

This sub-category covers UK exports within HS Chapter 87 (vehicles other than railway or tramway rolling stock).

It corresponds to SIC division 29 (manufacture of motor vehicles, trailers and semi-trailers).

Table 16 gives the local authorities in Great Britain where this sub-category is most concentrated, indicating which would qualify as assisted areas under the expanded regional policy discussed in Part II. The ‘location quotients’ indicate the degree of specialisation (1.00 equals the national average).

Table 16: Concentration of motor vehicle industry in Great Britain

Local authority	Location quotient	Area status
Sunderland	16.4	Area III
Knowsley	12.0	Area III
Swindon	8.8	
Stratford-on-Avon	8.4	
Coventry	7.8	
South Norfolk	6.9	Area I
Telford and Wrekin	6.6	
Torfaen	6.1	Area III
Daventry	6.0	
Redditch	5.6	Area I
South Ribble	5.1	
Darlington	4.7	Area II
High Peak	4.2	Area I
Blaenau Gwent	4.1	Area III
Wellingborough	3.8	Area III
Cheshire West and Chester	3.8	
East Riding of Yorkshire	3.2	Area I
Sandwell	3.1	Area III
Kingston upon Hull, City of	3.0	Area III
Cannock Chase	3.0	Area I

Source: ONS location quotients for each local authority, derived from Business Register and Employment Survey, 2011. See the Technical Note in Appendix III.

The motor industry trade body, the Society of Motor Manufacturers and Traders (SMMT), was one of the business groups most opposed to Brexit.[141] Their response to the Autumn Statement 2016 welcomed the extra infrastructure investment, especially in regard to the charging network for electric cars, and the possibility of R&D support, but expressed disappointment that there had been no action on business rates reform, especially their demand that plant and machinery be removed from the valuation of premises for rating purposes.[142] This last request is, of course, something that could be arranged through an expanded programme of Enterprise Zones now that the UK is not constrained by the EU rules on state aid. It is a little unfortunate that Table 16 indicates that some high-concentration areas would still fall outside the coverage of post-Brexit regional policy, but nevertheless the major centres of the industry would be caught. As the SMMT often reminds us, the motor industry is a major contributor of R&D expenditure, and it is also a significant consumer of electricity, so this category of product would derive material UK-wide benefit from those measures.

Table 17 summarises the expected compensation costs for motor vehicles, which indicates that the industry could be fully ‘compensated’. The costing approach is explained later in Part IV.

Table 17: Impact of mitigation for motor vehicles (£ million)

		Tariff costs	Tariff revenues
		1,347.95	3,896.20
CPS abolition	17.46		
Increase in general R&D credit	249.10		
Enhanced R&D credit for basic research	203.80		
Enhanced R&D credit for experimental development	154.39		
TAP payments	154.39		
Regional grants	723.21		
		-1,347.95	
(GAIN)		0.00	
Leakage on regional grants			-301.51
Gain to the Exchequer			3,423.63

Source: Table B13 and supporting calculations.

Textiles and footwear

This large sub-category covers UK exports within HS Chapter 50 (silk); Chapter 52 (cotton); Chapter 53 (other vegetable textile fibres; paper yarn and woven fabrics of paper yarn); Chapter 55 (man-made filaments; strip and the like of man-made textile materials); Chapter 57 (carpets and other textile floor coverings); Chapter 58 (special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery); Chapter 59 (impregnated, coated, covered or laminated textile fabrics; textile articles suitable for industrial use); Chapter 60 (knitted or crocheted fabrics); Chapter 61 (articles of apparel and clothing accessories, knitted or crocheted); Chapter 62 (articles of apparel and clothing accessories, not knitted or crocheted) and Chapter 63 (other

141 See for example: https://www.smmt.co.uk/2016/06/remaining-in-europe-critical-to-future-of-uk-automotive-industry-warns-smmt/ (accessed 24/11/16).

142 See https://www.smmt.co.uk/2016/11/smmt-statement-in-response-to-the-2016-spending-review/ (accessed 24/11/16).

Table 18: Concentration of the textiles and footwear industries in Great Britain

TEXTILE MANUFACTURE

Local authority	Location quotient	Area status
Kirklees	19.6	Area I
Wyre Forest	15.7	Area I
Gedling	13.9	Area I
Pendle	12.1	Area III
Angus	11.3	Area I
Scottish Borders	9.1	Area I
Rochdale	8.2	Area III
Erewash	8.0	Area I
Amber Valley	8.0	Area I
Blackburn with Darwen	7.6	Area III
Tameside	6.4	Area III
Babergh	6.4	
Fenland	6.3	Area II
Blaenau Gwent	6.3	Area III
Hyndburn	6.3	Area I
Caerphilly	6.2	Area III
Boston	5.6	Area I
Bradford	5.6	Area III
Rossendale	5.4	Area III
Eilean Siar	5.3	Area I
Calderdale	5.3	Area I
Bury	5.1	Area I
Dundee City	4.7	Area III
Leicester	4.7	Area III
East Ayrshire	4.5	Area III
Powys	3.9	Area I
West Dorset	3.9	Area I
North Ayrshire	3.8	Area III
Bridgend	3.4	Area I
Oldham	3.3	Area III
Chorley	3.2	Area I
Craven	3.2	
Wigan	3.1	Area III
Wakefield	3.0	Area III

CLOTHING MANUFACTURE

Local authority	Location quotient	Area status
Scottish Borders	31.0	Area I
Amber Valley	15.3	Area I
Ashfield	12.9	Area I
Leicester	11.6	Area III
Hinckley and Bosworth	8.2	
Wakefield	8.1	Area III
Corby	7.3	Area III
Pendle	5.7	Area III
Haringey	5.6	Area II
Oadby and Wigston	4.6	
Blackburn with Darwen	4.5	Area III
Wolverhampton	4.3	Area III
Harborough	4.3	
Sandwell	4.1	Area III
Walsall	3.9	Area III
Calderdale	3.6	Area I
Erewash	3.5	Area I
Manchester	3.4	Area II
Oldham	3.3	Area III
East Lindsey	3.3	Area III
Rochdale	3.3	Area III

LEATHER GOODS

Local authority	Location quotient	Area status
East Northamptonshire	36.8	Area III
Kettering	24.5	Area I
Northampton	20.8	
Renfrewshire	20.8	Area I
Wellingborough	10.5	Area III
Forest Heath	8.4	
Epping Forest	8.2	
Hackney	7.8	Area II
South Cambridgeshire	6.3	
Rossendale	5.9	Area III
Walsall	3.5	Area III
Broadland	3.3	
Huntingdonshire	3.2	
Leicester	2.3	Area III

Source: ONS location quotients for each local authority, derived from Business Register and Employment Survey, 2011. See the Technical Note in Appendix III.

made-up textile articles; sets; worn clothing and worn textile articles; rags). For convenience of analysis this group is combined with HS Chapter 64 (footwear, gaiters and the like; parts of such articles). There is a partial overlap in the use of leather, and the available UK data is rarely sufficiently granular to distinguish between them.

The sub-category corresponds to SIC divisions 13 (manufacture of textiles), 14 (manufacture of wearing apparel) and 15 (manufacture of leather and related products).

Studying the location of this very broad sub-category is best considered in terms of its three main constituent elements: textile manufacture; clothing manufacture; and leather goods. Table 18 gives the local authorities in Great Britain where these groups are most concentrated, indicating which would qualify as assisted areas under the expanded regional policy discussed in Part II. The 'location quotients' indicate the degree of specialisation (1.00 equals the national average).

Not unexpectedly, there is considerable overlap between the locations of the three constituent sub-groups. More significantly, almost all of the high-concentration sites for all three fall within the expanded regional policy envisaged in this paper. That makes it comparatively straightforward to arrange for full 'compensation' for these industries.

In their "Manifesto 2012"[143] the UK Fashion & Textile Association, the industry trade body, called for:

1. Making it simpler for UK companies to bid for UK Government contracts.

2. An end to the steady 'creep' of Government activity which impacts on the trade association sector's ability to support their industry.

3. Reinforcement of the Climate Change Levy scheme (CCL) and for its continued administration by industry associations.

4. Simplification of policies within different devolved regions and administrations.

5. A campaign to ensure that fashion and textile graduates have a basic understanding of running a business.

6. A programme of industry mentors to support start up designer companies.

7. A programme to ensure that accurate information outlining the range of opportunities in the sector be made available to schools, and that teachers and lecturers become familiar with the sector and provide quality careers advice.

8. A closer working relationship with UK Trade & Investment (the export-promotion body), especially in the areas of preparing companies for export and the allocation of budgets.

9. A new programme of supported Trade Missions for established exporters to the BRICs markets.

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143 Available at < http://www.ukft.org/documents/industryinformation/ > (accessed 24/11/16).

10. Increased funding for the Tradeshow Access Programme which helps small exporters break into new export markets.

11. Greater flexibility to channel the existing budgets to the best investment potential for the taxpayer.

12. A commitment for trade associations to be reconnected directly with Commercial Officers in overseas Embassies and Consulates, for these to be reinforced and act as a free conduit of active business opportunities for UK exporters.

13. A swift conclusion to trade treaty negotiations with key markets including Japan and the USA.

Of this list, items 2, 4 and 13 perhaps display excessive optimism. The concern of UKFT over the climate change levy (item 3) relates to the aspect of the scheme whereby businesses caught by it are entitled to rebates in return for making binding carbon reduction commitments, which UKFT polices. The remainder of the list are all items which it would be relatively straightforward to deliver through regional assistance programmes.

Table 19 summarises the expected compensation costs for these products, which indicates that the industries could be fully 'compensated'. A full analysis for all industries is found in Table B13. The costing approach is explained later in Part IV.

Table 19: Impact of mitigation for textiles and footwear (£ million)

		Tariff costs	Tariff revenues
		386.78	860.73
CPS abolition	8.10		
Increase in general R&D credit	1.69		
Enhanced R&D credit for experimental development	0.71		
TAP payments	38.63		
Regional grants	337.65		
		-386.78	
(GAIN)		0.00	
Leakage on regional grants			-140.98
Gain to the Exchequer			332.97

Source: Table B13 and supporting calculations.

Chemicals and plastics

This sub-category covers UK exports within HS Chapter 32 (dyeing extracts and colouring matter; paints and varnishes; putty and other mastics; inks); HS Chapter 36 (explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations); HS Chapter 37 (photographic or cinematographic goods); and HS Chapter 39 (plastics and articles thereof).

It corresponds to SIC division 20 (manufacture of chemicals and chemical products) and the sub-division 222 (manufacture of plastics products).

Table 20 gives the local authorities in Great Britain where the chemicals and plastics industries are most concentrated, indicating which would qualify as assisted areas under the expanded regional policy discussed in Part II. The 'location quotients' indicate the degree of specialisation (1.00 equals the national average).

Table 20: Concentration of the chemicals and plastics industries in Great Britain

CHEMICALS			PLASTICS		
Local authority	**Location quotient**	**Area status**	**Local authority**	**Location quotient**	**Area status**
Halton	13.8	Area III	Rutland	8.8	
Falkirk	9.8	Area I	Caerphilly	6.3	Area III
North Hertfordshire	7.7	Area II	North Warwickshire	6.1	Area II
Wellingborough	7.5	Area III	Ashfield	5.8	Area I
Rossendale	6.8	Area III	Herefordshire, County of	5.2	Area I
North East Lincolnshire	6.5	Area III	Blackburn with Darwen	5.0	Area III
The Vale of Glamorgan	6.4	Area II	Gosport	4.3	
Flintshire	6.0		Amber Valley	4.2	Area I
Wyre	5.5	Area III	Rhondda, Cynon, Taff	4.2	Area III
Redcar and Cleveland	5.5	Area III	Bury	4.0	Area I
Blackburn with Darwen	5.2	Area III	Telford and Wrekin	4.0	
Stockton-on-Tees	5.1	Area III	Tamworth	3.9	Area III
Cheshire West and Chester	4.8		Doncaster	3.7	Area III
Bolsover	4.7	Area I	Huntingdonshire	3.7	
Hartlepool	4.7	Area III	North Lincolnshire	3.6	Area I
Ashford	4.4		Dover	3.6	Area III
Breckland	4.4	Area I	Corby	3.5	Area III
High Peak	4.4	Area I	Blaenau Gwent	3.5	Area III
Knowsley	4.3	Area III	Malvern Hills	3.4	Area I
West Lindsey	4.2	Area I	East Dunbartonshire	3.3	Area I
Rochdale	4.2	Area III	Ryedale	3.2	
Burnley	4.1	Area III	East Lindsey	3.2	Area III
Mid Suffolk	4.0		High Peak	3.0	Area I
East Hampshire	3.9				
Bury	3.9	Area I			
Slough	3.9				
Amber Valley	3.8	Area I			
Staffordshire Moorlands	3.7	Area I			
Gateshead	3.6	Area III			
Boston	3.5	Area I			
North West Leicestershire	3.3				
Ribble Valley	3.3				
East Riding of Yorkshire	3.2	Area I			
Allerdale	3.2	Area I			
Taunton Deane	3.2	Area I			
Hyndburn	3.1	Area I			
Uttlesford	3.0				

Source: ONS location quotients for each local authority, derived from Business Register and Employment Survey, 2011. See the Technical Note in Appendix III.

Apart from the primary cluster of the plastics industry in Rutland, the major concentrations of both of these industries fall within the new assisted areas and so there is considerable flexibility for them to receive regional policy support. Both industries could also expect to make reasonable gains from R&D and energy price measures.

Table 21 summarises the expected compensation costs for these products, which indicates that the industries could be fully 'compensated'. A full analysis for all industries is found in Table B13. The costing approach is explained later in Part IV.

Table 21: Impact of mitigation for chemicals and plastics (£ million)

		Tariff costs	Tariff revenues
		376.20	590.19
CPS abolition	19.89		
Increase in general R&D credit	17.47		
Enhanced R&D credit for experimental development	5.99		
TAP payments	61.49		
Regional grants	271.36		
		-376.20	
(GAIN)		0.00	
Leakage on regional grants			-117.31
Gain to the Exchequer			96.68

Source: Table B13 and supporting calculations.

Fishing

This sub-category covers UK exports within HS Chapter 3 (fish and crustaceans).

It corresponds to SIC division 03 (fishing and aquaculture).

Table 22 gives the local authorities in Great Britain where the fishing industry and related food activity is most concentrated, indicating which would qualify as assisted areas under the expanded regional policy discussed in Part II. The 'location quotients' indicate the degree of specialisation (1.00 equals the national average).

Fishing is one of the trickier industries to handle, because the tariff costs on exports to the EU-27 exceed the revenues that would be raised on imports. It does not spend a great deal on R&D[144] and aside from on-shore refrigeration is not a great user of electricity and so would not materially benefit from the CPS abolition. Fishing boats are fuelled by 'gas oil', otherwise known as 'red diesel'. The UK's attempts to levy a lower rate of excise duty than for other fuels sparked a long-running dispute between London and Brussels.[145] Brexit will not make that

144 The fishing industry is combined with agriculture in the ONS data, indicating that it is not a major contributor in its own right.

145 The EU objects to the owners of pleasure boats being able to pay a lower duty on fuel which it believes should be confined exclusively to commercial vessels. There have even been attempts to charge the owners of boats arriving in Continental ports with duty evasion. At present UK owners of pleasure vessels have to sign a declaration that they will not sail outside British territorial waters when they purchase fuel at the reduced rate. For a full account of this dispute, see the website of the Royal Yachting Association at < http://www.rya.org.uk/infoadvice/regssafety/reddiesel/Pages/reddieselhistory.aspx > (accessed 25/11/16).

Table 22: Concentration of the fishing industry in Great Britain

Local authority	Location quotient	Area status
Shetland Islands	138.22	
Eilean Siar	117.14	Area I
Orkney Islands	96.81	Area I
Aberdeenshire	54.66	
Argyll & Bute	41.54	Area I
Highland	32.03	Area I
Moray	27.92	
Eden	21.71	
Torbay	12.46	Area I
Weymouth and Portland	9.3	Area III
Dumfries & Galloway	8.21	Area I
West Somerset	8.07	Area I
South Ayrshire	7.82	Area I
Teignbridge	6.12	Area I
Cornwall	5.81	Area I
Anglesey	5.56	Area I
Colchester	5.49	Area I
Torridge	5.33	Area III
Cotswold	5.32	
South Hams	5.2	Area I
North Norfolk	5.18	Area I
East Devon	4.71	Area I
East Lothian	4.51	Area I
Pembrokeshire	4.45	Area I
Scottish Borders	4.32	Area I
Adur	4.19	
Angus	3.87	Area I
Mid Devon	3.14	Area I
Barrow-in-Furness	3.08	Area I

Source: ONS location quotients for each local authority, derived from Business Register and Employment Survey, 2011. See the Technical Note in Appendix III.

problem go away. In the absence of any UK-wide non-specific programme, the route for mitigation for fishing will lie almost exclusively through regional policy.

Not unsurprisingly, Table 22 demonstrates that this industry tends to be found in coastal areas. It is annoying that the heaviest concentration falls outside the three Areas, but as discussed previously in Part II, these new assisted areas have been devised using very rudimentary tests. A more sophisticated policy, which made use of criteria such as geographical isolation or low population density, would make it very easy to justify the provision of assistance to the Shetland Islands. That is, after all, how they are included under the current EU rules.

Members of the fishing industry have a well-known discontent with EU membership. Grievances mainly arise with the operation of the Common Fisheries Policy (CFP) and post-Brexit the appropriate vehicle for addressing these would be through a 'Son of CFP' adopted by the UK. There is already a statutory body, the Sea Fish Industry Authority ('Seafish'), with the role of promoting the efficiency of the industry as a whole, whilst having regard to the interests of consumers.[146] That would be a convenient mechanism for arranging assistance. Ministers would have to take care, since assistance which allegedly encourages over-exploitation is a controversial topic within the Doha Round of WTO talks, with proposals tabled to reduce the size of shipping fleets and subsidies for operating costs through a new Annex to the SCM Agreement devoted to the industry alone.[147]

Under the CFP, no new licences are issued for fishing. Instead someone wishing to enter the industry has to purchase (or perhaps inherit) a boat which already carries a licence. So an obvious vehicle for providing 'compensation' would be loans to fishermen on favourable terms to enable them to buy new boats. The 'subsidy' in such an arrangement would be the amount of interest which the borrower paid below a normal commercial rate.[148] The loan would have to be on otherwise arms' length terms, especially as to repayment, with no element of debt-forgiveness, but with an appropriate choice of interest rate, such a scheme would facilitate the modernisation of a considerable proportion of the UK fishing fleet.[149] Eligibility for such loans would be subject to objective criteria limiting them to smaller vessels, or those which better fulfilled the conservation objectives of 'Son of CFP', making them a non-specific subsidy. That case becomes easier if the scheme is opened up to other classes of coastal vessel, which might help to meet wider objectives, for example in the waterborne carriage of freight instead of by road. It is unlikely to be politically feasible to extend the scheme to private yachts.

Table 23 summarises the expected compensation costs for fishing, which indicates that the industry could be fully 'compensated', but there would be a deficiency to the Treasury to be made good from other industries. The costing approach is explained later in Part IV.

Table 23: Impact of mitigation for fishing (£ million)

		Tariff costs	Tariff revenues
		86.72	45.36
CPS abolition	3.39		
Increase in general R&D credit	3.42		
Enhanced R&D credit for experimental development	1.35		
TAP payments	9.24		
Regional grants	69.32		
		-86.72	
(GAIN)		0.00	
Leakage on regional grants			-26.06
Gain to the Exchequer			-67.43

Source: Table B13 and supporting calculations.

146 Fisheries Act 1981 section2. See also http://www.seafish.org/
147 See WTO website at < https://www.wto.org/english/tratop_e/rulesneg_e/fish_e/fish_intro_e.htm > (accessed 25/11/16).
148 SCM Agreement 1994 Article 14(b).
149 Because if the 'benefit' is equal to, say, a 2% interest rate saving, the capital value of the new vessels would be x50 the benefit.

Ceramics

This sub-category covers UK exports within Chapter 69 (ceramic products).

It corresponds to the SIC sub-divisions 233 (manufacture of clay building materials) and 234 (manufacture of other porcelain and ceramic products).

Table 24 gives the local authorities in Great Britain where these two sub-sets, building materials and ceramic products, are most concentrated, indicating which would qualify as assisted areas under the expanded regional policy discussed in Part II. The 'location quotients' indicate the degree of specialisation (1.00 equals the national average).

Table 24: Concentration of the ceramics industry in Great Britain

CLAY BUILDING MATERIALS			**PORCELAIN AND CERAMIC PRODUCTS**		
Local authority	**Location quotient**	**Area status**	**Local authority**	**Location quotient**	**Area status**
North West Leicestershire	37.2		Stoke-on-Trent	128.5	Area III
Newcastle-under-Lyme	28.3	Area I			
Stoke-on-Trent	20.7	Area III			
Rother	19.0	Area I			
Mid Sussex	16.5				
Horsham	15.6				
Forest of Dean	9.7				
Braintree	6.8	Area I			
Walsall	6.4	Area III			
Dudley	2.8	Area III			

Source: ONS location quotients for each local authority, derived from Business Register and Employment Survey, 2011. See the Technical Note in Appendix III.

It can be seen that there is a very close alignment between the two sub-sets. Porcelain and ceramics are, of course, made elsewhere in Great Britain than Stoke-on-Trent, but not in the concentration that would qualify for inclusion in Table 24.[150]

In their submission to the Treasury ahead of the Autumn Statement 2016,[151] the British Ceramic Confederation, the industry body, lobbied for five policies, under the overall slogan of E-A-R-T-H:

1. Emissions Trading System: they were concerned that the projected operation of the EU-ETS, especially the allocation of free allowances, was putting them out of business and they argued that Brexit offered an opportunity to develop a climate change policy which did more to promote UK competitiveness.

2. Action to lighten the cost of UK energy, climate and environmental policy: among other mitigation schemes, they wanted the abolition of the UK-only carbon price floor imposed via the CPS levy.

150 The second-ranked location is Fife, with a quotient of 2.6, and Stratford-on-Avon comes third with 1.8.
151 Available at < http://www.ceramfed.co.uk/news/british-ceramic-confederation-makes-submission-to-chancellor-for-autumn-statement-2016/ > (accessed 25/11/16).

3. Reduction of industrial CO_2 emissions: essentially, they were asking for fiscal support for businesses to re-equip with more carbon-efficient technology.

4. Trade freely but fairly: in short, take anti-dumping action against China.

5. Housing: they wanted more of it built.

From this list, the Autumn Statement 2016 appears to have given them item 5, with the announcement of a National Productivity Investment Fund which among other things will invest at least £8 billion in housing over the next four years.[152] The arguments of the British Ceramics Confederation for their other four items carry great force, and they amount to a plea for a co-ordinated industrial strategy.

This paper would agree with them in regard to the damaging carbon price floor, where abolition would make a material contribution. Of all of the 'seriously-affected' industries considered in this paper, electricity costs impact most heavily on ceramics. The benefit from abolition of the CPS would mitigate 26% of the industry's anticipated tariff costs, far in excess of the others'.[153] The bulk of assistance would have to come through regional aid, but the industry as a whole is one where import revenues significantly outweigh tariff costs.

Table 25 summarises the expected compensation costs for these products, which indicates that the industries could be fully 'compensated', with HM Treasury still making a considerable overall surplus. The costing approach is explained later in Part IV.

Table 25: Impact of mitigation for ceramics (£ million)

		Tariff costs	Tariff revenues
		9.55	37.84
CPS abolition	2.52		
Increase in general R&D credit	0.47		
Enhanced R&D credit for experimental development	0.23		
TAP payments	1.41		
Regional grants	4.92		
		-9.55	
(GAIN)		0.00	
Leakage on regional grants			-1.89
Gain to the Exchequer			26.40

Source: Table B13 and supporting calculations.

Aluminium

This sub-category covers UK exports within Chapter 76 (aluminium and articles thereof).

It corresponds to SIC sub-division 244 (manufacture of basic precious and other non-ferrous metals), although even at that level the matching is not precise.

152 Autumn Statement 2016, Table 3.1, page 26.
153 Second-ranking is aluminium, on 11%, and next is chemicals and plastics, on 5%.

Table 26 gives the local authorities in Great Britain where this industry is most concentrated, indicating which would qualify as assisted areas under the expanded regional policy discussed in Part II. The 'location quotients' indicate the degree of specialisation (1.00 equals the national average).

Table 26: Concentration of the aluminium industry in Great Britain

Local authority	Location quotient	Area status
High Peak	8.6	Area I
Rotherham	5.3	Area III
Cannock Chase	4.1	Area I
Tamworth	3.9	Area III
Coventry	3.2	
Walsall	2.9	Area III
Birmingham	2.8	Area II

Source: ONS location quotients for each local authority, derived from Business Register and Employment Survey, 2011. See the Technical Note in Appendix III.

It can be seen that there are relatively few areas where this industry is based, which is why the list in Table 26 has been extended to include a couple of 'near misses' (Walsall; Birmingham) which would not have passed the criteria for the equivalent tables for other sub-groupings being considered. That reinforces the impression of a quite tight geographical contiguity which is very helpful from a regional aid perspective. The industry would make material gains from the abolition of CPS, but in absolute terms regional grants will have to make up the bulk of the mitigation measures.

Table 27 summarises the expected compensation costs for this product, which indicates that the industry could be fully 'compensated', with HM Treasury still making a considerable overall surplus. The costing approach is explained later in Part IV.

Table 27: Impact of mitigation for aluminium (£ million)

		Tariff costs	Tariff revenues
		66.37	148.76
CPS abolition	7.09		
Increase in general R&D credit	2.27		
Enhanced R&D credit for experimental development	1.16		
TAP payments	11.74		
Regional grants	44.12		
		-66.37	
(GAIN)		0.00	
Leakage on regional grants			-19.59
Gain to the Exchequer			62.80

Source: Table B13 and supporting calculations.

Mitigation measures for 'middle products'

Table 28 summarises the estimated tariff position under the WTO-only basis for UK exporters to the EU of the 'middle goods' categories and the corresponding position for EU exporters to the UK.

Table 28: Estimate of annual tariffs payable on UK-EU non-agricultural exports (2015, £ millions)

	EU GOODS			UK GOODS		
Product Description	**UK Imports**	**Tariffs Payable**	**Average Tariff Rate**	**EU Imports**	**Tariffs Payable Estimate**	**Average Tariff Rate**
Mineral fuels, oils and products; bituminous substances; mineral waxes	7,684	127	1.7%	15,659	167	1.1%
Inorganic chemicals	1,186	37	3.1%	928	24	2.6%
Organic chemicals	4,010	209	5.2%	3,516	134	3.8%
Fertilisers	511	29	5.6%	228	9	3.7%
Essential oils and resinoids; perfumery, cosmetic or toilet preparations	2,964	58	1.9%	2,061	37	1.8%
Soap, organic surface-active agents, prepared waxes, candles, modelling pastes and dental preparations	1,357	45	3.3%	920	28	3.1%
Miscellaneous chemical products	2,483	118	4.7%	2,625	113	4.3%
Rubber and articles thereof	1,967	62	3.2%	1,724	54	3.1%
Raw hides and skins (other than furskins) and leather	156	7	4.7%	160	4	2.4%
Articles of leather and articles of animal gut (other than silkworm gut)	993	41	4.1%	296	13	4.2%
Furskins and artificial fur; manufactures hereof	37	1	3.0%	18	0	2.0%
Wood and articles of wood; wood charcoal	2,551	49	1.9%	271	8	3.1%
Cork and articles of cork	23	1	4.2%	1	0	3.9%
Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork	6	0	3.3%	2	0	3.8%
Wool, fine or coarse animal hair; horsehair yarn and woven fabric	156	6	4.1%	143	6	4.5%
Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	328	16	4.8%	157	7	4.7%
Headgear and parts thereof	85	3	3.1%	47	1	3.0%
Umbrellas, sun umbrellas, walking sticks, seat-sticks, whips, riding-crops and parts	9	0	4.4%	5	0	4.3%

Table 28: Estimate of annual tariffs payable on UK-EU non-agricultural exports (2015, £ millions)

	EU GOODS			UK GOODS		
Product Description	**UK Imports**	**Tariffs Payable**	**Average Tariff Rate**	**EU Imports**	**Tariffs Payable Estimate**	**Average Tariff Rate**
Prepared feathers and down; artificial flowers; articles of human hair	11	0	2.7%	6	0	2.8%
Glass and glassware	1,007	49	4.9%	470	23	5.0%
Articles of iron or steel	3,272	55	1.7%	1,493	32	2.1%
Copper and articles thereof	984	40	4.1%	582	9	1.6%
Lead and articles thereof	31	1	2.7%	155	3	1.9%
Zinc and articles thereof	61	2	3.5%	77	2	2.8%
Other base metals and cermets	210	9	4.3%	238	11	4.8%
Tools implements of base metal	628	18	2.9%	306	9	3.0%
Miscellaneous articles of base metal	858	21	2.4%	366	9	2.5%
Nuclear reactors, boilers, and mechanical appliances	25,915	366	1.4%	12,739	210	1.7%
Electrical machinery	19,749	477	2.4%	8,385	144	1.7%
Railway or tramway locomotives rolling stock	313	6	2.0%	83	1	1.7%
Aircraft, spacecraft, and parts thereof	3,391	49	1.4%	3,852	63	1.6%
Ships, boats and floating structures	187	2	1.0%	398	4	1.1%
Optical, photographic, cinematographic, measuring, medical instruments and apparatus	6,627	74	1.1%	4,123	52	1.3%
Clocks and watches	504	8	1.5%	102	2	1.5%
Musical instruments	99	3	3.2%	27	1	3.1%
Arms and ammunition	88	2	2.9%	56	1	2.1%
Furniture	3,257	58	1.8%	744	13	1.7%
Toys, games and sports requisites	827	13	1.6%	657	10	1.5%
Miscellaneous manufactured articles	896	25	2.8%	259	8	3.0%
TOTAL	**95,422**	**2,088**	**2.2%**	**63,880**	**1,214**	**1.9%**

Source: data derived from Protts "Potential post-Brexit tariff costs for EU-UK trade" (Civitas, October 2016)

This is an extensive list, and it is noteworthy that it includes a number of high-profile industries such as Chapter 88 (aircraft). In part that may reflect the high-level basis on which the data has been compiled, since within each broad category there will undoubtedly be specific sub-sectors of commodity which will be exposed to very precisely targeted tariffs at comparatively steep rates. That said, within the limitations of an aggregate netting-off approach, it should offer some reassurance that so many industries, responsible for over half of exports to the EU, are unlikely to be exposed to a material increase in costs.

It would be possible to craft mitigation schemes for each of the 39 industries in Table 28. But the very scale of such an exercise, and the relatively small amount of loss under consideration, raises questions about the return of doing so for every single industry in this category. It is more suitable to rely upon the economy-wide R&D programme and the CPS abolition conduit. By themselves they are sufficient to ensure that some of the industries, of which aircraft is the best example, make net gains compared to their tariff costs.

Regional aid is therefore a comparatively less significant factor for this category than the 'seriously-affected' industries, and the Treasury retains a comparatively smaller proportion of its revenue. Table 29 summarises the expected compensation costs. A full analysis for all industries is found in Table B13. The approach is explained later in Part IV.

Table 29: Impact of mitigation for the middle products category (£ million)

		Tariff costs	Tariff revenues
		1,214.39	2,088.01
CPS abolition	175.81		
Increase in general R&D credit	617.80		
Enhanced R&D credit for experimental development	253.20		
TAP payments	323.87		
Regional grants	190.93		
		-1,561.62	
(GAIN)		-347.23	
Leakage on regional grants			-87.80
Gain to the Exchequer			438.59

Source: Table B13 and supporting calculations.

Mitigation measures for 'de minimis' non-agricultural products

Table 30 summarises the estimated tariff position under the WTO-only basis for UK exporters to the EU of the de minimis goods categories, and the corresponding position for EU exporters to the UK.

A number of immediate observations are worth making. This small collection of industries collectively exports more by value to the EU-27 than the 'agricultural products' category (13% of the total, as opposed to 9%). It contains a number of high-profile sectors. They are also fairly concentrated, with three falling within HS Section X (Wood Pulp, Paper and Paperboard) and three within HS Section XV (Base Metals). Of the remaining six, it is not too difficult to see connections between the two industries which fall within HS Section V (Mineral Products), the raw materials, and the finished products within stone and cement articles, or between HS Chapter 71 (pearls and precious metals) and Chapter 97 (art and antiques). It is unclear if the EU wants to import such goods very badly, or does not care about them at all.

Some within the industry might be surprised to see HS Chapter 72 (iron and steel) within this list. That is a reflection of the relatively high level at which the underlying tariff cost data has been compiled. The EU operates highly specific tariffs, of an order equivalent to 4% and 6% by value, on speciality steels which, when averaged across the whole industry fall to the low effective rates given in the Table.

Table 30: Estimate of annual tariffs payable on UK-EU non-agricultural exports (2015, £ millions)

Product Description	EU GOODS UK Imports	EU GOODS Tariffs Payable	EU GOODS Average Tariff Rate	UK GOODS EU Imports	UK GOODS Tariffs Payable Estimate	UK GOODS Average Tariff Rate
Salt; sulphur; earths and stone; plastering materials, lime and cement	265	1	0.5%	264	1	0.27%
Ores, slag and ash	397	-	0.0%	62	-	0.00%
Pharmaceutical products	16,773	-	0.0%	7,168	-	0.00%
Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard	347	-	0.0%	137	-	0.00%
Paper and paperboard; articles of paper pulp, of paper or of paperboard	3,997	-	0.0%	1,317	-	0.00%
Printed books, newspapers, pictures and other products of the printing industry	566	-	0.0%	932	-	0.00%
Articles of stone, plaster, cement, asbestos, mica or similar materials	693	7	1.0%	349	2	0.63%
Pearls, precious or semi-precious stones and metals	3,457	33	0.9%	2,085	9	0.42%
Iron and steel	2,714	3	0.1%	2,437	3	0.12%
Nickel and articles thereof	231	3	1.3%	375	2	0.61%
Tin and articles thereof	28	-	0.0%	41	-	0.00%
Works of art, collectors' pieces and antiques	1,432	-	0.0%	138	-	0.00%
TOTAL	**30,899**	**46**	**0.1%**	**15,304**	**17**	**0.11%**

Source: data derived from Protts "Potential post-Brexit tariff costs for EU-UK trade" (Civitas, October 2016)

This serves as a useful corrective to any assumption that government could simply remove the cost implications for all of these businesses by writing them a cheque, and be covered by the WTO regime. Using those figures alone, in practice ministers would be over-compensating some businesses and falling short with others.

As it happens, such is the low level of tariff impact on these industries, the effect of the non-discretionary UK-wide policies (CPS abolition; enhanced R&D support) is to mitigate them completely without any recourse to the TAP or regional aid. Indeed some are comparatively significant 'net winners', of which pharmaceuticals makes the largest gain (£636 million).The upshot is that the Treasury ends up with a deficiency for this category. Table 31 summarises the expected compensation costs. A full analysis for all industries is found in Table B13. The approach is explained later in Part IV.

Table 31: Impact of mitigation for de minimis products (£ million)

		Tariff costs	Tariff revenues
		16.86	46.25
CPS abolition	83.13		
Increase in general R&D credit	407.03		
Enhanced R&D credit for experimental development	236.68		
TAP payments	0.00		
Regional grants	0.00		
		-726.84	
(GAIN)		-709.98	
Leakage on regional grants			0.00
Gain to the Exchequer			-663.73

Source: Table B13 and supporting calculations.

Part Four: The Cost Of The Solution

This paper sets a puzzle: how to ‘compensate’ industries facing £5,220 million of tariff costs on their sales to the EU-27, using a fund of £12,861 million revenue derived from imports from the EU-27. In other words, the combined programme can sustain a leakage rate of up to 59.4%. But clearly, it would be imprudent to ignore the risk that the sensitivity of sales to tariff-induced price increases, which could materially drive down revenue for HM Treasury whilst increasing the losses of UK exporters. So we would want to design an overall programme with the lowest total cost and leakage rate.

The four main policy instruments discussed in this paper have been:

- A tax incentive for R&D expenditure, which has a central leakage rate of 29%, but with targeted sub-measures where the leakage would be capped at either 0% or 24%;

- Discretionary grants and loans for an expanded list of Assisted Areas, where the leakage varies with the assisted area in which the resources are spent, but with an overall average leakage rate of 31.5%;

- A reduction in electricity prices by lowering the CPS levy intended to set a ‘carbon floor price’, which has a leakage rate of 69.4%; and

- A discretionary Transitional Assistance Programme of small one-off grants which is intended as a sweeping-up measure and which could in theory be designed with a leakage rate of 0% but for planning purposes this is taken as 20%.

The inclusion of CPS abolition perhaps requires some explanation, given that it is comparatively less efficient. There are good arguments for this action in its own right. Mitigation of tariff costs within the WTO regime will require UK-wide non-discretionary measures. Regional aid by itself cannot provide full mitigation, for the obvious reason that not every business operates in a disadvantaged area. Nor can additional support for R&D, because not every firm engages in it to the same extent. Even if the RDEC credit were increased to 75%, exhausting all of the anticipated tariff revenues, it would still fail to mitigate the costs of 60 out of the 96 product groups studied in this paper.

In contrast, we can be certain that all UK businesses use electricity in some form or other and would therefore benefit from the removal of the carbon price floor. Indeed, by itself the abolition of the CPS fully mitigates 13 of the 96 product groups.

Not the least consideration is the fact that domestic consumers also benefit from a fall in electricity prices. CPS abolition is the only measure studied in this paper which does that. Since those consumers are ultimately bearing the burden of tariffs on EU goods, simple political expediency suggests that they, too, ought to be offered a ‘Brexit bonus’ as part of a programme designed to benefit a comparatively small segment of UK plc.

Mitigation, then, is about devising an overall package of measures, each with their own winners and losers. The method in which they are applied is:

1. Calculate the benefits from the abolition of the CPS

2. Calculate the benefits from the enhanced R&D support

3. To the extent that a particular product group still has unmitigated costs, calculate an amount of TAP payment, capped at a maximum of 1% of its export sales and the balance of unmitigated costs.

4. Any remaining costs are mitigated through regional aid.

Further explanation of the methodology is given in the Technical Note in Appendix III.

Table 32 summarises the results of this process for all industries.

Table 32: Impact of all mitigation measures (£ million)

Tariff revenues			12,860.66
Tariff costs		5,220.43	
CPS abolition	367.73		
Increased R&D credits	2,076.66		
TAP payments	695.20		
Regional grants	3,146.13		
		-6,285.71	-6,285.71
(GAIN)		-1,065.29	
Leakage to Excluded services			
CPS abolition	440.05		
R&D credits	773.90		
TAP payments	173.80		
Regional grants	695.14		
			-2,082.89
Domestic consumers			-392.22
Net gain to Exchequer			4,099.84

Source: Table B13 and supporting calculations.

Conclusion

Hitherto, discussion of the UK's departure from the EU has focussed upon the risks of 'Hard Brexit' and the need to soften this by avoiding costs for business such as tariffs being levied upon exports to the EU-27.

Tariffs are not the only costs which businesses will incur, and they would not be the only obstacles which exporters would face after Brexit. What this paper, and the underlying study from which it is derived, indicate is that these tariff costs can be managed. In an ideal world, British exporters would not have to suffer them, but it is possible to mitigate their impact through other measures which are justifiable in their own right. It makes sense to remove a self-inflicted wound like the carbon price floor, which is damaging British competitiveness and low-income households. It makes sense to provide greater tax incentives for research and development. A case can be made for regional aid given the imbalances in economic performance and employment across the UK as a whole.

Hence, the real question is not 'how soft a Brexit can we achieve?' but rather 'how hard a negotiation do we wish to drive with the EU?' The balance of negotiating strengths is far more favourable to the UK. If the EU-27 wish to impose a self-inflicted wound by levying tariffs on British exports, Britain has little to fear.

What the discussion of these mitigation measures also highlights is that each one is better considered not as a stop-gap response to an immediate problem, but as part of a co-ordinated long-term industrial strategy to improve British competitiveness for a global market. That is also the best means of addressing another issue highlighted in this paper: the difficulty in matching up 'winners' and 'losers' from the tariffs and the mitigation measures. Such a strategy would have to be based on a horizontal, economy-wide approach. It would not represent a return to the 1970s-style attitude of 'picking winners', if only because such an overt targeting of benefits would eventually fall foul of the modern WTO rules.

Perhaps, then, the real conclusion of this paper is that the UK should stop obsessing about the EU and worrying about how they will react. We should get on with the task of managing our own affairs in our own interests, and leave the EU to worry about their own problems. That is the only way to make a success of Brexit. The EU-27 aren't going to spend much time trying to help us.

What does 'Brexit' mean? It means having nobody else to blame.

Appendix I: Base data

Table A1: Estimate of annual tariffs payable on UK-EU exports by EU Partner Country (2015, £ millions)

	EU GOODS			UK GOODS		
Product Description (Full description in Table A2)	**UK Imports**	**Tariffs Payable**	**Average Tariff Rate**	**EU Imports**	**Tariffs Payable Estimate**	**Average Tariff Rate**
Live animals	427	23	5.5%	286	6	2.2%
Meat	3,163	1,023	32.3%	999	378	37.8%
Fish and crustaceans	514	45	8.8%	924	87	9.4%
Dairy produce (including Eggs)	2,394	956	39.9%	840	331	39.4%
Products of animal origin	68	0	0.4%	82	0	0.2%
Live trees and other plants	932	70	7.5%	46	3	6.9%
Edible vegetables	2,154	326	15.1%	204	24	11.8%
Edible fruit and nuts	1,660	168	10.1%	200	15	7.5%
Coffee, tea, maté and spices	396	22	5.6%	191	9	4.7%
Cereals	599	79	13.1%	322	77	23.9%
Products of milling (e.g Flour)	253	64	25.2%	124	32	25.5%
Oil seeds, straw and fodder	318	10	3.3%	217	2	1.1%
Vegetable saps and extracts	68	3	4.6%	32	0	1.4%
Other vegetable products	4	-	0.0%	3	-	0.0%
Animal or vegetable fats and oils	820	122	14.8%	316	28	8.8%
Preparations of meat or fish	1,771	563	31.8%	386	154	39.9%
Sugars and sugar confectionery	719	217	30.2%	310	98	31.6%
Cocoa and cocoa preparations	1,440	16	1.1%	468	6	1.3%
Preparations of cereals, flour, starch or milk; pastrycooks' products	2,554	303	11.9%	953	121	12.7%
Preparations of vegetables, fruit, nuts or other parts of plants	1,893	372	19.7%	352	62	17.7%
Miscellaneous edible preparations	2,140	192	9.0%	889	79	8.9%
Beverages, spirits and vinegar	4,159	240	5.8%	2,148	60	2.8%
Residues and waste from the food industries	1,160	214	18.4%	539	123	22.8%
Tobacco and manufactured tobacco substitutes	333	132	39.5%	208	91	43.7%
Salt; sulphur; earths and stone; plastering materials, lime and cement	265	1	0.5%	264	1	0.3%
Ores, slag and ash	397	-	0.0%	62	-	0.0%
Mineral fuels, oils and products; bituminous substances; mineral waxes	7,684	127	1.7%	15,659	167	1.1%
Inorganic chemicals	1,186	37	3.1%	928	24	2.6%
Organic chemicals	4,010	209	5.2%	3,516	134	3.8%
Pharmaceutical products	16,773	-	0.0%	7,168	-	0.0%
Fertilisers	511	29	5.6%	228	9	3.7%

Table A1: Estimate of annual tariffs payable on UK-EU exports by EU Partner Country (2015, £ millions)

Product Description (Full description in Table A2)	EU GOODS UK Imports	EU GOODS Tariffs Payable	EU GOODS Average Tariff Rate	UK GOODS EU Imports	UK GOODS Tariffs Payable Estimate	UK GOODS Average Tariff Rate
Dyeing extracts and colouring matter; paints and varnishes; putty and other mastics; inks	1,309	79	6.0%	1,200	72	6.0%
Essential oils and resinoids; perfumery, cosmetic or toilet preparations	2,964	58	1.9%	2,061	37	1.8%
Soap, organic surface-active agents, prepared waxes, candles, modelling pastes and dental preparations	1,357	45	3.3%	920	28	3.1%
Albuminoidal substances; modified starches; glues; enzymes	451	35	7.8%	221	16	7.2%
Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations	10	1	6.3%	25	2	6.3%
Photographic or cinematographic goods	211	13	6.2%	268	16	6.1%
Miscellaneous chemical products	2,483	118	4.7%	2,625	113	4.3%
Plastics and articles thereof	8,125	498	6.1%	4,656	286	6.1%
Rubber and articles thereof	1,967	62	3.2%	1,724	54	3.1%
Raw hides and skins (other than furskins) and leather	156	7	4.7%	160	4	2.4%
Articles of leather and articles of animal gut (other than silkworm gut)	993	41	4.1%	296	13	4.2%
Furskins and artificial fur; manufactures thereof	37	1	3.0%	18	0	2.0%
Wood and articles of wood; wood charcoal	2,551	49	1.9%	271	8	3.1%
Cork and articles of cork	23	1	4.2%	1	0	3.9%
Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork	6	0	3.3%	2	0	3.8%
Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard	347	-	0.0%	137	-	0.0%
Paper and paperboard; articles of paper pulp, of paper or of paperboard	3,997	-	0.0%	1,317	-	0.0%
Printed books, newspapers, pictures and other products of the printing industry	566	-	0.0%	932	-	0.0%
Silk	19	1	5.7%	7	0	6.6%
Wool, fine or coarse animal hair; horsehair yarn and woven fabric	156	6	4.1%	143	6	4.5%

Table A1: Estimate of annual tariffs payable on UK-EU exports by EU Partner Country (2015, £ millions)

Product Description (Full description in Table A2)	EU GOODS			UK GOODS		
	UK Imports	Tariffs Payable	Average Tariff Rate	EU Imports	Tariffs Payable Estimate	Average Tariff Rate
Cotton	105	7	6.7%	65	5	7.5%
Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn	26	2	6.2%	8	1	6.5%
Man-made filaments; strip and the like of man-made textile materials	273	15	5.4%	396	22	5.5%
Man-made staple fibres	204	11	5.3%	144	9	6.3%
Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	328	16	4.8%	157	7	4.7%
Carpets and other textile floor coverings	595	47	7.9%	72	6	7.7%
Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery	143	11	7.7%	64	5	7.4%
Impregnated, coated, covered or laminated textile fabrics; textile articles suitable for industrial use	183	12	6.8%	238	17	7.1%
Knitted or crocheted fabrics	60	5	8.0%	65	5	8.0%
Articles of apparel and clothing accessories, knitted or crocheted	1,940	230	11.9%	859	102	11.8%
Articles of apparel and clothing accessories, not knitted or crocheted	2,428	283	11.7%	979	113	11.5%
Other made-up textile articles; sets; worn clothing and worn textile articles; rags	271	28	10.2%	243	21	8.5%
Footwear, gaiters and the like; parts of such articles	1,896	209	11.0%	723	83	11.4%
Headgear and parts thereof	85	3	3.1%	47	1	3.0%
Umbrellas, sun umbrellas, walking sticks, seat-sticks, whips, riding-crops and parts	9	0	4.4%	5	0	4.3%
Prepared feathers and down; artificial flowers; articles of human hair	11	0	2.7%	6	0	2.8%
Articles of stone, plaster, cement, asbestos, mica or similar materials	693	7	1.0%	349	2	0.6%
Ceramic products	748	38	5.1%	141	10	6.8%
Glass and glassware	1,007	49	4.9%	470	23	5.0%
Pearls, precious or semi-precious stones and metals	3,457	33	0.9%	2,085	9	0.4%

Table A1: Estimate of annual tariffs payable on UK-EU exports by EU Partner Country (2015, £ millions)

	EU GOODS			UK GOODS		
Product Description (Full description in Table A2)	**UK Imports**	**Tariffs Payable**	**Average Tariff Rate**	**EU Imports**	**Tariffs Payable Estimate**	**Average Tariff Rate**
Iron and steel	2,714	3	0.1%	2,437	3	0.1%
Articles of iron or steel	3,272	55	1.7%	1,493	32	2.1%
Copper and articles thereof	984	40	4.1%	582	9	1.6%
Nickel and articles thereof	231	3	1.3%	375	2	0.6%
Aluminium and articles thereof	2,186	149	6.8%	1,174	66	5.7%
Lead and articles thereof	31	1	2.7%	155	3	1.9%
Zinc and articles thereof	61	2	3.5%	77	2	2.8%
Tin and articles thereof	28	-	0.0%	41	-	0.0%
Other base metals and cermets	210	9	4.3%	238	11	4.8%
Tools implements of base metal	628	18	2.9%	306	9	3.0%
Miscellaneous articles of base metal	858	21	2.4%	366	9	2.5%
Nuclear reactors, boilers, and mechanical appliances	25,915	366	1.4%	12,739	210	1.7%
Electrical machinery	19,749	477	2.4%	8,385	144	1.7%
Railway or tramway locomotives rolling stock	313	6	2.0%	83	1	1.7%
Vehicles other than railway or tramway rolling stock	43,111	3,896	9.0%	15,439	1,348	8.7%
Aircraft, spacecraft, and parts thereof	3,391	49	1.4%	3,852	63	1.6%
Ships, boats and floating structures	187	2	1.0%	398	4	1.1%
Optical, photographic, cinematographic, measuring, medical instruments and apparatus	6,627	74	1.1%	4,123	52	1.3%
Clocks and watches	504	8	1.5%	102	2	1.5%
Musical instruments	99	3	3.2%	27	1	3.1%
Arms and ammunition	88	2	2.9%	56	1	2.1%
Furniture	3,257	58	1.8%	744	13	1.7%
Toys, games and sports requisites	827	13	1.6%	657	10	1.5%
Miscellaneous manufactured articles	896	25	2.8%	259	8	3.0%
Works of art, collectors' pieces and antiques	1,432	-	0.0%	138	-	0.0%
TOTAL	**220,551**	**12,861**	**5.8%**	**117,210**	**5,220**	**4.5%**

Source: data derived from Protts “Potential post-Brexit tariff costs for EU-UK trade” (Civitas, October 2016)

Table A2: 2-digit HS Code Product Description

01	Live animals
02	Meat and edible meat offal
03	Fish and crustaceans, molluscs and other aquatic invertebrates
04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included
05	Products of animal origin, not elsewhere specified or included
06	Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage
07	Edible vegetables and certain roots and tubers
08	Edible fruit and nuts; peel of citrus fruit or melons
09	Coffee, tea, maté and spices
10	Cereals
11	Products of the milling industry; malt; starches; inulin; wheat gluten
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; straw and fodder
13	Lac; gums, resins and other vegetable saps and extracts
14	Vegetable plaiting materials; vegetable products not elsewhere specified or included
15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes
16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates
17	Sugars and sugar confectionery
18	Cocoa and cocoa preparations
19	Preparations of cereals, flour, starch or milk; pastrycooks' products
20	Preparations of vegetables, fruit, nuts or other parts of plants
21	Miscellaneous edible preparations
22	Beverages, spirits and vinegar
23	Residues and waste from the food industries; prepared animal fodder
24	Tobacco and manufactured tobacco substitutes
25	Salt; sulphur; earths and stone; plastering materials, lime and cement
26	Ores, slag and ash
27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes
28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, of radioactive elements or of isotopes
29	Organic chemicals
30	Pharmaceutical products
31	Fertilisers
32	Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring matter; paints and varnishes; putty and other mastics; inks

Table A2: 2-digit HS Code Product Description

33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations
34	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modelling pastes, 'dental waxes' and dental preparations with a basis of plaster
35	Albuminoidal substances; modified starches; glues; enzymes
36	Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations
37	Photographic or cinematographic goods
38	Miscellaneous chemical products
39	Plastics and articles thereof
40	Rubber and articles thereof
41	Raw hides and skins (other than furskins) and leather
42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silkworm gut)
43	Furskins and artificial fur; manufactures thereof
44	Wood and articles of wood; wood charcoal
45	Cork and articles of cork
46	Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork
47	Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard
48	Paper and paperboard; articles of paper pulp, of paper or of paperboard
49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans
50	Silk
51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric
52	Cotton
53	Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn
54	Man-made filaments; strip and the like of man-made textile materials
55	Man-made staple fibres
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof
57	Carpets and other textile floor coverings
58	Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery
59	Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for industrial use
60	Knitted or crocheted fabrics
61	Articles of apparel and clothing accessories, knitted or crocheted
62	Articles of apparel and clothing accessories, not knitted or crocheted

Table A2: 2-digit HS Code Product Description

63	Other made-up textile articles; sets; worn clothing and worn textile articles; rags
64	Footwear, gaiters and the like; parts of such articles
65	Headgear and parts thereof
66	Umbrellas, sun umbrellas, walking sticks, seat-sticks, whips, riding-crops and parts thereof
67	Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles of human hair
68	Articles of stone, plaster, cement, asbestos, mica or similar materials
69	Ceramic products
70	Glass and glassware
71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin
72	Iron and steel
73	Articles of iron or steel
74	Copper and articles thereof
75	Nickel and articles thereof
76	Aluminium and articles thereof
78	Lead and articles thereof
79	Zinc and articles thereof
80	Tin and articles thereof
81	Other base metals; cermets; articles thereof
82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal
83	Miscellaneous articles of base metal
84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles
86	Railway or tramway locomotives, rolling stock and parts thereof; railway or tramway track fixtures and fittings and parts thereof; mechanical (including electromechanical) traffic signalling equipment of all kinds
87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof
88	Aircraft, spacecraft, and parts thereof
89	Ships, boats and floating structures
90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof
91	Clocks and watches and parts thereof
92	Musical instruments; parts and accessories of such articles
93	Arms and ammunition; parts and accessories thereof

Table A2: 2-digit HS Code Product Description

94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated nameplates and the like; prefabricated buildings
95	Toys, games and sports requisites; parts and accessories thereof
96	Miscellaneous manufactured articles
97	Works of art, collectors' pieces and antiques
99	*Reserved for special uses by Contracting Parties*

Appendix II: Supporting data for mitigation proposals

Table B1: Expenditure on R&D by UK businesses (£ million)

	2012	2014	2015
AGRICULTURAL PRODUCTS	558	566	562
Agriculture, hunting and forestry; Fishing	121	135	139
Food products and beverages; Tobacco products	437	431	423
SERIOUSLY-AFFECTED NON-AGRICULTURAL PRODUCTS	**3,032**	**3,373**	**3,747**
Textiles, clothing and leather products	22	22	19
Chemicals and chemical products	754	784	826
Rubber and plastic products	99	127	137
Non-ferrous metals	56	76	62
Motor vehicles and parts	2,101	2,364	2,703
MIDDLE PRODUCTS	**5,529**	**5,821**	**6,061**
Refined petroleum products and coke oven products	110	189	178
Fabricated metal products except machinery and equipment	113	110	122
Machinery and equipment	1,043	1,011	1,040
Computers and peripheral equipment	260	276	316
Electrical equipment	398	461	475
Consumer electronics and communication equipment	877	912	989
Precision instruments and optical products; photographic equipment	617	670	656
Other transport equipment	64	78	93
Shipbuilding	233	265	300
Aerospace	1,639	1,666	1,701
Other manufactured goods	175	183	191
DE MINIMIS PRODUCTS	**4,370**	**4,246**	**4,525**
Extractive Industries	209	230	206
Pulp, paper and paper products; Printing; Wood and straw products	48	48	48
Pharmaceuticals	4,039	3,855	4,178
Other non-metallic mineral products	47	62	54
Casting of iron and steel	27	51	39
EXCLUDED SERVICES	**5,129**	**5,811**	**5,989**
Sewerage, waste management, remediation activities	17	19	29
Electricity, gas and water supply	123	148	155
Construction	91	151	146
Wholesale and retail trade	167	238	215
Transport and storage, incl. postal and courier activities	35	38	49
Telecommunications	840	959	825
Miscellaneous business activities; Technical testing and analysis	994	1,104	1,104
Computer programming and information service activities	1,977	2,229	2,381
Research and development services	772	817	998
Public administration	113	108	87
TOTAL	**18,617**	**19,819**	**20,885**

Source: ONS “UK Business Enterprise Research and Development”, Table 2 dataset released 17 November 2016.

Table B2: Sources of funds for R&D performed in UK businesses, 2014 (£ million)

	UK Govmt.	Overseas	Own Funds	Other	Total
AGRICULTURAL PRODUCTS	**5**	**167**	**380**	**10**	**562**
Agriculture, hunting and forestry; Fishing	3	19	110	7	139
Food products and beverages; Tobacco products	2	148	270	3	423
SERIOUSLY-AFFECTED NON-AGRICULTURAL PRODUCTS	**47**	**466**	**3,162**	**72**	**3,747**
Textiles, clothing and leather products	-	-	19	-	19
Chemicals and chemical products	12	108	704	2	826
Rubber and plastic products	2	-	135	-	137
Non-ferrous metals	3	1	12	46	62
Motor vehicles and parts	30	357	2,292	24	2,703
MIDDLE PRODUCTS	**1,089**	**912**	**3,863**	**168**	**6,061**
Refined petroleum products and coke oven products	n/a	n/a	172	n/a	178
Fabricated metal products except machinery and equipment	4	60	58	-	122
Machinery and equipment	375	109	526	30	1,040
Computers and peripheral equipment	n/a	65	241	n/a	316
Electrical equipment	41	37	376	21	475
Consumer electronics and communication equipment	64	435	482	9	989
Precision instruments and optical products; photographic equipment	71	18	559	8	656
Other transport equipment	22	n/a	59	n/a	93
Shipbuilding	267	1	32	-	300
Aerospace	242	167	1,192	99	1,701
Other manufactured goods	3	20	166	1	191
DE MINIMIS PRODUCTS	**11**	**1,316**	**3,125**	**73**	**4,525**
Extractive Industries	1	71	134	-	206
Pulp, paper and paper products; Printing; Wood and straw products	1	-	47	-	48
Pharmaceuticals	5	1,243	2,856	73	4,178
Other non-metallic mineral products	1	2	52	-	54
Casting of iron and steel	3	-	36	-	39
EXCLUDED SERVICES	**651**	**928**	**4,130**	**283**	**5,989**
Sewerage, waste management, remediation activities	-	-	28	2	29
Electricity, gas and water supply	1	24	124	7	155
Construction	1	1	141	3	146
Wholesale and retail trade	11	43	161	-	215
Transport and storage, incl. postal and courier activities	1	13	28	8	49
Telecommunications	7	121	695	2	825

Table B2: Sources of funds for R&D performed in UK businesses, 2014 (£ million)

	UK Govmt.	Overseas	Own Funds	Other	Total
Miscellaneous business activities; Technical testing and analysis	202	131	710	61	1,104
Computer programming and information service activities	46	471	1,855	9	2,381
Research and development services	371	101	335	191	998
Public administration	11	23	53	-	87
TOTAL	**1,818**	**3,790**	**14,657**	**622**	**20,885**

'Other' includes funds from other UK sources and international organisations. EU Commission grants fall within 'Overseas'.

Source: ONS "UK Business Enterprise Research and Development", Table 13 dataset released 17 November 2016.

Table B3: Analysis of UK R&D expenditure, 2015 (£ million)

	Total	Capital		Salaries/ Wages		Other Current	
AGRICULTURAL PRODUCTS	**562**	**43**	**8%**	**265**	**47%**	**254**	**45%**
Agriculture, hunting and forestry; Fishing	139	12	9%	45	32%	82	59%
Food products and beverages; Tobacco products	423	31	7%	220	52%	172	41%
SERIOUSLY-AFFECTED NON-AGRICULTURAL	**3,747**	**326**	**9%**	**1,486**	**40%**	**1,933**	**52%**
Textiles, clothing and leather products	19	-	0%	14	74%	5	26%
Chemicals and chemical products	826	75	9%	401	49%	349	42%
Rubber and plastic products	137	27	20%	64	47%	46	34%
Non-ferrous metals	62	11	18%	37	60%	13	21%
Motor vehicles and parts	2,703	213	8%	970	36%	1,520	56%
MIDDLE PRODUCTS	**6,061**	**423**	**7%**	**3,020**	**50%**	**2,618**	**43%**
Refined petroleum products and coke oven products	178	7	4%	53	30%	118	66%
Fabricated metal products except machinery and equipment	122	12	10%	62	51%	48	39%
Machinery and equipment	1,040	74	7%	548	53%	418	40%
Computers and peripheral equipment	316	10	3%	191	60%	115	36%
Electrical equipment	475	98	21%	206	43%	171	36%
Consumer electronics and communication equipment	989	94	10%	500	51%	395	40%
Precision instruments and optical products; photographic equipment	656	37	6%	330	50%	289	44%

Table B3: Analysis of UK R&D expenditure, 2015 (£ million)

	Total	Capital		Salaries/ Wages		Other Current	
Other transport equipment	93	8	9%	41	44%	44	47%
Shipbuilding	300	-	0%	148	49%	152	51%
Aerospace	1,701	79	5%	809	48%	813	48%
Other manufactured goods	191	4	2%	132	69%	55	29%
DE MINIMIS PRODUCTS	**4,525**	**314**	**7%**	**1,969**	**44%**	**2,243**	**50%**
Extractive Industries	206	24	12%	108	52%	75	36%
Pulp, paper and paper products; Printing; Wood and straw products	48	6	13%	25	52%	17	35%
Pharmaceuticals	4,178	271	6%	1,796	43%	2,111	51%
Other non-metallic mineral products	54	13	24%	28	52%	14	26%
Casting of iron and steel	39	-	0%	12	31%	26	67%
EXCLUDED SERVICES	**5,989**	**585**	**10%**	**3,496**	**58%**	**1,911**	**32%**
Sewerage, waste management, remediation activities	29	2	7%	25	86%	3	10%
Electricity, gas and water supply	155	20	13%	69	45%	66	43%
Construction	146	1	1%	112	77%	34	23%
Wholesale and retail trade	215	9	4%	112	52%	95	44%
Transport and storage, incl. postal and courier activities	49	1	2%	40	82%	8	16%
Telecommunications	825	20	2%	481	58%	324	39%
Miscellaneous business activities; Technical testing and analysis	1,104	33	3%	694	63%	377	34%
Computer programming and information service activities	2,381	391	16%	1,369	57%	621	26%
Research and development services	998	107	11%	538	54%	353	35%
Public administration	87	1	1%	56	64%	30	34%
TOTAL	**20,885**	**1,691**	**8%**	**10,238**	**49%**	**8,956**	**43%**

'Other' includes funds from other UK sources and international organisations. EU Commission grants fall within 'Overseas'.

Source: ONS "UK Business Enterprise Research and Development", Table 13 dataset released 17 November 2016.

Table B4: UK R&D current expenditure by type, 2015 (£ million)

	Total	Basic		Applied		Experimental Development	
AGRICULTURAL PRODUCTS	**519**	**86**	**17%**	**240**	**46%**	**193**	**37%**
Agriculture, hunting and forestry; Fishing	127	-	0%	89	70%	38	30%
Food products and beverages; Tobacco products	392	86	22%	151	39%	155	40%
SERIOUSLY-AFFECTED NON-AGRICULTURAL	**3,421**	**50**	**1%**	**897**	**26%**	**2,473**	**72%**
Textiles, clothing and leather products	19	-	0%	11	58%	8	42%
Chemicals and chemical products	751	17	2%	347	46%	386	51%
Rubber and plastic products	110	17	15%	77	70%	15	14%
Non-ferrous metals	51	-	0%	25	49%	26	
Motor vehicles and parts	2,490	16	1%	437	18%	2,038	82%
MIDDLE PRODUCTS	**5,637**	**320**	**6%**	**2,598**	**46%**	**2,263**	**40%**
Refined petroleum products and coke oven products	171	n/a		n/a		112	65%
Fabricated metal products except machinery and equipment	110	1	1%	61	55%	49	45%
Machinery and equipment	966	37	4%	438	45%	491	51%
Computers and peripheral equipment	306	n/a		205	67%	n/a	
Electrical equipment	377	15	4%	120	32%	242	64%
Consumer electronics and communication equipment	895	26	3%	386	43%	483	54%
Precision instruments and optical products; photographic equipment	619	6	1%	330	53%	282	46%
Other transport equipment	85	-	0%	45	53%	40	47%
Shipbuilding	300	4		n/a		n/a	
Aerospace	1,622	228	14%	954	59%	440	27%
Other manufactured goods	186	3	2%	59	32%	124	67%
DE MINIMIS PRODUCTS	**4,211**	**170**	**4%**	**1,660**	**39%**	**2,382**	**57%**
Extractive Industries	182	7	4%	142	78%	34	19%
Pulp, paper and paper products; Printing; Wood and straw products	42	-	0%	10	24%	33	79%
Pharmaceuticals	3,907	156	4%	1,494	38%	2,257	58%
Other non-metallic mineral products	42	7	17%	14	33%	20	48%
Casting of iron and steel	38	-	0%	-	0%	38	100%
EXCLUDED SERVICES	**5,407**	**602**	**11%**	**2,475**	**46%**	**2,331**	**43%**
Sewerage, waste management, remediation activities	28	-	0%	25	89%	3	11%
Electricity, gas and water supply	135	29	21%	49	36%	57	42%
Construction	145	23	16%	47	32%	75	52%
Wholesale and retail trade	207	3	1%	128	62%	76	37%
Transport and storage, incl. postal and courier activities	48	3	6%	22	46%	23	48%

Table B4: UK R&D current expenditure by type, 2015 (£ million)

	Total	Basic		Applied		Experimental Development	
Telecommunications	805	1	0%	194	24%	611	76%
Miscellaneous business activities; Technical testing and analysis	1,071	40	4%	748	70%	283	26%
Computer programming and information service activities	1,991	205	10%	813	41%	972	49%
Research and development services	891	280	31%	433	49%	178	20%
Public administration	86	18	21%	16	19%	53	62%
TOTAL	**19,194**	**1,276**	**7%**	**7,996**	**42%**	**9,922**	**52%**

Source: ONS “UK Business Enterprise Research and Development”, Table 11 dataset released 17 November 2016.

Table B5: WTO Income test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
UNITED KINGDOM	24,544.50		
NORTH EAST			
Darlington	22,775.50	92.8%	
County Durham	15,164.50	61.8%	Yes
Hartlepool	18,276.00	74.5%	Yes
Middlesbrough	16,156.50	65.8%	Yes
Northumberland	14,791.50	60.3%	Yes
Redcar and Cleveland	16,156.50	65.8%	Yes
Stockton-on-Tees	18,276.00	74.5%	Yes
Gateshead	20,402.00	83.1%	Yes
Newcastle upon Tyne	20,402.00	83.1%	Yes
North Tyneside	20,402.00	83.1%	Yes
South Tyneside	20,402.00	83.1%	Yes
Sunderland	18,981.50	77.3%	Yes
NORTH WEST			
Blackburn with Darwen	17,807.00	72.5%	Yes
Blackpool	14,849.50	60.5%	Yes
Cheshire East	29,596.50	120.6%	
Cheshire West and Chester	24,522.00	99.9%	
Halton	20,480.00	83.4%	Yes
Warrington	30,176.00	122.9%	
Allerdale	20,417.00	83.2%	Yes
Barrow-in-Furness	20,417.00	83.2%	Yes
Carlisle	22,027.50	89.7%	
Copeland	20,417.00	83.2%	Yes
Eden	22,027.50	89.7%	
South Lakeland	22,027.50	89.7%	
Bolton	15,060.00	61.4%	Yes
Bury	15,126.00	61.6%	Yes
Manchester	30,654.00	124.9%	
Oldham	15,126.00	61.6%	Yes
Rochdale	15,126.00	61.6%	Yes
Salford	26,838.50	109.3%	
Stockport	18,618.00	75.9%	Yes
Tameside	18,618.00	75.9%	Yes
Trafford	26,838.50	109.3%	
Wigan	15,060.00	61.4%	Yes
Burnley	16,192.50	66.0%	Yes
Chorley	17,182.50	70.0%	Yes
Fylde	25,193.00	102.6%	
Hyndburn	16,192.50	66.0%	Yes
Lancaster	15,464.00	63.0%	Yes
Pendle	16,192.50	66.0%	Yes

Table B5: WTO Income test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
Preston	25,193.00	102.6%	
Ribble Valley	25,193.00	102.6%	
Rossendale	16,192.50	66.0%	Yes
South Ribble	25,193.00	102.6%	
West Lancashire	17,182.50	70.0%	Yes
Wyre	15,464.00	63.0%	Yes
Knowsley	20,480.00	83.4%	Yes
Liverpool	21,780.00	88.7%	
Sefton	14,480.50	59.0%	Yes
St. Helens	20,480.00	83.4%	Yes
Wirral	13,453.50	54.8%	Yes
YORKSHIRE & THE HUMBER			
East Riding of Yorkshire	17,029.50	69.4%	Yes
Kingston upon Hull, City of	19,278.00	78.5%	Yes
North East Lincolnshire	19,750.50	80.5%	Yes
North Lincolnshire	19,750.50	80.5%	Yes
York	24,049.00	98.0%	
Craven	21,390.00	87.1%	
Hambleton	21,390.00	87.1%	
Harrogate	21,390.00	87.1%	
Richmondshire	21,390.00	87.1%	
Ryedale	21,390.00	87.1%	
Scarborough	21,390.00	87.1%	
Selby	21,390.00	87.1%	
Barnsley	15,329.00	62.5%	Yes
Doncaster	15,329.00	62.5%	Yes
Rotherham	15,329.00	62.5%	Yes
Sheffield	19,725.00	80.4%	Yes
Bradford	17,164.00	69.9%	Yes
Calderdale	17,497.50	71.3%	Yes
Kirklees	17,497.50	71.3%	Yes
Leeds	26,050.00	106.1%	
Wakefield	19,288.00	78.6%	Yes
EAST MIDLANDS			
Derby	26,884.00	109.5%	
Leicester	20,705.00	84.4%	Yes
Nottingham	25,129.50	102.4%	
Rutland	21,579.00	87.9%	
Amber Valley	18,649.00	76.0%	Yes
Bolsover	17,275.50	70.4%	Yes
Chesterfield	17,275.50	70.4%	Yes
Derbyshire Dales	18,649.00	76.0%	Yes
Erewash	18,649.00	76.0%	Yes

Table B5: WTO Income test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
High Peak	18,649.00	76.0%	Yes
North East Derbyshire	17,275.50	70.4%	Yes
South Derbyshire	18,649.00	76.0%	Yes
Blaby	21,579.00	87.9%	
Charnwood	21,579.00	87.9%	
Harborough	21,579.00	87.9%	
Hinckley and Bosworth	21,579.00	87.9%	
Melton	21,579.00	87.9%	
North West Leicestershire	21,579.00	87.9%	
Oadby and Wigston	21,579.00	87.9%	
Boston	18,309.00	74.6%	Yes
East Lindsey	18,309.00	74.6%	Yes
Lincoln	18,309.00	74.6%	Yes
North Kesteven	18,309.00	74.6%	Yes
South Holland	18,309.00	74.6%	Yes
South Kesteven	18,309.00	74.6%	Yes
West Lindsey	18,309.00	74.6%	Yes
Corby	19,525.00	79.5%	Yes
Daventry	24,335.50	99.1%	
East Northamptonshire	19,525.00	79.5%	Yes
Kettering	19,525.00	79.5%	Yes
Northampton	24,335.50	99.1%	
South Northamptonshire	24,335.50	99.1%	
Wellingborough	19,525.00	79.5%	Yes
Ashfield	17,193.00	70.0%	Yes
Bassetlaw	17,193.00	70.0%	Yes
Broxtowe	16,301.50	66.4%	Yes
Gedling	16,301.50	66.4%	Yes
Mansfield	17,193.00	70.0%	Yes
Newark and Sherwood	17,193.00	70.0%	Yes
Rushcliffe	16,301.50	66.4%	Yes
WEST MIDLANDS			
Herefordshire, County of	19,252.50	78.4%	Yes
Shropshire	19,200.50	78.2%	Yes
Stoke-on-Trent	19,358.00	78.9%	Yes
Telford and Wrekin	21,432.50	87.3%	
Cannock Chase	17,488.50	71.3%	Yes
East Staffordshire	17,488.50	71.3%	Yes
Lichfield	17,488.50	71.3%	Yes
Newcastle-under-Lyme	17,488.50	71.3%	Yes
South Staffordshire	17,488.50	71.3%	Yes
Stafford	17,488.50	71.3%	Yes
Staffordshire Moorlands	17,488.50	71.3%	Yes

Table B5: WTO Income test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
Tamworth	17,488.50	71.3%	Yes
North Warwickshire	25,693.00	104.7%	
Nuneaton and Bedworth	25,693.00	104.7%	
Rugby	25,693.00	104.7%	
Stratford-on-Avon	25,693.00	104.7%	
Warwick	25,693.00	104.7%	
Birmingham	21,008.00	85.6%	
Coventry	21,310.50	86.8%	
Dudley	14,840.50	60.5%	Yes
Sandwell	17,525.00	71.4%	Yes
Solihull	26,495.50	107.9%	
Walsall	15,823.50	64.5%	Yes
Wolverhampton	18,293.50	74.5%	Yes
Bromsgrove	19,296.00	78.6%	Yes
Malvern Hills	19,296.00	78.6%	Yes
Redditch	19,296.00	78.6%	Yes
Worcester	19,296.00	78.6%	Yes
Wychavon	19,296.00	78.6%	Yes
Wyre Forest	19,296.00	78.6%	Yes
EAST			
Bedford	21,052.00	85.8%	
Central Bedfordshire	19,865.00	80.9%	Yes
Luton	21,807.00	88.8%	
Peterborough	27,270.00	111.1%	
Southend-on-Sea	16,663.50	67.9%	Yes
Thurrock	18,017.50	73.4%	Yes
Cambridge	26,557.50	108.2%	
East Cambridgeshire	26,557.50	108.2%	
Fenland	26,557.50	108.2%	
Huntingdonshire	26,557.50	108.2%	
South Cambridgeshire	26,557.50	108.2%	
Basildon	19,036.50	77.6%	Yes
Braintree	18,490.00	75.3%	Yes
Brentwood	23,842.00	97.1%	
Castle Point	19,036.50	77.6%	Yes
Chelmsford	23,842.00	97.1%	
Colchester	18,490.00	75.3%	Yes
Epping Forest	21,529.50	87.7%	
Harlow	21,529.50	87.7%	
Maldon	23,842.00	97.1%	
Rochford	19,036.50	77.6%	Yes
Tendring	18,490.00	75.3%	Yes
Uttlesford	21,529.50	87.7%	

Table B5: WTO Income test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
Broxbourne	27,677.50	112.8%	
Dacorum	27,677.50	112.8%	
East Hertfordshire	27,677.50	112.8%	
Hertsmere	27,677.50	112.8%	
North Hertfordshire	27,677.50	112.8%	
St Albans	27,677.50	112.8%	
Stevenage	27,677.50	112.8%	
Three Rivers	27,677.50	112.8%	
Watford	27,677.50	112.8%	
Welwyn Hatfield	27,677.50	112.8%	
Breckland	18,211.00	74.2%	Yes
Broadland	22,686.00	92.4%	
Great Yarmouth	22,686.00	92.4%	
King`s Lynn and West Norfolk	17,131.50	69.8%	Yes
North Norfolk	17,131.50	69.8%	Yes
Norwich	22,686.00	92.4%	
South Norfolk	18,211.00	74.2%	Yes
Babergh	21,675.00	88.3%	
Forest Heath	21,675.00	88.3%	
Ipswich	21,675.00	88.3%	
Mid Suffolk	21,675.00	88.3%	
St Edmundsbury	21,675.00	88.3%	
Suffolk Coastal	21,675.00	88.3%	
Waveney	21,675.00	88.3%	
LONDON			
Camden	286,333.00	1166.6%	
City of London	286,333.00	1166.6%	
Hackney	24,192.50	98.6%	
Hammersmith and Fulham	55,838.00	227.5%	
Haringey	44,629.50	181.8%	
Islington	44,629.50	181.8%	
Kensington and Chelsea	55,838.00	227.5%	
Lambeth	31,812.50	129.6%	
Lewisham	32,931.00	134.2%	
Newham	24,192.50	98.6%	
Southwark	32,931.00	134.2%	
Tower Hamlets	98,579.50	401.6%	
Wandsworth	27,082.00	110.3%	
Westminster	215,213.00	876.8%	
Barking and Dagenham	18,731.00	76.3%	Yes
Barnet	20,879.00	85.1%	
Bexley	18,384.00	74.9%	Yes
Brent	22,619.00	92.2%	

Table B5: WTO Income test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
Bromley	20,905.00	85.2%	
Croydon	18,961.00	77.3%	Yes
Ealing	24,250.50	98.8%	
Enfield	19,952.50	81.3%	Yes
Greenwich	18,384.00	74.9%	Yes
Harrow	30,739.00	125.2%	
Havering	18,731.00	76.3%	Yes
Hillingdon	30,739.00	125.2%	
Hounslow	31,883.00	129.9%	
Kingston upon Thames	23,748.50	96.8%	
Merton	23,748.50	96.8%	
Redbridge	16,346.50	66.6%	Yes
Richmond upon Thames	31,883.00	129.9%	
Sutton	23,748.50	96.8%	
Waltham Forest	16,346.50	66.6%	Yes
SOUTH EAST			
Bracknell Forest	38,594.50	157.2%	
Brighton and Hove	23,810.00	97.0%	
Isle of Wight	17,062.00	69.5%	Yes
Medway	16,905.50	68.9%	Yes
Milton Keynes	38,876.00	158.4%	
Portsmouth	25,545.50	104.1%	
Reading	38,594.50	157.2%	
Slough	38,594.50	157.2%	
Southampton	23,256.50	94.8%	
West Berkshire	38,594.50	157.2%	
Windsor and Maidenhead	38,594.50	157.2%	
Wokingham	38,594.50	157.2%	
Aylesbury Vale	27,777.00	113.2%	
Chiltern	27,777.00	113.2%	
South Bucks	27,777.00	113.2%	
Wycombe	27,777.00	113.2%	
Eastbourne	17,103.50	69.7%	Yes
Hastings	17,103.50	69.7%	Yes
Lewes	17,103.50	69.7%	Yes
Rother	17,103.50	69.7%	Yes
Wealden	17,103.50	69.7%	Yes
Basingstoke and Deane	29,751.50	121.2%	
East Hampshire	27,182.50	110.7%	
Eastleigh	22,703.00	92.5%	
Fareham	22,703.00	92.5%	
Gosport	22,703.00	92.5%	
Hart	29,751.50	121.2%	

Table B5: WTO Income test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
Havant	22,703.00	92.5%	
New Forest	27,182.50	110.7%	
Rushmoor	29,751.50	121.2%	
Test Valley	27,182.50	110.7%	
Winchester	27,182.50	110.7%	
Ashford	22,141.50	90.2%	
Canterbury	16,976.00	69.2%	Yes
Dartford	19,866.50	80.9%	Yes
Dover	16,976.00	69.2%	Yes
Gravesham	19,866.50	80.9%	Yes
Maidstone	22,141.50	90.2%	
Sevenoaks	24,208.50	98.6%	
Shepway	16,976.00	69.2%	Yes
Swale	19,866.50	80.9%	Yes
Thanet	16,976.00	69.2%	Yes
Tonbridge and Malling	24,208.50	98.6%	
Tunbridge Wells	24,208.50	98.6%	
Cherwell	29,917.50	121.9%	
Oxford	29,917.50	121.9%	
South Oxfordshire	29,917.50	121.9%	
Vale of White Horse	29,917.50	121.9%	
West Oxfordshire	29,917.50	121.9%	
Elmbridge	32,738.00	133.4%	
Epsom and Ewell	30,202.00	123.0%	
Guildford	32,738.00	133.4%	
Mole Valley	30,202.00	123.0%	
Reigate and Banstead	30,202.00	123.0%	
Runnymede	32,738.00	133.4%	
Spelthorne	32,738.00	133.4%	
Surrey Heath	32,738.00	133.4%	
Tandridge	30,202.00	123.0%	
Waverley	32,738.00	133.4%	
Woking	32,738.00	133.4%	
Adur	21,084.00	85.9%	
Arun	21,084.00	85.9%	
Chichester	21,084.00	85.9%	
Crawley	28,456.00	115.9%	
Horsham	28,456.00	115.9%	
Mid Sussex	28,456.00	115.9%	
Worthing	21,084.00	85.9%	
SOUTH WEST			
Bath and North East Somerset	25,967.00	105.8%	
Bournemouth	22,849.00	93.1%	

Table B5: WTO Income test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
Bristol, City of	29,247.50	119.2%	
Cornwall	17,290.50	70.4%	Yes
Isles of Scilly	17,290.50	70.4%	Yes
North Somerset	25,967.00	105.8%	
Plymouth	19,650.50	80.1%	Yes
Poole	22,849.00	93.1%	
South Gloucestershire	25,967.00	105.8%	
Swindon	30,451.50	124.1%	
Torbay	15,342.50	62.5%	Yes
Wiltshire	19,913.00	81.1%	Yes
East Devon	19,907.50	81.1%	Yes
Exeter	19,907.50	81.1%	Yes
Mid Devon	19,907.50	81.1%	Yes
North Devon	19,907.50	81.1%	Yes
South Hams	19,907.50	81.1%	Yes
Teignbridge	19,907.50	81.1%	Yes
Torridge	19,907.50	81.1%	Yes
West Devon	19,907.50	81.1%	Yes
Christchurch	19,293.00	78.6%	Yes
East Dorset	19,293.00	78.6%	Yes
North Dorset	19,293.00	78.6%	Yes
Purbeck	19,293.00	78.6%	Yes
West Dorset	19,293.00	78.6%	Yes
Weymouth and Portland	19,293.00	78.6%	Yes
Cheltenham	24,086.50	98.1%	
Cotswold	24,086.50	98.1%	
Forest of Dean	24,086.50	98.1%	
Gloucester	24,086.50	98.1%	
Stroud	24,086.50	98.1%	
Tewkesbury	24,086.50	98.1%	
Mendip	19,279.50	78.5%	Yes
Sedgemoor	19,279.50	78.5%	Yes
South Somerset	19,279.50	78.5%	Yes
Taunton Deane	19,279.50	78.5%	Yes
West Somerset	19,279.50	78.5%	Yes
WALES			
Anglesey	12,961.50	52.8%	Yes
Gwynedd	18,566.00	75.6%	Yes
Conwy	15,273.50	62.2%	Yes
Denbighshire	15,273.50	62.2%	Yes
Flintshire	20,916.50	85.2%	
Wrexham	20,916.50	85.2%	
Powys	15,894.50	64.8%	Yes

Table B5: WTO Income test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
Ceredigion	15,439.00	62.9%	Yes
Pembrokeshire	15,439.00	62.9%	Yes
Carmarthenshire	15,439.00	62.9%	Yes
Swansea	17,918.50	73.0%	Yes
Neath Port Talbot	15,987.50	65.1%	Yes
Bridgend	15,987.50	65.1%	Yes
The Vale of Glamorgan	22,079.50	90.0%	
Cardiff	22,079.50	90.0%	
Rhondda, Cynon, Taff	15,404.50	62.8%	Yes
Merthyr Tydfil	15,404.50	62.8%	Yes
Caerphilly	13,391.50	54.6%	Yes
Blaenau Gwent	13,391.50	54.6%	Yes
Torfaen	13,391.50	54.6%	Yes
Monmouthshire	19,541.50	79.6%	Yes
Newport	19,541.50	79.6%	Yes
SCOTLAND			
Aberdeen City	36,923.50	150.4%	
Aberdeenshire	36,923.50	150.4%	
Angus	19,004.50	77.4%	Yes
Argyll and Bute	19,970.00	81.4%	Yes
Clackmannanshire	17,026.50	69.4%	Yes
Dumfries & Galloway	16,970.50	69.1%	Yes
Dundee City	19,004.50	77.4%	Yes
East Ayrshire	13,289.50	54.1%	Yes
East Dunbartonshire	14,472.50	59.0%	Yes
East Lothian	14,921.00	60.8%	Yes
East Renfrewshire	17,015.50	69.3%	Yes
Edinburgh, City of	35,371.50	144.1%	
Eilean Siar	16,107.00	65.6%	Yes
Falkirk	17,195.00	70.1%	Yes
Fife	17,026.50	69.4%	Yes
Glasgow City	31,258.50	127.4%	
Highland	16,420.00	66.9%	Yes
Inverclyde	17,015.50	69.3%	Yes
Midlothian	14,921.00	60.8%	Yes
Moray	23,680.50	96.5%	
North Ayrshire	13,289.50	54.1%	Yes
North Lanarkshire	17,589.00	71.7%	Yes
Orkney Islands	19,646.50	80.0%	Yes
Perth and Kinross	22,138.00	90.2%	
Renfrewshire	17,015.50	69.3%	Yes
Scottish Borders	16,749.00	68.2%	Yes
Shetland Islands	25,979.50	105.8%	

Table B5: WTO Income test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
South Ayrshire	20,695.00	84.3%	Yes
South Lanarkshire	17,328.00	70.6%	Yes
Stirling	22,138.00	90.2%	
West Dunbartonshire	14,472.50	59.0%	Yes
West Lothian	19,375.50	78.9%	Yes
NORTHERN IRELAND			
Antrim and Newtownabbey	16,986.50	69.2%	Yes
Armagh City, Banbridge and Craigavon	16,986.50	69.2%	Yes
Belfast	34,455.50	140.4%	
Causeway Coast and Glens	14,196.00	57.8%	Yes
Derry City and Strabane	14,196.00	57.8%	Yes
Fermanagh and Omagh	15,574.00	63.5%	Yes
Lisburn and Castlereagh	15,113.00	61.6%	Yes
Mid and East Antrim	16,986.50	69.2%	Yes
Mid Ulster	15,574.00	63.5%	Yes
Newry, Mourne and Down	16,986.50	69.2%	Yes
Ards and North Down	16,986.50	69.2%	Yes

Source: see the Technical Note in Appendix III

Table B6: WTO Unemployment test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
UNITED KINGDOM			
Unemployment Rate	6.5%		
Claimant Count Rate	2.2%		
NORTH EAST			
Darlington	7.6%	117.2%	Yes
County Durham	8.8%	135.2%	Yes
Hartlepool	12.6%	194.1%	Yes
Middlesbrough	13.0%	200.5%	Yes
Northumberland	6.0%	92.9%	
Redcar and Cleveland	9.6%	148.0%	Yes
Stockton-on-Tees	8.0%	122.7%	Yes
Gateshead	7.8%	119.8%	Yes
Newcastle upon Tyne	10.2%	157.8%	Yes
North Tyneside	6.6%	102.1%	
South Tyneside	10.0%	154.0%	Yes
Sunderland	10.4%	160.8%	Yes

Table B6: WTO Unemployment test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
NORTH WEST			
Blackburn with Darwen	7.9%	122.3%	Yes
Blackpool	7.6%	117.1%	Yes
Cheshire East	4.6%	70.4%	
Cheshire West and Chester	4.6%	71.4%	
Halton	7.2%	111.6%	Yes
Warrington	4.7%	72.5%	
Allerdale	5.6%	86.1%	
Barrow-in-Furness	6.9%	106.7%	
Carlisle	7.0%	108.7%	
Copeland	5.9%	91.4%	
Eden	3.0%	46.6%	
South Lakeland	3.7%	56.5%	
Bolton	7.9%	121.8%	Yes
Bury	6.6%	102.1%	
Manchester	9.2%	142.7%	Yes
Oldham	9.1%	140.9%	Yes
Rochdale	8.6%	132.7%	Yes
Salford	10.0%	153.9%	Yes
Stockport	5.3%	82.4%	
Tameside	7.3%	111.9%	Yes
Trafford	6.0%	92.5%	
Wigan	7.3%	112.6%	Yes
Burnley	10.8%	166.4%	Yes
Chorley	3.9%	59.7%	
Fylde	4.1%	63.5%	
Hyndburn	6.8%	104.3%	
Lancaster	3.6%	56.0%	
Pendle	8.7%	135.0%	Yes
Preston	5.5%	85.0%	
Ribble Valley	7.0%	108.5%	
Rossendale	8.5%	131.0%	Yes
South Ribble	4.9%	76.2%	
West Lancashire	4.9%	74.9%	
Wyre	7.4%	113.6%	Yes
Knowsley	8.4%	129.6%	Yes
Liverpool	10.8%	166.8%	Yes
Sefton	6.5%	100.7%	
St. Helens	8.5%	130.5%	Yes
Wirral	6.9%	107.2%	
YORKSHIRE & THE HUMBER			
East Riding of Yorkshire	5.5%	84.8%	
Kingston upon Hull, City of	11.6%	178.5%	Yes

Table B6: WTO Unemployment test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
North East Lincolnshire	9.2%	142.3%	Yes
North Lincolnshire	5.2%	80.1%	
York	4.4%	67.6%	
Craven	5.7%	88.0%	
Hambleton	5.0%	77.7%	
Harrogate	2.8%	43.3%	
Richmondshire	5.7%	87.2%	
Ryedale		55.2%	
Scarborough	9.5%	146.6%	Yes
Selby	4.4%	67.6%	
Barnsley	8.4%	130.0%	Yes
Doncaster	9.3%	143.1%	Yes
Rotherham	9.2%	141.4%	Yes
Sheffield	9.3%	144.3%	Yes
Bradford	9.9%	152.5%	Yes
Calderdale	6.4%	98.7%	
Kirklees	6.5%	100.0%	
Leeds	8.0%	122.8%	Yes
Wakefield	8.0%	123.1%	Yes
EAST MIDLANDS			
Derby	8.3%	127.6%	Yes
Leicester	11.2%	173.0%	Yes
Nottingham	10.8%	167.4%	Yes
Rutland	3.9%	59.7%	
Amber Valley	3.8%	59.4%	
Bolsover	5.6%	87.1%	
Chesterfield	5.1%	78.3%	
Derbyshire Dales	3.8%	59.4%	
Erewash	6.6%	101.8%	
High Peak	5.8%	89.2%	
North East Derbyshire	3.3%	50.3%	
South Derbyshire	5.4%	82.7%	
Blaby	4.7%	72.1%	
Charnwood	4.3%	66.4%	
Harborough	5.0%	77.2%	
Hinckley and Bosworth	5.1%	78.1%	
Melton	5.0%	77.7%	
North West Leicestershire	4.6%	71.0%	
Oadby and Wigston	4.9%	75.7%	
Boston	4.9%	75.6%	
East Lindsey	8.7%	134.7%	Yes
Lincoln	6.2%	95.8%	
North Kesteven	5.4%	82.6%	

Table B6: WTO Unemployment test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
South Holland	4.2%	64.5%	
South Kesteven	5.6%	85.7%	
West Lindsey	5.5%	84.9%	
Corby	10.0%	153.9%	Yes
Daventry	3.9%	59.8%	
East Northamptonshire	8.7%	133.6%	Yes
Kettering	5.0%	76.4%	
Northampton	5.3%	81.7%	
South Northamptonshire	2.3%	35.2%	
Wellingborough	8.7%	134.9%	Yes
Ashfield	5.6%	86.0%	
Bassetlaw	5.7%	87.3%	
Broxtowe	6.4%	98.5%	
Gedling	6.7%	103.3%	
Mansfield	10.4%	160.1%	Yes
Newark and Sherwood	5.7%	87.5%	
Rushcliffe	4.0%	61.1%	
WEST MIDLANDS			
Herefordshire, County of	4.5%	69.4%	
Shropshire	4.9%	75.9%	
Stoke-on-Trent	8.3%	127.6%	Yes
Telford and Wrekin	6.6%	102.2%	
Cannock Chase	5.0%	77.2%	
East Staffordshire	2.6%	40.5%	
Lichfield	5.3%	81.8%	
Newcastle-under-Lyme	4.9%	75.4%	
South Staffordshire	6.0%	92.4%	
Stafford	3.1%	47.5%	
Staffordshire Moorlands	4.5%	69.3%	
Tamworth	9.7%	149.3%	Yes
North Warwickshire	8.9%	137.6%	Yes
Nuneaton and Bedworth	5.4%	83.6%	
Rugby	3.2%	49.8%	
Stratford-on-Avon	2.1%	32.8%	
Warwick	3.3%	51.3%	
Birmingham	12.1%	187.5%	Yes
Coventry	6.4%	98.3%	
Dudley	8.3%	128.8%	Yes
Sandwell	10.2%	156.9%	Yes
Solihull	5.3%	81.4%	
Walsall	9.5%	147.3%	Yes
Wolverhampton	12.1%	186.3%	Yes
Bromsgrove	4.0%	62.0%	

Table B6: WTO Unemployment test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
Malvern Hills	4.7%	72.3%	
Redditch	4.2%	65.4%	
Worcester	4.9%	75.4%	
Wychavon	3.5%	53.9%	
Wyre Forest	6.0%	92.6%	
EAST			
Bedford	6.2%	95.7%	
Central Bedfordshire	3.6%	55.3%	
Luton	7.6%	117.6%	Yes
Peterborough	6.5%	100.4%	
Southend-on-Sea	6.9%	106.8%	
Thurrock	6.5%	100.6%	
Cambridge	4.8%	74.0%	
East Cambridgeshire	3.3%	50.7%	
Fenland	7.1%	110.2%	Yes
Huntingdonshire	3.8%	58.0%	
South Cambridgeshire	3.6%	54.9%	
Basildon	7.2%	111.6%	Yes
Braintree	4.7%	73.0%	
Brentwood	5.2%	79.7%	
Castle Point	5.8%	90.2%	
Chelmsford	4.0%	61.1%	
Colchester	5.4%	82.8%	
Epping Forest	6.0%	93.2%	
Harlow	7.9%	121.6%	Yes
Maldon	9.1%	140.7%	Yes
Rochford	8.1%	124.3%	Yes
Tendring	8.8%	135.8%	Yes
Uttlesford	4.9%	75.1%	
Broxbourne	3.2%	50.0%	
Dacorum	2.4%	37.6%	
East Hertfordshire	3.8%	58.6%	
Hertsmere	5.1%	79.3%	
North Hertfordshire	7.3%	112.8%	Yes
St Albans	4.0%	61.2%	
Stevenage	5.3%	82.2%	
Three Rivers	5.9%	91.5%	
Watford	5.0%	76.9%	
Welwyn Hatfield	3.8%	58.9%	
Breckland	6.1%	94.1%	
Broadland	3.8%	58.8%	
Great Yarmouth	5.3%	81.7%	
King`s Lynn and West Norfolk	6.7%	103.5%	

Table B6: WTO Unemployment test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
North Norfolk	4.0%	61.7%	
Norwich	5.8%	88.9%	
South Norfolk	5.2%	80.2%	
Babergh	6.3%	97.4%	
Forest Heath	3.9%	60.9%	
Ipswich	7.5%	116.2%	Yes
Mid Suffolk	2.7%	41.6%	
St Edmundsbury	3.3%	51.2%	
Suffolk Coastal	4.2%	65.4%	
Waveney	9.4%	145.7%	Yes
LONDON			
Camden	6.2%	95.0%	
City of London		52.2%	
Hackney	8.3%	127.5%	Yes
Hammersmith and Fulham	5.4%	82.9%	
Haringey	7.5%	116.0%	Yes
Islington	6.9%	105.9%	
Kensington and Chelsea	6.1%	94.4%	
Lambeth	6.7%	103.8%	
Lewisham	7.2%	111.8%	Yes
Newham	10.3%	159.1%	Yes
Southwark	9.3%	143.3%	Yes
Tower Hamlets	10.9%	168.0%	Yes
Wandsworth	6.3%	97.3%	
Westminster	7.1%	109.3%	
Barking and Dagenham	12.1%	187.5%	Yes
Barnet	6.4%	99.2%	
Bexley	7.1%	109.7%	
Brent	8.5%	131.6%	Yes
Bromley	5.5%	84.8%	
Croydon	6.9%	107.1%	
Ealing	8.6%	132.5%	Yes
Enfield	6.3%	96.5%	
Greenwich	9.8%	151.3%	Yes
Harrow	6.5%	101.0%	
Havering	6.8%	104.9%	
Hillingdon	7.0%	107.4%	
Hounslow	6.4%	99.4%	
Kingston upon Thames	5.3%	82.2%	
Merton	5.5%	84.1%	
Redbridge	8.5%	131.7%	Yes
Richmond upon Thames	4.3%	66.1%	
Sutton	5.5%	84.7%	
Waltham Forest	7.3%	113.1%	Yes

Table B6: WTO Unemployment test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
SOUTH EAST			
Bracknell Forest	3.2%	49.5%	
Brighton and Hove	6.9%	106.7%	
Isle of Wight	6.9%	106.8%	
Medway	9.3%	144.2%	Yes
Milton Keynes	6.7%	102.9%	
Portsmouth	6.2%	95.8%	
Reading	5.0%	77.7%	
Slough	6.8%	105.1%	
Southampton	6.8%	104.5%	
West Berkshire	3.5%	54.2%	
Windsor and Maidenhead	3.6%	55.5%	
Wokingham	3.4%	52.0%	
Aylesbury Vale	3.3%	51.3%	
Chiltern	3.5%	53.6%	
South Bucks	5.0%	76.5%	
Wycombe	5.8%	90.0%	
Eastbourne	6.4%	99.0%	
Hastings	8.0%	122.9%	Yes
Lewes	4.7%	72.5%	
Rother	3.6%	55.2%	
Wealden	4.2%	64.1%	
Basingstoke and Deane	4.3%	66.6%	
East Hampshire	5.3%	81.8%	
Eastleigh	3.8%	59.3%	
Fareham	5.9%	91.2%	
Gosport	6.5%	100.6%	
Hart	2.9%	45.1%	
Havant	5.4%	83.4%	
New Forest	4.1%	63.1%	
Rushmoor	4.3%	65.9%	
Test Valley	3.6%	55.4%	
Winchester	5.1%	78.0%	
Ashford	5.3%	81.9%	
Canterbury	10.4%	159.9%	Yes
Dartford	5.5%	84.2%	
Dover	8.7%	133.5%	Yes
Gravesham	7.3%	113.3%	Yes
Maidstone	5.4%	83.9%	
Sevenoaks	4.4%	68.2%	
Shepway	5.1%	78.4%	
Swale	5.9%	91.2%	
Thanet	7.9%	121.8%	Yes

Table B6: WTO Unemployment test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
Tonbridge and Malling	3.5%	54.3%	
Tunbridge Wells	3.9%	59.7%	
Cherwell	3.0%	46.5%	
Oxford	5.3%	81.4%	
South Oxfordshire	2.9%	45.5%	
Vale of White Horse	3.8%	58.4%	
West Oxfordshire	4.9%	75.9%	
Elmbridge	4.3%	65.6%	
Epsom and Ewell	5.8%	89.0%	
Guildford	5.4%	83.8%	
Mole Valley	4.8%	74.1%	
Reigate and Banstead	3.4%	52.1%	
Runnymede	4.1%	63.8%	
Spelthorne	4.5%	69.2%	
Surrey Heath	5.7%	87.8%	
Tandridge	6.0%	92.1%	
Waverley	4.7%	73.0%	
Woking	5.8%	90.0%	
Adur	7.0%	107.5%	
Arun	3.2%	49.8%	
Chichester	4.6%	70.5%	
Crawley	7.8%	119.7%	Yes
Horsham	3.6%	56.3%	
Mid Sussex	3.3%	50.8%	
Worthing	4.9%	75.8%	
SOUTH WEST			
Bath and North East Somerset	4.7%	73.0%	
Bournemouth	5.1%	78.5%	
Bristol, City of	7.1%	109.1%	
Cornwall	5.4%	83.5%	
Isles of Scilly		28.4%	
North Somerset	4.3%	65.7%	
Plymouth	7.7%	118.1%	Yes
Poole	3.6%	55.5%	
South Gloucestershire	4.3%	65.7%	
Swindon	5.2%	79.9%	
Torbay	6.2%	95.3%	
Wiltshire	4.9%	76.2%	
East Devon	3.4%	52.4%	
Exeter	4.1%	63.1%	
Mid Devon	3.3%	50.2%	
North Devon	4.7%	72.3%	
South Hams	6.9%	106.6%	

Table B6: WTO Unemployment test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
Teignbridge	4.3%	66.4%	
Torridge	7.5%	116.3%	Yes
West Devon	4.7%	72.9%	
Christchurch	4.3%	66.8%	
East Dorset	3.2%	49.8%	
North Dorset	3.1%	47.6%	
Purbeck	7.4%	113.8%	Yes
West Dorset	5.6%	86.2%	
Weymouth and Portland	8.4%	129.4%	Yes
Cheltenham	4.9%	75.5%	
Cotswold	3.3%	50.3%	
Forest of Dean	6.7%	102.9%	
Gloucester	7.8%	119.9%	Yes
Stroud	3.7%	57.8%	
Tewkesbury	4.2%	64.8%	
Mendip	4.2%	65.3%	
Sedgemoor	6.2%	95.4%	
South Somerset	3.8%	59.4%	
Taunton Deane	4.0%	62.4%	
West Somerset		56.7%	
WALES			
Anglesey	6.8%	104.5%	
Gwynedd	6.1%	94.1%	
Conwy	5.1%	79.0%	
Denbighshire	6.6%	101.5%	
Flintshire	5.0%	77.2%	
Wrexham	5.4%	83.2%	
Powys	3.3%	50.8%	
Ceredigion	4.0%	61.5%	
Pembrokeshire	6.2%	96.0%	
Carmarthenshire	7.1%	109.8%	
Swansea	8.5%	131.4%	Yes
Neath Port Talbot	7.7%	119.1%	Yes
Bridgend	7.0%	108.6%	
The Vale of Glamorgan	7.3%	112.5%	Yes
Cardiff	7.6%	117.4%	Yes
Rhondda, Cynon, Taff	8.7%	133.6%	Yes
Merthyr Tydfil	8.5%	131.8%	Yes
Caerphilly	8.3%	127.7%	Yes
Blaenau Gwent	12.3%	190.3%	Yes
Torfaen	9.0%	138.4%	Yes
Monmouthshire	4.7%	72.2%	
Newport	7.4%	114.0%	Yes

Table B6: WTO Unemployment test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
SCOTLAND			
Aberdeen City	4.6%	70.5%	
Aberdeenshire	3.5%	54.0%	
Angus	6.8%	105.0%	
Argyll and Bute	5.0%	76.8%	
Clackmannanshire	8.5%	131.1%	Yes
Dumfries and Galloway	5.9%	90.8%	
Dundee City	10.8%	167.2%	Yes
East Ayrshire	10.1%	155.7%	Yes
East Dunbartonshire	4.4%	68.3%	
East Lothian	5.6%	86.5%	
East Renfrewshire	5.9%	91.0%	
Edinburgh, City of	5.6%	86.1%	
Eilean Siar	5.9%	91.5%	
Falkirk	6.7%	102.7%	
Fife	7.7%	118.6%	Yes
Glasgow City	9.5%	146.2%	Yes
Highland	4.5%	69.3%	
Inverclyde	7.4%	113.5%	Yes
Midlothian	5.2%	80.9%	
Moray	4.9%	75.7%	
North Ayrshire	11.0%	169.5%	Yes
North Lanarkshire	8.5%	130.7%	Yes
Orkney Islands	2.7%	41.7%	
Perth and Kinross	5.4%	83.6%	
Renfrewshire	6.5%	101.0%	
Scottish Borders	3.9%	59.8%	
Shetland Islands	5.5%	84.9%	
South Ayrshire	6.9%	105.9%	
South Lanarkshire	6.5%	100.6%	
Stirling	5.8%	89.5%	
West Dunbartonshire	8.4%	130.2%	Yes
West Lothian	6.7%	104.1%	
NORTHERN IRELAND			
Overall unemployment rate	6.8%		
Overall claimant count	4.6%		
Antrim and Newtownabbey		147.8%	Yes
Armagh City, Banbridge and Craigavon		174.6%	Yes
Belfast		273.1%	Yes
Causeway Coast and Glens		207.5%	Yes
Derry City and Strabane		349.3%	Yes
Fermanagh and Omagh		194.0%	Yes
Lisburn and Castlereagh		122.4%	Yes

Table B6: WTO Unemployment test for UK local authorities

Area	Rate	Compared to UK Average	Passed test?
Mid and East Antrim		162.7%	Yes
Mid Ulster		153.7%	Yes
Newry, Mourne and Down		200.0%	Yes
Ards and North Down		159.7%	Yes

Source: see the Technical Note in Appendix III

Table B7: Potential New Assisted Areas

Area I	Area II	Area III
NORTH EAST		
Northumberland	Darlington	County Durham
North Tyneside		Hartlepool
		Middlesbrough
		Redcar and Cleveland
		Stockton-on-Tees
		Gateshead
		Newcastle upon Tyne
		South Tyneside
		Sunderland
NORTH WEST		
Allerdale	Manchester	Blackburn with Darwen
Barrow-in-Furness	Salford	Blackpool
Copeland	Liverpool	Halton
Bury		Bolton
Stockport		Oldham
Chorley		Rochdale
Hyndburn		Tameside
Lancaster		Wigan
West Lancashire		Burnley
Sefton		Pendle
Wirral		Rossendale
		Wyre
		Knowsley
		St. Helens
YORKSHIRE & THE HUMBER		
East Riding of Yorkshire	Scarborough	Kingston upon Hull, City of
North Lincolnshire	Leeds	North East Lincolnshire
Calderdale		Barnsley
Kirklees		Doncaster

Table B7: Potential New Assisted Areas

Area I	Area II	Area III
		Rotherham
		Sheffield
		Bradford
		Wakefield
EAST MIDLANDS		
Amber Valley	Derby	Leicester
Bolsover	Nottingham	East Lindsey
Chesterfield		Corby
Derbyshire Dales		East Northamptonshire
Erewash		Wellingborough
High Peak		Mansfield
North East Derbyshire		
South Derbyshire		
Boston		
Lincoln		
North Kesteven		
South Holland		
South Kesteven		
West Lindsey		
Kettering		
Ashfield		
Bassetlaw		
Broxtowe		
Gedling		
Newark and Sherwood		
Rushcliffe		
WEST MIDLANDS		
Herefordshire, County of	North Warwickshire	Stoke-on-Trent
Shropshire	Birmingham	Tamworth
Cannock Chase		Dudley
East Staffordshire		Sandwell
Lichfield		Walsall
Newcastle-under-Lyme		Wolverhampton
South Staffordshire		
Stafford		
Staffordshire Moorlands		
Bromsgrove		
Malvern Hills		
Redditch		
Worcester		
Wychavon		
Wyre Forest		
EAST		
Central Bedfordshire	Luton	Basildon
Southend-on-Sea	Fenland	Rochford

Table B7: Potential New Assisted Areas

Area I	Area II	Area III
Thurrock	Harlow	Tendring
Braintree	Maldon	
Castle Point	North Hertfordshire	
Colchester	Ipswich	
Breckland	Waveney	
King`s Lynn and West Norfolk		
North Norfolk		
South Norfolk		
LONDON		
Bexley	Hackney	Barking and Dagenham
Croydon	Haringey	Greenwich
Enfield	Lewisham	Redbridge
Havering	Newham	Waltham Forest
	Southwark	
	Tower Hamlets	
	Brent	
	Ealing	
SOUTH EAST		
Isle of Wight	Crawley	Medway
Eastbourne		Hastings
Lewes		Canterbury
Rother		Dover
Wealden		Gravesham
Dartford		Thanet
Shepway		
Swale		
SOUTH WEST		
Cornwall	Gloucester	Plymouth
Isles of Scilly		Torridge
Torbay		Purbeck
Wiltshire		Weymouth and Portland
East Devon		
Exeter		
Mid Devon		
North Devon		
South Hams		
Teignbridge		
West Devon		
Christchurch		
East Dorset		
North Dorset		
West Dorset		
Mendip		
Sedgemoor		

Table B7: Potential New Assisted Areas

Area I	Area II	Area III
South Somerset		
Taunton Deane		
West Somerset		
WALES		
Anglesey	The Vale of Glamorgan	Swansea
Gwynedd	Cardiff	Neath Port Talbot
Conwy		Rhondda, Cynon, Taff
Denbighshire		Merthyr Tydfil
Powys		Caerphilly
Ceredigion		Blaenau Gwent
Pembrokeshire		Torfaen
Carmarthenshire		Newport
Bridgend		
Monmouthshire		
SCOTLAND		
Angus	Glasgow City	Clackmannanshire
Argyll and Bute		Dundee City
Dumfries & Galloway		East Ayrshire
East Dunbartonshire		Fife
East Lothian		Inverclyde
East Renfrewshire		North Ayrshire
Eilean Siar		North Lanarkshire
Falkirk		West Dunbartonshire
Highland		
Midlothian		
Orkney Islands		
Renfrewshire		
Scottish Borders		
South Ayrshire		
South Lanarkshire		
West Lothian		
NORTHERN IRELAND		
	Belfast	Antrim and Newtownabbey
		Armagh City, Banbridge and Craigavon
		Causeway Coast and Glens
		Derry City and Strabane
		Fermanagh and Omagh
		Lisburn and Castlereagh
		Mid and East Antrim
		Mid Ulster
		Newry, Mourne and Down
		Ards and North Down

Source: Tables B5 and B6.

Table B8: Industrial specialisation in Area I authorities

Authority	Quotient	Industry	Category
NORTH EAST			
Northumberland	25.67	05 : Mining of coal and lignite	De Minimis
North Tyneside	2.59	82 : Office administrative, office support and other business support activities	Excluded services
NORTH WEST			
Allerdale	9.33	22 : Manufacture of rubber and plastic products	Seriously affected non-agriculture
Barrow-in-Furness	3.88	32 : Other manufacturing	Middle products
Copeland	3.45	42 : Civil engineering	Excluded services
Bury	5.06	13 : Manufacture of textiles	Seriously affected non-agriculture
Stockport	3.33	18 : Printing and reproduction of recorded media	De Minimis
Chorley	3.19	13 : Manufacture of textiles	Seriously affected non-agriculture
Hyndburn	13.18	31 : Manufacture of furniture	Middle products
Lancaster	2.53	13 : Manufacture of textiles	Seriously affected non-agriculture
West Lancashire	6.46	17 : Manufacture of paper and paper products	De Minimis
Sefton	2.39	84 : Public administration and defence; compulsory social security	Excluded services
Wirral	5.51	19 : Manufacture of coke and refined petroleum products	Middle products
YORKSHIRE & THE HUMBER			
East Riding of Yorkshire	5.35	08 : Other mining and quarrying	De Minimis
North Lincolnshire	4.18	08 : Other mining and quarrying	De Minimis
Calderdale	5.61	31 : Manufacture of furniture	Middle products
Kirklees	19.59	13 : Manufacture of textiles	Seriously affected non-agriculture
EAST MIDLANDS			
Amber Valley	15.32	14 : Manufacture of wearing apparel	Seriously affected non-agriculture
Bolsover	6.73	22 : Manufacture of rubber and plastic products	Seriously affected non-agriculture
Chesterfield	3.37	32 : Other manufacturing	Middle products
Derbyshire Dales	16.2	08 : Other mining and quarrying	De Minimis
Erewash	13.33	31 : Manufacture of furniture	Middle products
High Peak	12.05	08 : Other mining and quarrying	De Minimis
North East Derbyshire	11.89	02 : Forestry and logging	Agricultural products
South Derbyshire	3.11	23 : Manufacture of other non-metallic mineral products	De Minimis

Table B8: Industrial specialisation in Area I authorities

Authority	Quotient	Industry	Category
Boston	9.86	16 : Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	De Minimis
Lincoln	4.19	60 : Programming and broadcasting activities	Excluded services
North Kesteven	9.51	02 : Forestry and logging	Agricultural products
South Holland	13.76	10 : Manufacture of food products	Agricultural products
South Kesteven	6.25	27 : Manufacture of electrical equipment	Middle products
West Lindsey	4.96	02 : Forestry and logging	Agricultural products
Kettering	24.5	15 : Manufacture of leather and related products	Seriously affected non-agriculture
Ashfield	12.85	14 : Manufacture of wearing apparel	Seriously affected non-agriculture
Bassetlaw	6.4	37 : Sewerage	Excluded services
Broxtowe	3.29	53 : Postal and courier activities	Excluded services
Gedling	13.93	13 : Manufacture of textiles	Seriously affected non-agriculture
Newark and Sherwood	4.43	02 : Forestry and logging	Agricultural products
Rushcliffe	3.81	93 : Sports activities and amusement and recreation activities	Excluded services
WEST MIDLANDS			
Herefordshire, County of	10.83	11 : Manufacture of beverages	Agricultural products
Shropshire	5.85	36 : Water collection, treatment and supply	Excluded services
Cannock Chase	5.9	77 : Rental and leasing activities	Excluded services
East Staffordshire	20.06	11 : Manufacture of beverages	Agricultural products
Lichfield	3.6	28 : Manufacture of machinery and equipment n.e.c.	Middle products
Newcastle-under-Lyme	3.92	23 : Manufacture of other non-metallic mineral products	De Minimis
South Staffordshire	2.97	28 : Manufacture of machinery and equipment n.e.c.	Middle products
Stafford	6.39	39 : Remediation activities and other waste management services. This division includes the provision of remediation services, i.e. the cleanup of contaminated buildings and sites, soil, surface or ground water.	Excluded services
Staffordshire Moorlands	6.48	28 : Manufacture of machinery and equipment n.e.c.	Middle products
Bromsgrove	4.6	32 : Other manufacturing	Middle products
Malvern Hills	5.21	26 : Manufacture of computer, electronic and optical products	Middle products
Redditch	7.52	27 : Manufacture of electrical equipment	Middle products
Worcester	13.8	37 : Sewerage	Excluded services

Table B8: Industrial specialisation in Area I authorities

Authority	Quotient	Industry	Category
Wychavon	4.25	95 : Repair of computers and personal and household goods	Excluded services
Wyre Forest	15.73	13 : Manufacture of textiles	Seriously affected non-agriculture
EAST			
Central Bedfordshire	6.23	02 : Forestry and logging	Agricultural products
Southend-on-Sea	3.22	32 : Other manufacturing	Middle products
Thurrock	4.69	52 : Warehousing and support activities for transportation	Excluded services
Braintree	5.68	23 : Manufacture of other non-metallic mineral products	De Minimis
Castle Point	2.66	77 : Rental and leasing activities	Excluded services
Colchester	5.49	03 : Fishing and aquaculture	Seriously affected non-agriculture
Breckland	6.98	31 : Manufacture of furniture	Middle products
King's Lynn and West Norfolk	3.7	37 : Sewerage	Excluded services
North Norfolk	5.18	03 : Fishing and aquaculture	Seriously affected non-agriculture
South Norfolk	6.85	29 : Manufacture of motor vehicles, trailers and semi-trailers	Seriously affected non-agriculture
LONDON			
Bexley	30.24	39 : Remediation activities and other waste management services. This division includes the provision of remediation services, i.e. the clean up of contaminated buildings and sites, soil, surface or ground water.	Excluded services
Croydon	2.78	65 : Insurance, reinsurance and pension funding, except compulsory social security	Excluded services
Enfield	2.91	80 : Security and investigation activities	Excluded services
Havering	5.06	37 : Sewerage	Excluded services
SOUTH EAST			
Isle of Wight	7.49	30 : Manufacture of other transport equipment	Middle products
Eastbourne	2.77	55 : Accommodation	Excluded services
Lewes	4.62	90 : Creative, arts and entertainment activities	Excluded services
Rother	3.48	23 : Manufacture of other non-metallic mineral products	De Minimis
Wealden	5.78	02 : Forestry and logging	Agricultural products
Dartford	3.29	33 : Repair and installation of machinery and equipment	Middle products
Shepway	6.35	79 : Travel agency, tour operator and other reservation service and related activities	Excluded services

Table B8: Industrial specialisation in Area I authorities

Authority	Quotient	Industry	Category
Swale	5.32	17 : Manufacture of paper and paper products	De Minimis
SOUTH WEST			
Cornwall	8.71	08 : Other mining and quarrying	De Minimis
Isles of Scilly	12.91	55 : Accommodation	Excluded services
Torbay	12.46	03 : Fishing and aquaculture	Seriously affected non-agriculture
Wiltshire	4.89	72 : Scientific research and development	Excluded services
East Devon	4.71	03 : Fishing and aquaculture	Seriously affected non-agriculture
Exeter	7.06	36 : Water collection, treatment and supply	Excluded services
Mid Devon	5.7	02 : Forestry and logging	Agricultural products
North Devon	4.6	27 : Manufacture of electrical equipment	Middle products
South Hams	5.2	03 : Fishing and aquaculture	Seriously affected non-agriculture
Teignbridge	13.78	08 : Other mining and quarrying	De Minimis
Torridge	5.33	03 : Fishing and aquaculture	Seriously affected non-agriculture
Christchurch	7.24	33 : Repair and installation of machinery and equipment	Middle products
East Dorset	5.53	33 : Repair and installation of machinery and equipment	Middle products
North Dorset	8.27	27 : Manufacture of electrical equipment	Middle products
West Dorset	3.92	13 : Manufacture of textiles	Seriously affected non-agriculture
Mendip	20.19	08 : Other mining and quarrying	De Minimis
Sedgemoor	4.55	16 : Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	De Minimis
South Somerset	19.8	30 : Manufacture of other transport equipment	Middle products
Taunton Deane	3.27	79 : Travel agency, tour operator and other reservation service and related activities	Excluded services
West Somerset	10.91	55 : Accommodation	Excluded services
WALES			
Anglesey	5.56	03 : Fishing and aquaculture	Seriously affected non-agriculture
Gwynedd	8.71	08 : Other mining and quarrying	De Minimis
Conwy	4.25	55 : Accommodation	Excluded services
Denbighshire	3.83	27 : Manufacture of electrical equipment	Middle products
Powys	6.51	02 : Forestry and logging	Agricultural products
Ceredigion	14.84	02 : Forestry and logging	Agricultural products
Pembrokeshire	4.45	03 : Fishing and aquaculture	Seriously affected non-agriculture

Table B8: Industrial specialisation in Area I authorities

Authority	Quotient	Industry	Category
Carmarthenshire	4.31	02 : Forestry and logging	Agricultural products
Bridgend	10.19	39 : Remediation activities and other waste management services. This division includes the provision of remediation services, i.e. the clean up of contaminated buildings and sites, soil, surface or ground water.	Excluded services
Monmouthshire	5.38	36 : Water collection, treatment and supply	Excluded services
SCOTLAND			
Angus	11.27	13 : Manufacture of textiles	Seriously affected non-agriculture
Argyll & Bute	41.54	03 : Fishing and aquaculture	Seriously affected non-agriculture
Dumfries & Galloway	17.37	02 : Forestry and logging	Agricultural products
East Dunbartonshire	2.81	22 : Manufacture of rubber and plastic products	Seriously affected non-agriculture
East Lothian	4.51	03 : Fishing and aquaculture	Seriously affected non-agriculture
East Renfrewshire	3.22	42 : Civil engineering	Excluded services
Eilean Siar	117.14	03 : Fishing and aquaculture	Seriously affected non-agriculture
Falkirk	9.76	20 : Manufacture of chemicals and chemical products	Seriously affected non-agriculture
Highland	32.03	03 : Fishing and aquaculture	Seriously affected non-agriculture
Midlothian	10.98	72 : Scientific research and development	Excluded services
Orkney Islands	96.81	03 : Fishing and aquaculture	Seriously affected non-agriculture
Renfrewshire	20.77	15 : Manufacture of leather and related products	Seriously affected non-agriculture
Scottish Borders	31.03	14 : Manufacture of wearing apparel	Seriously affected non-agriculture
South Ayrshire	11.98	33 : Repair and installation of machinery and equipment	Middle products
South Lanarkshire	8.86	35 : Electricity, gas, steam and air conditioning supply	Excluded services
West Lothian	2.85	26 : Manufacture of computer, electronic and optical products	Middle products

Source: ONS location quotients for each local authority, derived from Business Register and Employment Survey, 2011. See the Technical Note in Appendix III.

Table B9: Industrial specialisation in Area II authorities

Authority	Quotient	Industry	Category
NORTH EAST			
Darlington	5.39	25 : Manufacture of fabricated metal products, except machinery and equipment	Middle products
NORTH WEST			
Manchester	5.74	51 : Air transport	Excluded services
Salford	9.03	60 : Programming and broadcasting activities	Excluded services
Liverpool	4.12	21 : Manufacture of basic pharmaceutical products and pharmaceutical preparations	De Minimis
YORKSHIRE & THE HUMBER			
Scarborough	4.46	55 : Accommodation	Excluded services
Leeds	2.6	80 : Security and investigation activities	Excluded services
EAST MIDLANDS			
Derby	19.39	30 : Manufacture of other transport equipment	Middle products
Nottingham	7.53	63 : Information service activities	Excluded services
WEST MIDLANDS			
North Warwickshire	7.54	52 : Warehousing and support activities for transportation	Excluded services
Birmingham	2.21	29 : Manufacture of motor vehicles, trailers and semi-trailers	Seriously affected non-agriculture
EAST			
Luton	11.51	51 : Air transport	Excluded services
Fenland	7.83	10 : Manufacture of food products	Agricultural products
Harlow	4.73	28 : Manufacture of machinery and equipment n.e.c.	Middle products
Maldon	4.71	18 : Printing and reproduction of recorded media	De Minimis
North Hertfordshire	7.74	20 : Manufacture of chemicals and chemical products	Seriously affected non-agriculture
Ipswich	3.46	66 : Activities auxiliary to financial services and insurance activities	Excluded services
Waveney	7.31	18 : Printing and reproduction of recorded media	De Minimis
LONDON			
Hackney	7.76	15 : Manufacture of leather and related products	Seriously affected non-agriculture
Haringey	5.58	14 : Manufacture of wearing apparel	Seriously affected non-agriculture

Table B9: Industrial specialisation in Area II authorities

Authority	Quotient	Industry	Category
Lewisham	3.77	39 : Remediation activities and other waste management services. This division includes the provision of remediation services, i.e. the cleanup of contaminated buildings and sites, soil, surface or ground water.	Excluded services
Newham	2.26	39 : Remediation activities and other waste management services. This division includes the provision of remediation services, i.e. the cleanup of contaminated buildings and sites, soil, surface or ground water.	Excluded services
Southwark	6.02	58 : Publishing activities	Excluded services
Tower Hamlets	8.89	66 : Activities auxiliary to financial services and insurance activities	Excluded services
Brent	2.98	60 : Programming and broadcasting activities	Excluded services
Ealing	4.4	73 : Advertising and market research	Excluded services
SOUTH EAST			
Crawley	48.5	51 : Air transport	Excluded services
SOUTH WEST			
Gloucester	4.67	79 : Travel agency, tour operator and other reservation service and related activities	Excluded services
WALES			
The Vale of Glamorgan	9.22	33 : Repair and installation of machinery and equipment	Middle products
Cardiff	4.54	65 : Insurance, reinsurance and pension funding, except compulsory social security	Excluded services
SCOTLAND			
Glasgow City	4.14	11 : Manufacture of beverages	Agricultural products
NORTHERN IRELAND			
Belfast		Public administration, education and health	Excluded services

Source: ONS location quotients for each local authority, derived from Business Register and Employment Survey, 2011. See the Technical Note in Appendix III.

Table B10: Industrial specialisation in Area III authorities

Authority	Quotient	Industry	Category
NORTH EAST			
County Durham	5.82	21 : Manufacture of basic pharmaceutical products and pharmaceutical preparations	De Minimis
Hartlepool	4.66	20 : Manufacture of chemicals and chemical products	Seriously affected non-agriculture
Middlesbrough	2.18	86 : Human health activities	Excluded services
Redcar and Cleveland non-agriculture	13.11	24 : Manufacture of basic metals	Seriously affected
Stockton-on-Tees	5.11	20 : Manufacture of chemicals and chemical products	Seriously affected non-agriculture
Gateshead	3.6	28 : Manufacture of machinery and equipment n.e.c.	Middle products
Newcastle upon Tyne	3.03	51 : Air transport	Excluded services
South Tyneside	5.1	27 : Manufacture of electrical equipment	Middle products
Sunderland	16.38	29 : Manufacture of motor vehicles, trailers and semi-trailers	Seriously affected non-agriculture
NORTH WEST			
Blackburn with Darwen	7.97	17 : Manufacture of paper and paper products	De Minimis
Blackpool	4.29	55 : Accommodation	Excluded services
Halton	13.79	20 : Manufacture of chemicals and chemical products	Seriously affected non-agriculture
Bolton	2.92	13 : Manufacture of textiles	Seriously affected non-agriculture
Oldham	3.92	31 : Manufacture of furniture	Middle products
Rochdale	8.15	13 : Manufacture of textiles	Seriously affected non-agriculture
Tameside	6.41	13 : Manufacture of textiles	Seriously affected non-agriculture
Wigan	3.45	10 : Manufacture of food products	Agricultural products
Burnley	4.68	17 : Manufacture of paper and paper products	De Minimis
Pendle	17.27	31 : Manufacture of furniture	Middle products
Rossendale	6.82	20 : Manufacture of chemicals and chemical products	Seriously affected non-agriculture
Wyre	5.5	20 : Manufacture of chemicals and chemical products	Seriously affected non-agriculture
Knowsley	12	29 : Manufacture of motor vehicles, trailers and semi-trailers	Seriously affected non-agriculture
St. Helens	12.5	23 : Manufacture of other non-metallic mineral products	De Minimis
YORKSHIRE & THE HUMBER			
Kingston upon Hull, City of	3.01	29 : Manufacture of motor vehicles, trailers and semi-trailers	Seriously affected non-agriculture

Table B10: Industrial specialisation in Area III authorities

Authority	Quotient	Industry	Category
North East Lincolnshire	6.51	20 : Manufacture of chemicals and chemical products	Seriously affected non-agriculture
Barnsley	5.52	23 : Manufacture of other non-metallic mineral products	De Minimis
Doncaster	3.22	22 : Manufacture of rubber and plastic products	Seriously affected non-agriculture
Rotherham	8.33	24 : Manufacture of basic metals	Seriously affected non-agriculture
Sheffield	4.82	24 : Manufacture of basic metals	Seriously affected non-agriculture
Bradford	5.59	13 : Manufacture of textiles	Seriously affected non-agriculture
Wakefield	8.12	14 : Manufacture of wearing apparel	Seriously affected non-agriculture
EAST MIDLANDS			
Leicester	11.58	14 : Manufacture of wearing apparel	Seriously affected non-agriculture
East Lindsey	6.59	17 : Manufacture of paper and paper products	De Minimis
Corby	10.33	24 : Manufacture of basic metals	Seriously affected non-agriculture
East Northamptonshire	36.75	15 : Manufacture of leather and related products	Seriously affected non-agriculture
Wellingborough	10.52	15 : Manufacture of leather and related products	Seriously affected non-agriculture
Mansfield	3.91	18 : Printing and reproduction of recorded media	De Minimis
WEST MIDLANDS			
Stoke-on-Trent	12.54	23 : Manufacture of other non-metallic mineral products	De Minimis
Tamworth	4.4	95 : Repair of computers and personal and household goods	Excluded services
Dudley	7.05	31 : Manufacture of furniture	Middle products
Sandwell	9.9	35 : Electricity, gas, steam and air conditioning supply	Excluded services
Walsall non-agriculture	5.85	24 : Manufacture of basic metals	Seriously affected
Wolverhampton non-agriculture	4.34	14 : Manufacture of wearing apparel	Seriously affected
EAST			
Basildon	3.18	31 : Manufacture of furniture	Middle products
Rochford	4.48	33 : Repair and installation of machinery and equipment	Middle products
Tendring	3.35	77 : Rental and leasing activities	Excluded services

Table B10: Industrial specialisation in Area III authorities

Authority	Quotient	Industry	Category
LONDON			
Barking and Dagenham	9.36	39 : Remediation activities and other waste management services. This division includes the provision of remediation services, i.e. the cleanup of contaminated buildings and sites, soil, surface or ground water.	Excluded services
Greenwich	2.44	91 : Libraries, archives, museums and other cultural activities	Excluded services
Redbridge	3.18	80 : Security and investigation activities	Excluded services
Waltham Forest	2.13	49 : Land transport and transport via pipelines	Excluded services
SOUTH EAST			
Medway	4.38	26 : Manufacture of computer, electronic and optical products	Middle products
Hastings	7.37	26 : Manufacture of computer, electronic and optical products	Middle products
Canterbury	2.19	03 : Fishing and aquaculture	Seriously affected non-agriculture
Dover	51.76	50 : Water transport	Excluded services
Gravesham	3.97	50 : Water transport	Excluded services
Thanet	3.01	22 : Manufacture of rubber and plastic products	Seriously affected non-agriculture
SOUTH WEST			
Plymouth	12.96	30 : Manufacture of other transport equipment	Middle products
Torridge	5.33	03 : Fishing and aquaculture	Seriously affected non-agriculture
Purbeck	17.29	08 : Other mining and quarrying	De Minimis
Weymouth and Portland	9.3	03 : Fishing and aquaculture	Seriously affected non-agriculture
WALES			
Swansea	2.23	84 : Public administration and defence; compulsory social security	Excluded services
Neath Port Talbot	57.1	05 : Mining of coal and lignite	De Minimis
Rhondda, Cynon, Taff	4.38	22 : Manufacture of rubber and plastic products	Seriously affected non-agriculture
Merthyr Tydfil	2.59	18 : Printing and reproduction of recorded media	De Minimis
Caerphilly	7.26	17 : Manufacture of paper and paper products	De Minimis
Blaenau Gwent	6.95	27 : Manufacture of electrical equipment	Middle products
Torfaen	6.11	29 : Manufacture of motor vehicles, trailers and semi-trailers	Seriously affected non-agriculture
Newport	3.89	26 : Manufacture of computer, electronic	

Table B10: Industrial specialisation in Area III authorities

Authority	Quotient	Industry	Category
		and optical products	Middle products
SCOTLAND			
Clackmannanshire	22.85	11 : Manufacture of beverages	Agricultural products
Dundee City	4.71	13 : Manufacture of textiles	Seriously affected non-agriculture
East Ayrshire	69.9	05 : Mining of coal and lignite	De Minimis
Fife	4.27	05 : Mining of coal and lignite	De Minimis
Inverclyde	8.66	50 : Water transport	Excluded services
North Ayrshire	3.83	13 : Manufacture of textiles	Seriously affected non-agriculture
North Lanarkshire	7.32	11 : Manufacture of beverages	Agricultural products
West Dunbartonshire	17.73	11 : Manufacture of beverages	Agricultural products
NORTHERN IRELAND			
Antrim and Newtownabbey		Public administration, education and health	Excluded services
Ards and North Down		Public administration, education and health	Excluded services
Armagh City, Banbridge and Craigavon		Public administration, education and health	Excluded services
Causeway Coast and Glens		Public administration, education and health	Excluded services
Derry City and Strabane		Public administration, education and health	Excluded services
Fermanagh and Omagh		Public administration, education and health	Excluded services
Lisburn and Castlereagh		Public administration, education and health	Excluded services
Mid and East Antrim		Public administration, education and health	Excluded services
Mid Ulster		Public administration, education and health	Excluded services
Newry, Mourne and Down		Public administration, education and health	Excluded services

Source: ONS location quotients for each local authority, derived from Business Register and Employment Survey, 2011. See the Technical Note in Appendix III.

Table B11: Usage of UK electricity supplied by industry, 2015

Industry	Usage (GWh)		Share of Total	
AGRICULTURAL PRODUCTS		14,816.7		4.5%
Agriculture	4,085.1		1.2%	
Food, beverages, etc	10,731.7		3.2%	
SERIOUSLY AFFECTED NON-AGRICULTURAL	33,552.1		10.1%	
Textiles, leather, etc	2,680.0		0.8%	
Chemicals	15,604.0		4.7%	
Mineral products	6,052.9		1.8%	
Non-ferrous metals	4,401.2		1.3%	
Vehicles	4,814.0		1.5%	
MIDDLE PRODUCTS		41,292.2		12.5%
Petroleum refineries	4,814.6		1.5%	
Blast furnaces	344.1		0.1%	
Mechanical engineering, etc	6,303.7		1.9%	
Iron and steel	3,687.6		1.1%	
Electrical engineering, etc	5,970.8		1.8%	
Other industries	20,171.5		6.1%	
DE MINIMIS PRODUCTS		11,740.7		3.5%
Coal extraction and coke manufacture	548.9		0.2%	
Oil and gas extraction	601.3		0.2%	
Paper, printing, etc	10,590.5		3.2%	
EXCLUDED SERVICES		121,345.9		36.7%
Electricity generation	16,672.5		5.0%	
Pumped storage	3,710.6		1.1%	
Other energy industry use	1,467.6		0.4%	
Construction	1,339.1		0.4%	
Commercial	74,453.4		22.5%	
Public administration	19,226.5		5.8%	
Rail transport	4,379.1		1.3%	
Road transport	97.2		0.0%	
DOMESTIC		108,157.3		32.7%
TOTAL		**330,905.0**		

Source: BEIS “Digest of UK Energy Statistics”, Table 5.1, released 28 July 2016. See the Technical Note in Appendix III.

Table B12: WTO analysis of EU agricultural support

Marketing Year	2009-10	2010-11	2011-12	2012-13
EU Total AMS Commitment, € million	**72,244.0**	**72,244.0**	**72,244.0**	**72,379.0**
Amber Box measures, € million:	**10,883.2**	**6,501.8**	**6,858.9**	**5,899.1**
Product-specific AMS: market price support	8,089.1	4,222.8	4,458.5	4,444.2
Product-specific AMS: direct payments	3,399.2	2,921.4	2,747.2	2,548.3
Product-specific AMS: other	0.0	0.0	0.0	0.0
Product-specific equivalent AMS	198.8	49.8	-34.9	-107.4
Non-product specific AMS	598.1	700.8	690.9	794.5
Less: disregard of de minimis items	-1,402.0	-1,393.0	-1,002.8	-1,780.5
Blue Box measures, € million:	**5,323.6**	**3,141.8**	**2,981.1**	**2,754.2**
Payments based on fixed area and yield	3,063.9	1,136.0	977.0	833.1
Payments based on base level of production	0.0	0.0	0.0	0.0
Payments based on head of livestock	2,259.7	2,005.9	2,004.1	1,921.1
Green Box measures, € million:	**63,798.1**	**68,051.5**	**70,976.8**	**71,140.0**
Research	986.0	1,113.1	1,028.6	1,123.6
Pest & disease control	1,318.6	1,129.8	1,102.0	1,059.7
Training	225.7	246.8	261.5	294.0
Advisory services	779.2	773.2	817.7	824.9
Inspection services	384.2	418.7	408.1	390.8
Marketing services	1,021.1	1,053.6	1,029.8	856.8
Infrastructure	1,866.0	2,310.5	2,691.8	2,481.4
Other farm services	813.4	1,458.7	1,843.7	1,775.8
Food Security Stockpiling	27.5	25	1.2	1.0
Domestic Food Aid	624.8	729.9	971.1	940.8
Decoupled income support	31,481.6	32,913.1	32,756.0	32,780.2
Income Safety-net programmes	16.9	21.9	31.4	37.8
Disaster relief payments	1,297.6	802.7	840.8	775.3
Structural Adjustment – producer retirement	956.6	778.8	742.9	720.4
Structural Adjustment – resource retirement	306.6	349.9	330.7	401.4
Structural Adjustment – investment	6,152.5	7,134.4	7,338.5	6,641.5
Environmental programmes	6,553.1	7,237.9	8,302.0	8,869.1
Regional Assistance programmes	4,504.8	4,452.0	4,511.2	4,452.3
Other (Single Area Payment Scheme)	4,481.7	5,101.6	5,967.9	6,713.3
Total EU Agricultural Spending	**80,004.9**	**77,695.1**	**80,816.8**	**79,793.3**
Proportion counting as WTO ‘subsidies’	14%	8%	8%	7%

Note: The EU Total AMS Commitment increased for 2012/13 due to the accession of Croatia.

Source: EU Commission notifications to the WTO Agriculture Committee G/AG/N/EU/10/Rev.1 (2009/10), G/AG/N/EU/17 (2010/11), G/AG/N/EU/20 (2011/12) and G/AG/N/EU/26 (2012/13)

Table B13: Impact of mitigation for all industries (£ million)

Industry			Tariff Costs	Tariff Revenues
AGRICULTURAL				
Live animals			6.24	23.35
	CPS abolition	6.48		
	R&D credits	7.22		
	TAP payments	0.00		
	Regional grants	0.00		
			-13.70	
	(GAIN)		-7.46	
Meat			377.88	1,022.75
	CPS abolition	3.67		
	R&D credits	5.96		
	TAP payments	9.99		
	Regional grants	358.25		
			-377.88	
	(GAIN)		0.00	
Dairy produce (including Eggs)			331.05	955.50
	CPS abolition	3.08		
	R&D credits	5.02		
	TAP payments	8.40		
	Regional grants	314.54		
			-331.05	
	(GAIN)		0.00	
Products of animal origin			0.20	955.50
	CPS abolition	0.30		
	R&D credits	0.49		
	TAP payments	0.00		
	Regional grants	0.00		
			-0.79	
	(GAIN)		-0.59	
Live trees and other plants			3.16	69.90
	CPS abolition	1.04		
	R&D credits	1.15		
	TAP payments	0.46		
	Regional grants	0.52		
			-3.16	
	(GAIN)		0.00	
Edible vegetables			24.04	325.97
	CPS abolition	0.75		
	R&D credits	1.22		
	TAP payments	2.04		
	Regional grants	20.03		
			-24.04	
	(GAIN)		0.00	

Table B13: Impact of mitigation for all industries (£ million)

Industry			Tariff Costs	Tariff Revenues
Edible fruit and nuts			14.96	325.97
	CPS abolition	0.73		
	R&D credits	1.19		
	TAP payments	2.00		
	Regional grants	11.03		
			-14.96	
	(GAIN)		0.00	
Coffee, tea, maté and spices			8.96	22.06
	CPS abolition	0.70		
	R&D credits	1.14		
	TAP payments	1.91		
	Regional grants	5.21		
			-8.96	
	(GAIN)		0.00	
Cereals			77.05	78.74
	CPS abolition	7.30		
	R&D credits	8.13		
	TAP payments	3.22		
	Regional grants	58.40		
			-77.05	
	(GAIN)		0.00	
Products of milling (e.g Flour)			31.67	63.86
	CPS abolition	0.46		
	R&D credits	0.74		
	TAP payments	1.24		
	Regional grants	29.24		
			-31.67	
	(GAIN)		0.00	
Oil seeds, straw and fodder			2.30	10.43
	CPS abolition	0.80		
	R&D credits	1.29		
	TAP payments	0.21		
	Regional grants	0.00		
			-2.30	
	(GAIN)		0.00	
Vegetable saps and extracts			0.43	3.15
	CPS abolition	0.12		
	R&D credits	0.19		
	TAP payments	0.13		
	Regional grants	0.00		
			-0.43	
	(GAIN)		0.00	

Table B13: Impact of mitigation for all industries (£ million)

Industry		Tariff Costs	Tariff Revenues
Other vegetable products		0.00	0.00
CPS abolition	0.01		
R&D credits	0.02		
TAP payments	0.00		
Regional grants	0.00		
		-0.03	
(GAIN)		-0.03	
Animal or vegetable fats and oils		27.74	121.65
CPS abolition	1.16		
R&D credits	1.89		
TAP payments	3.16		
Regional grants	21.53		
		-27.74	
(GAIN)		0.00	
Preparations of meat or fish		153.86	562.91
CPS abolition	1.42		
R&D credits	2.30		
TAP payments	3.86		
Regional grants	146.29		
		-153.86	
(GAIN)		0.00	
Sugars and sugar confectionery		98.07	216.64
CPS abolition	1.14		
R&D credits	1.85		
TAP payments	3.10		
Regional grants	91.97		
		-98.07	
(GAIN)		0.00	
Cocoa and cocoa preparations		6.12	15.57
CPS abolition	1.72		
R&D credits	2.79		
TAP payments	1.61		
Regional grants	0.00		
		-6.12	
(GAIN)		0.00	
Preparations of cereals, flour, starch or milk; pastrycooks' products		121.36	303.19
CPS abolition	3.50		
R&D credits	5.68		
TAP payments	9.53		
Regional grants	102.66		
		-121.36	
(GAIN)		0.00	

Table B13: Impact of mitigation for all industries (£ million)

Industry		Tariff Costs	Tariff Revenues
Preparations of vegetables, fruit, nuts or other parts of plants62.38		372.23	
CPS abolition	1.29		
R&D credits	2.10		
TAP payments	3.52		
Regional grants		55.47	
		-62.38	
(GAIN)		0.00	
Miscellaneous edible preparations		78.69	191.63
CPS abolition	3.26		
R&D credits	5.30		
TAP payments	8.89		
Regional grants		61.24	
		-78.69	
(GAIN)		0.00	
Beverages, spirits and vinegar		59.68	239.76
CPS abolition	7.88		
R&D credits	12.82		
TAP payments	21.48		
Regional grants		17.50	
		-59.68	
(GAIN)		0.00	
Residues and waste from the food industries	123.15	213.59	
CPS abolition	1.98		
R&D credits	3.22		
TAP payments	5.39		
Regional grants		112.56	
		-123.15	
(GAIN)		0.00	
Tobacco and manufactured tobacco substitutes		90.73	131.51
CPS abolition	0.76		
R&D credits	1.24		
TAP payments	2.08		
Regional grants		86.65	
		-90.73	
(GAIN)		0.00	
Albuminoidal substances; modified starches; glues; enzymes		15.88	35.19
CPS abolition	0.81		
R&D credits	1.32		
TAP payments	2.21		
Regional grants		11.54	
		-15.88	
(GAIN)		0.00	

Table B13: Impact of mitigation for all industries (£ million)

Industry			Tariff Costs	Tariff Revenues
SERIOUSLY-AFFECTED NON-AGRICULTURAL				
Fish and crustaceans			86.72	45.36
	CPS abolition	3.39		
	R&D credits	4.77		
	TAP payments	9.24		
	Regional grants	69.32		
			-86.72	
	(GAIN)		0.00	
Dyeing extracts and colouring matter; paints and varnishes; putty and other mastics; inks			72.46	78.57
	CPS abolition	5.77		
	R&D credits	11.58		
	TAP payments	12.00		
	Regional grants	43.11		
			-72.46	
	(GAIN)		0.00	
Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations			1.60	0.64
	CPS abolition	0.12		
	R&D credits	0.25		
	TAP payments	0.25		
	Regional grants		0.98	
			-1.60	
	(GAIN)		0.00	
Photographic or cinematographic goods			16.24	13.14
	CPS abolition	1.29		
	R&D credits	2.59		
	TAP payments	2.68		
	Regional grants	9.68		
			-16.24	
	(GAIN)		0.00	
Plastics and articles thereof			285.90	497.84
	CPS abolition	12.71		
	R&D credits	9.05		
	TAP payments	46.56		
	Regional grants	217.58		
			-285.90	
	(GAIN)		0.00	
Silk			0.47	1.08
	CPS abolition	0.02		
	R&D credits	0.00		
	TAP payments	0.07		
	Regional grants	0.38		
			-0.47	
	(GAIN)		0.00	

Table B13: Impact of mitigation for all industries (£ million)

Industry			Tariff Costs	Tariff Revenues
Cotton			4.88	6.98
	CPS abolition	0.14		
	R&D credits	0.04		
	TAP payments	0.65		
	Regional grants	4.05		
			-4.88	
	(GAIN)		0.00	
Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn			0.55	1.61
	CPS abolition	0.02		
	R&D credits	0.01		
	TAP payments	0.08		
	Regional grants	0.44		
			-0.55	
	(GAIN)		0.00	
Man-made filaments; strip and the like of man-made textile materials			21.93	14.76
	CPS abolition	0.83		
	R&D credits	0.25		
	TAP payments	3.96		
	Regional grants	16.90		
			-21.93	
	(GAIN)		0.00	
Man-made staple fibres			9.12	10.74
	CPS abolition	0.30		
	R&D credits	0.09		
	TAP payments	1.44		
	Regional grants	7.28		
			-9.12	
	(GAIN)		0.00	
Carpets and other textile floor coverings			5.58	47.14
	CPS abolition	0.15		
	R&D credits	0.04		
	TAP payments	0.72		
	Regional grants	4.66		
			-5.58	
	(GAIN)		0.00	
Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery			4.70	11.02
	CPS abolition	0.13		
	R&D credits	0.04		
	TAP payments	0.64		
	Regional grants	3.89		
			-4.70	
	(GAIN)		0.00	

Table B13: Impact of mitigation for all industries (£ million)

Industry		Tariff Costs	Tariff Revenues
Impregnated, coated, covered or laminated textile fabrics; textile articles suitable for industrial use		16.81	12.40
CPS abolition	0.50		
R&D credits	0.15		
TAP payments	2.38		
Regional grants	13.78		
		-16.81	
(GAIN)		0.00	
Knitted or crocheted fabrics		5.15	4.80
CPS abolition	0.14		
R&D credits	0.04		
TAP payments	0.65		
Regional grants	4.33		
		-5.15	
(GAIN)		0.00	
Articles of apparel and clothing accessories, knitted or crocheted		101.64	230.21
CPS abolition	1.80		
R&D credits	0.53		
TAP payments	8.59		
Regional grants	90.72		
		-101.64	
(GAIN)		0.00	
Articles of apparel and clothing accessories, not knitted or crocheted		112.66	283.41
CPS abolition	2.05		
R&D credits	0.61		
TAP payments	9.79		
Regional grants	100.21		
		-112.66	
(GAIN)		0.00	
Other made-up textile articles; sets; worn clothing and worn textile articles; rags		20.68	27.65
CPS abolition	0.51		
R&D credits	0.15		
TAP payments	2.43		
Regional grants	17.59		
		-20.68	
(GAIN)		0.00	
Footwear, gaiters and the like; parts of such articles		82.62	208.93
CPS abolition	1.51		
R&D credits	0.45		
TAP payments	7.23		
Regional grants	73.43		
		-82.62	
(GAIN)		0.00	

Table B13: Impact of mitigation for all industries (£ million)

Industry			Tariff Costs	Tariff Revenues
Ceramic products			9.55	37.84
	CPS abolition	2.52		
	R&D credits	0.70		
	TAP payments	1.41		
	Regional grants	4.92		
			-9.55	
	(GAIN)		0.00	
Aluminium and articles thereof			66.37	148.76
	CPS abolition	7.09		
	R&D credits	3.42		
	TAP payments	11.74		
	Regional grants	44.12		
			-66.37	
	(GAIN)		0.00	
Vehicles other than railway or tramway rolling stock			1,347.95	3,896.20
	CPS abolition	17.46		
	R&D credits	452.90		
	TAP payments	154.39		
	Regional grants	723.21		
			-1,347.95	
	(GAIN)		0.00	
MIDDLE PRODUCTS				
Mineral fuels, oils and products; bituminous substances; mineral waxes			166.86	127.15
	CPS abolition	21.63		
	R&D credits	28.19		
	TAP payments	117.04		
	Regional grants	0.00		
			-166.86	
	(GAIN)		0.00	
Inorganic chemicals			23.91	37.23
	CPS abolition	4.46		
	R&D credits	8.96		
	TAP payments	9.28		
	Regional grants	1.20		
			-23.91	
	(GAIN)		0.00	
Organic chemicals			134.39	209.16
	CPS abolition	16.90		
	R&D credits	33.93		
	TAP payments	35.16		
	Regional grants	48.41		
			-134.39	
	(GAIN)		0.00	

Table B13: Impact of mitigation for all industries (£ million)

Industry			Tariff Costs	Tariff Revenues
Fertilisers			8.53	28.57
	CPS abolition	1.10		
	R&D credits	2.20		
	TAP payments	2.28		
	Regional grants	2.95		
			-8.53	
	(GAIN)		0.00	
Essential oils and resinoids; perfumery, cosmetic or toilet preparations			36.81	57.66
	CPS abolition	9.91		
	R&D credits	19.89		
	TAP payments	7.02		
	Regional grants	0.00		
			-36.81	
	(GAIN)		0.00	
Soap, organic surface-active agents, prepared waxes, candles, modelling pastes and dental preparations			28.46	45.36
	CPS abolition	4.42		
	R&D credits	8.88		
	TAP payments	9.20		
	Regional grants	5.95		
			-28.46	
	(GAIN)		0.00	
Miscellaneous chemical products			113.23	117.55
	CPS abolition	12.62		
	R&D credits	25.33		
	TAP payments	26.25		
	Regional grants	49.03		
			-113.23	
	(GAIN)		0.00	
Rubber and articles thereof			54.00	62.25
	CPS abolition	4.71		
	R&D credits	3.35		
	TAP payments	17.24		
	Regional grants	28.69		
			-54.00	
	(GAIN)		0.00	
Raw hides and skins (other than furskins) and leather			3.84	7.27
	CPS abolition	0.33		
	R&D credits	0.10		
	TAP payments	1.60		
	Regional grants	1.81		
			-3.84	
	(GAIN)		0.00	

Table B13: Impact of mitigation for all industries (£ million)

Industry		Tariff Costs	Tariff Revenues
Articles of leather and articles of animal gut (other than silkworm gut)		12.57	40.72
CPS abolition	0.62		
R&D credits	0.18		
TAP payments	2.96		
Regional grants	8.81		
		-12.57	
(GAIN)		0.00	
Furskins and artificial fur; manufactures thereof		0.35	1.11
CPS abolition	0.04		
R&D credits	0.01		
TAP payments	0.18		
Regional grants	0.13		
		-0.35	
(GAIN)		0.00	
Wood and articles of wood; wood charcoal		8.45	48.82
CPS abolition	3.91		
R&D credits	0.77		
TAP payments	2.71		
Regional grants	1.06		
		-8.45	
(GAIN)		0.00	
Cork and articles of cork		0.05	0.97
CPS abolition	0.02		
R&D credits	0.00		
TAP payments	0.01		
Regional grants	0.01		
		-0.05	
(GAIN)		0.00	
Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork		0.08	0.19
CPS abolition	0.03		
R&D credits	0.01		
TAP payments	0.02		
Regional grants	0.02		
		-0.08	
(GAIN)		0.00	
Wool, fine or coarse animal hair; horsehair yarn and woven fabric		6.43	6.38
CPS abolition	0.30		
R&D credits	0.08		
TAP payments	1.43		
Regional grants	4.61		
		-6.43	
(GAIN)		0.00	

Table B13: Impact of mitigation for all industries (£ million)

Industry		Tariff Costs	Tariff Revenues
Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof		7.35	15.68
CPS abolition	0.33		
R&D credits	0.09		
TAP payments	1.57		
Regional grants	5.37		
		-7.35	
(GAIN)		0.00	
Headgear and parts thereof		1.40	2.67
CPS abolition	0.13		
R&D credits	0.32		
TAP payments	0.47		
Regional grants	0.49		
		-1.40	
(GAIN)		0.00	
Umbrellas, sun umbrellas, walking sticks, seat-sticks, whips, riding-crops and parts		0.22	0.42
CPS abolition	0.01		
R&D credits	0.03		
TAP payments	0.05		
Regional grants	0.12		
		-0.22	
(GAIN)		0.00	
Prepared feathers and down; artificial flowers; articles of human hair		0.17	0.29
CPS abolition	0.02		
R&D credits	0.01		
TAP payments	0.06		
Regional grants	0.08		
		-0.17	
(GAIN)		0.00	
Glass and glassware		23.45	49.13
CPS abolition	8.43		
R&D credits	2.34		
TAP payments	4.70		
Regional grants	7.97		
		-23.45	
(GAIN)		0.00	
Articles of iron or steel		31.55	55.03
CPS abolition	5.08		
R&D credits	2.89		
TAP payments	14.93		
Regional grants	8.65		
		-31.55	
(GAIN)		0.00	

Table B13: Impact of mitigation for all industries (£ million)

Industry			Tariff Costs	Tariff Revenues
Copper and articles thereof			9.28	40.42
	CPS abolition	3.51		
	R&D credits	1.70		
	TAP payments	4.07		
	Regional grants	0.00		
			-9.28	
	(GAIN)		0.00	
Lead and articles thereof			2.99	0.86
	CPS abolition	0.94		
	R&D credits	0.45		
	TAP payments	1.55		
	Regional grants	0.05		
			-2.99	
	(GAIN)		0.00	
Zinc and articles thereof			2.18	2.16
	CPS abolition	0.47		
	R&D credits	0.22		
	TAP payments	0.77		
	Regional grants	0.72		
			-2.18	
	(GAIN)		0.00	
Other base metals and cermets			11.50	9.01
	CPS abolition	1.44		
	R&D credits	0.69		
	TAP payments	2.38		
	Regional grants	6.98		
			-11.50	
	(GAIN)		0.00	
Tools implements of base metal			9.04	17.90
	CPS abolition	0.83		
	R&D credits	2.05		
	TAP payments	3.06		
	Regional grants	3.09		
			-9.04	
	(GAIN)		0.00	
Miscellaneous articles of base metal			9.19	20.75
	CPS abolition	1.00		
	R&D credits	2.46		
	TAP payments	3.66		
	Regional grants	2.07		
			-9.19	
	(GAIN)		0.00	

Table B13: Impact of mitigation for all industries (£ million)

Industry			Tariff Costs	Tariff Revenues
Nuclear reactors, boilers, and mechanical appliances			210.35	366.27
	CPS abolition	22.86		
	R&D credits	145.70		
	TAP payments	41.79		
	Regional grants	0.00		
			-210.35	
	(GAIN)		0.00	
Electrical machinery			143.53	477.43
	CPS abolition	21.65		
	R&D credits	230.30		
	TAP payments	0.00		
	Regional grants	0.00		
			-251.95	
	(GAIN)		-108.42	
Railway or tramway locomotives rolling stock		1.42	6.13	
	CPS abolition	0.23		
	R&D credits	12.50		
	TAP payments	0.00		
	Regional grants	0.00		
			-12.73	
	(GAIN)		-11.30	
Aircraft, spacecraft, and parts thereof			62.90	48.54
	CPS abolition	10.51		
	R&D credits	206.20		
	TAP payments	0.00		
	Regional grants	0.00		
			-216.71	
	(GAIN)		-153.81	
Ships, boats and floating structures			4.28	1.88
	CPS abolition	1.09		
	R&D credits	30.00		
	TAP payments	0.00		
	Regional grants	0.00		
			-31.09	
	(GAIN)		-26.80	
Optical, photographic, cinematographic, measuring, medical instruments and apparatus			51.55	73.51
	CPS abolition	11.25		
	R&D credits	86.12		
	TAP payments	0.00		
	Regional grants	0.00		
			-97.37	
	(GAIN)		-45.83	

Table B13: Impact of mitigation for all industries (£ million)

Industry			Tariff Costs	Tariff Revenues
Clocks and watches			1.51	7.59
	CPS abolition	0.28		
	R&D credits	2.13		
	TAP payments	0.00		
	Regional grants	0.00		
			-2.40	
	(GAIN)		-0.90	
Musical instruments			0.85	2.50
	CPS abolition	0.07		
	R&D credits	0.57		
	TAP payments	0.21		
	Regional grants	0.00		
			-0.85	
	(GAIN)		0.00	
Arms and ammunition			1.18	2.50
	CPS abolition	0.15		
	R&D credits	1.18		
	TAP payments	0.00		
	Regional grants	0.00		
			-1.33	
	(GAIN)		-0.16	
Furniture			12.90	58.16
	CPS abolition	2.03		
	R&D credits	5.00		
	TAP payments	5.87		
	Regional grants	0.00		
			-12.90	
	(GAIN)		0.00	
Toys, games and sports requisites			9.96	12.84
	CPS abolition	1.79		
	R&D credits	4.41		
	TAP payments	3.75		
	Regional grants	0.00		
			-9.96	
	(GAIN)		0.00	
Miscellaneous manufactured articles			7.69	25.27
	CPS abolition	0.71		
	R&D credits	1.74		
	TAP payments	2.59		
	Regional grants	2.65		
			-7.69	
	(GAIN)		0.00	

Table B13: Impact of mitigation for all industries (£ million)

Industry		Tariff Costs	Tariff Revenues
DE MINIMIS PRODUCTS			
Salt; sulphur; earths and stone; plastering materials, lime and cement		0.72	1.40
CPS abolition	4.73		
R&D credits	1.32		
TAP payments	0.00		
Regional grants	0.00		
		-6.05	
(GAIN)		-5.33	
Ores, slag and ash		0.00	0.00
CPS abolition	1.25		
R&D credits	0.11		
TAP payments	0.00		
Regional grants	0.00		
		-1.36	
(GAIN)		-1.36	
Pharmaceutical products		0.00	0.00
CPS abolition	19.56		
R&D credits	616.40		
TAP payments	0.00		
Regional grants	0.00		
		-635.96	
(GAIN)		-635.96	
Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard		0.00	0.00
CPS abolition	1.97		
R&D credits	0.39		
TAP payments	0.00		
Regional grants	0.00		
		-2.37	
(GAIN)		-2.37	
Paper and paperboard; articles of paper pulp, of paper or of paperboard		0.00	0.00
CPS abolition	19.02		
R&D credits	3.76		
TAP payments	0.00		
Regional grants	0.00		
		-22.78	
(GAIN)		-22.78	

Table B13: Impact of mitigation for all industries (£ million)

Industry			Tariff Costs	Tariff Revenues
Printed books, newspapers, pictures and other products of the printing industry			0.00	0.00
	CPS abolition	13.45		
	R&D credits	2.66		
	TAP payments	0.00		
	Regional grants	0.00		
			-16.11	
	(GAIN)		-16.11	
Articles of stone, plaster, cement, asbestos, mica or similar materials			2.20	6.62
	CPS abolition	6.26		
	R&D credits	1.74		
	TAP payments	0.00		
	Regional grants	0.00		
			-8.00	
	(GAIN)		-5.80	
Pearls, precious or semi-precious stones and metals			8.73	32.73
	CPS abolition	5.69		
	R&D credits	14.01		
	TAP payments	0.00		
	Regional grants	0.00		
			-19.70	
	(GAIN)		-10.97	
Iron and steel			2.91	2.53
	CPS abolition	8.29		
	R&D credits	1.18		
	TAP payments	0.00		
	Regional grants	0.00		
			-9.47	
	(GAIN)		-6.56	
Nickel and articles thereof			2.30	2.97
	CPS abolition	2.26		
	R&D credits	1.09		
	TAP payments	0.00		
	Regional grants	0.00		
			-3.36	
	(GAIN)		-1.06	
Tin and articles thereof			0.00	0.00
	CPS abolition	0.25		
	R&D credits	0.12		
	TAP payments	0.00		
	Regional grants	0.00		
			-0.37	
	(GAIN)		-0.37	

Table B13: Impact of mitigation for all industries (£ million)

Industry		Tariff Costs	Tariff Revenues
Works of art, collectors' pieces and antiques	0.00	0.00	
CPS abolition	0.38		
R&D credits	0.93		
TAP payments	0.00		
Regional grants	0.00		
		-1.31	
(GAIN)		-1.31	

Source: supporting calculations

Table B14: SIC Industry Classifications

SIC2	Assigned category
01 : Crop and animal production, hunting and related service activities	Agricultural products
02 : Forestry and logging	Agricultural products
03 : Fishing and aquaculture	Seriously affected non-agriculture
05 : Mining of coal and lignite	De Minimis
06 : Extraction of crude petroleum and natural gas	De Minimis
08 : Other mining and quarrying	De Minimis
09 : Mining support service activities	De Minimis
10 : Manufacture of food products	Agricultural products
11 : Manufacture of beverages	Agricultural products
12 : Manufacture of tobacco products	Agricultural products
13 : Manufacture of textiles	Seriously affected non-agriculture
14 : Manufacture of wearing apparel	Seriously affected non-agriculture
15 : Manufacture of leather and related products	Seriously affected non-agriculture
16 : Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	De Minimis
17 : Manufacture of paper and paper products	De Minimis
18 : Printing and reproduction of recorded media	De Minimis
19 : Manufacture of coke and refined petroleum products	Middle products
20 : Manufacture of chemicals and chemical products	Seriously affected non-agriculture
21 : Manufacture of basic pharmaceutical products and pharmaceutical preparations	De Minimis
22 : Manufacture of rubber and plastic products	Seriously affected non-agriculture
23 : Manufacture of other non-metallic mineral products	De Minimis
24 : Manufacture of basic metals	Seriously affected non-agriculture
25 : Manufacture of fabricated metal products, except machinery and equipment	Middle products
26 : Manufacture of computer, electronic and optical products	Middle products
27 : Manufacture of electrical equipment	Middle products
28 : Manufacture of machinery and equipment n.e.c.	Middle products
29 : Manufacture of motor vehicles, trailers and semi-trailers	Seriously affected non-agriculture
30 : Manufacture of other transport equipment	Middle products

Table B14: SIC Industry Classifications

SIC2	Assigned category
31 : Manufacture of furniture	Middle products
32 : Other manufacturing	Middle products
33 : Repair and installation of machinery and equipment	Middle products
35 : Electricity, gas, steam and air conditioning supply	Excluded services
36 : Water collection, treatment and supply	Excluded services
37 : Sewerage	Excluded services
38 : Waste collection, treatment and disposal activities; materials recovery	Excluded services
39 : Remediation activities and other waste management services. This division includes the provision of remediation services, i.e. the cleanup of contaminated buildings and sites, soil, surface or ground water.	Excluded services
41 : Construction of buildings	Excluded services
42 : Civil engineering	Excluded services
43 : Specialised construction activities	Excluded services
45 : Wholesale and retail trade and repair of motor vehicles and motorcycles	Excluded services
46 : Wholesale trade, except of motor vehicles and motorcycles	Excluded services
47 : Retail trade, except of motor vehicles and motorcycles	Excluded services
49 : Land transport and transport via pipelines	Excluded services
50 : Water transport	Excluded services
51 : Air transport	Excluded services
52 : Warehousing and support activities for transportation	Excluded services
53 : Postal and courier activities	Excluded services
55 : Accommodation	Excluded services
56 : Food and beverage service activities	Excluded services
58 : Publishing activities	Excluded services
59 : Motion picture, video and television programme production, sound recording and music publishing activities	Excluded services
60 : Programming and broadcasting activities	Excluded services
61 : Telecommunications	Excluded services
62 : Computer programming, consultancy and related activities	Excluded services
63 : Information service activities	Excluded services
64 : Financial service activities, except insurance and pension funding	Excluded services
65 : Insurance, reinsurance and pension funding, except compulsory social security	Excluded services
66 : Activities auxiliary to financial services and insurance activities	Excluded services
68 : Real estate activities	Excluded services
69 : Legal and accounting activities	Excluded services
70 : Activities of head offices; management consultancy activities	Excluded services
71 : Architectural and engineering activities; technical testing and analysis	Excluded services
72 : Scientific research and development	Excluded services
73 : Advertising and market research	Excluded services
74 : Other professional, scientific and technical activities	Excluded services
75 : Veterinary activities	Excluded services
77 : Rental and leasing activities	Excluded services
78 : Employment activities	Excluded services
79 : Travel agency, tour operator and other reservation service and related activities	Excluded services

Table B14: SIC Industry Classifications

SIC2	Assigned category
80 : Security and investigation activities	Excluded services
81 : Services to buildings and landscape activities	Excluded services
82 : Office administrative, office support and other business support activities	Excluded services
84 : Public administration and defence; compulsory social security	Excluded services
85 : Education	Excluded services
86 : Human health activities	Excluded services
87 : Residential care activities	Excluded services
88 : Social work activities without accommodation	Excluded services
90 : Creative, arts and entertainment activities	Excluded services
91 : Libraries, archives, museums and other cultural activities	Excluded services
92 : Gambling and betting activities	Excluded services
93 : Sports activities and amusement and recreation activities	Excluded services
94 : Activities of membership organisations	Excluded services
95 : Repair of computers and personal and household goods	Excluded services
96 : Other personal service activities	Excluded services

Appendix III: Technical notes

The compilation of the base study for this paper

The data on tariff costs and revenues are taken from Protts "Potential post-Brexit tariff costs for EU-UK trade" (Civitas, October 2016). That paper analysed import data from 2015, combined with the EU's Most Favoured Nation tariff schedule, to provide the most up-to-date estimate of tariffs that would be payable on UK-EU trade if that trade continued under the 'WTO-only' option. The study is 'static', i.e. it does not take into account the elasticity of sales in response to tariff-induced price increases.

Categorisation of agricultural products

The formal definition of 'agricultural products'[154] is:

HS Chapters 1 to 24 less fish and fish products

HS Code 2905.43	(mannitol)
HS Code 2905.44	(sorbitol)
HS Heading 33.01	(essential oils)
HS Headings 35.01 to 35.05	(albuminoidal substances, modified starches, glues)
HS Code 3809.10	(finishing agents)
HS Code 3823.60	(sorbitol n.e.p.)
HS Headings 41.01 to 41.03	(hides and skins)
HS Heading 43.01	(raw furskins)
HS Headings 50.01 to 50.03	(raw silk and silk waste)
HS Headings 51.01 to 51.03	(wool and animal hair)
HS Headings 52.01 to 52.03	(raw cotton, waste and cotton carded or combed)
HS Heading 53.01	(raw flax)
HS Heading 53.02	(raw hemp)

The base study from which the data for this paper has been derived is conducted at the HS Chapter level and is insufficiently granular to apply this definition precisely. Therefore, the results for Chapters 1-2, 4-24 and 35 have been used as a very close proxy for the actual figures. Chapter 16 (preparations of meat and fish) and Chapter 35 (albuminoidal substances) have been included because the bulk of the underlying value within those Chapters would qualify as agricultural products. In contrast, Chapter 41 (leather and animal gut), Chapter 43 (furskins and artificial fur), Chapter 50 (silk), Chapter 52 (cotton) and Chapter 53 (other vegetable textile fabrics) have been excluded because, whilst sub-sections of the trade in those areas would qualify, the bulk of the value exported by the UK would not.

Exchange rates

The underlying study on which this paper is based used COMTRADE data for 2015 on imports by the UK and the EU-27. This data is reported in US dollars using an annual average exchange rate for 2015 of £1 = $1.528854[155] on the cif value of the imports. That value has been used to convert COMTRADE figures back into sterling values.

154 Agriculture Agreement 1994, Annex 1.
155 See https://comtrade.un.org/db/mr/daExpNoteDetail.aspx?r=826&y=2015, (accessed 17/11/16).

Since 2015 there has been considerable volatility in the foreign exchange markets, caused not the least by the prospect of Brexit. For the foreseeable future all currency conversion estimates are likely to be unreliable. Therefore the decision has been taken to compile this paper on the basis of 2015 values, as a consistent basis for illustrative comparison, and to not attempt to update them in the light of subsequent events.

It is a reasonable assumption that, given currency movements since June 2016, in practice the headline sterling value of both tariff costs for UK exporters and the revenue raised on imports from the EU-27 would be greater than suggested in this paper. However the relative magnitudes between them, and more importantly the effective tariff rates on particular commodities used in this paper to categorise the various industries, will not differ materially.

Currency conversion is only relevant in regard to factors which, because of the UK's membership of the EU, are at present denominated in euros: (i) international trade limits negotiated by the EU collectively, of which the most significant is the Total AMS Commitment for agricultural products; and (ii) domestic restrictions imposed on the UK by EU law, such as the criteria for qualification as an SME.

In regard to the first group, as explained in the main text, the calculation of any exchange rate for setting the new sovereign UK limit will itself be a matter for negotiation. There is no value in attempting to pre-empt that aspect of the Brexit process in this paper. In regard to the second group, since they derive from EU law, such limits are of no relevance in the post-Brexit environment. Were there to be a UK-EU treaty governing access to the single market, the UK would almost certainly have to concede limits on its freedom of action over matters such as state aid. But the premise of this paper is that no such agreement is reached, and so therefore there is no need to consider the sterling equivalent of limits which are of no further concern.

Classification of industries

The ONS classify businesses by reference to the Standard Industrial Classification (SIC) system, based around 84 activities undertaken by enterprises.[156] It does not dovetail with the HS Classification system used elsewhere in this paper, which tracks the commodity being sold rather than the enterprise responsible for producing it.

The following broad assignments have been made:

- 'Agricultural products' are taken as the SIC divisions for crop and animal production (01); forestry (02); and the manufacture of food products, beverages and tobacco (10-12).

In the analysis of R&D, the high-level grouping 'Agriculture, hunting and forestry; fishing' means that fish products are included within this category, but that is unlikely to cause a material distortion.

- 'Seriously-affected non-agricultural products' are taken as the SIC divisions for textiles, apparel and leather goods (13-15); chemicals (20); rubber and plastic (22); basic metals (24); and motor vehicles (29).

156 The numbering goes up to 96, but there is no assignment for 04, 07, 34, 40, 44, 48, 54, 57, 67, 76, 83 or 89.

All of these involve difficulties. Rubber products and most of the basic metals actually fall into the 'middle products' category, but at the 2-digit SIC coding level they are grouped with other commodities (plastics and aluminium, respectively) which are 'seriously-affected' for the purposes of this paper. Since the ONS does not publish usable data with greater detail, the decision has been taken to treat both divisions as 'seriously-affected'. This overstates the true position, but errs on the side of caution. Therefore in Table B11, relating to energy usage, 'non-ferrous metals' in the underlying BEIS data is treated as referring to aluminium.

- 'De minimis products' are taken as the SIC divisions for mining and quarrying (05-09); wood products, paper products and printing (16-18); pharmaceuticals (21); and other non-metallic mineral products (23).

This is a reasonably close alignment. Any discrepancies are likely to arise from the high-level averaging approach taken in the underlying base study. The only difficult issue relates to the ceramics industry, which falls within division 23 and which is a seriously-affected non-agricultural product. As it happens SIC division 23 does not figure in the Top 3 location rankings of any of the disadvantaged Areas, so this does not change the outcome of Tables B8, B9 or B10. It does become an issue in considering electricity usage (see later note).

- 'Excluded services' are taken as the SIC divisions for electricity and gas (35); water supply and waste (36-39); construction (41-43); wholesale and retail trade (45-47); transportation and storage (49-53); accommodation (55-56); information and communication (58-63); financial services (64-66); real estate (68); professional services (69-75); administrative and support services (77-82); public administration (84); education (85); health and social work (86-88); arts and entertainment (90-93); and other services (94-96).

These are areas which are not engaged to any great degree in the export of commodity goods, and hence which will not be affected by tariffs.

- 'Middle products' represent everything else in the SIC coding and ONS source data.

These results are summarised in Table B13.

Geographical tests for Map 2

The original grounds for a 'non-actionable' regional policy under the SCM Agreement[157] were:

- A "disadvantaged region" had to represent a contiguous geographical area with a definable economic and administrative identity

- The region has to be assessed as disadvantaged on neutral and objective criteria capable of verification

- Those criteria must include at least one of:

157 SCM Agreement 1994, Article 8.2(b).

  - An income test, in which either income per capita, household income per capita, or GDP per capita, does not exceed 85% of the national average
  - An unemployment test, in which the local unemployment rate is at least 110% of the national average

- The criteria have to be measured over three years.

In compiling Map 2, the obvious basis for measurement is the lowest available administrative unit, i.e. unitary authorities, metropolitan and London boroughs, and district councils in England (326), principal areas in Wales (22), council areas in Scotland (32) and district councils in Northern Ireland (from 2015, 11).

In respect of the income test, ONS produces a consistent measure of Gross Value Added (GVA) per head for the whole of the UK, broken down by local administrative units. This is a good proxy for GDP per head. The data used is taken from the ONS statistical bulletin "Regional Gross Value Added (Income Approach)" Table 2, released 9 December 2015 (accessed 16/11/16). There are two drawbacks with this data for the purposes of compiling Map 2: (i) at the time of writing, the most recent available data only extended to 2014, i.e. it missed out the base year for this paper (2015); and (ii) GVA averages are published down to the NUTS 3 measurement unit, i.e. although standalone figures are available for the larger local authorities, in some cases smaller administrative units are amalgamated.

In applying the income test, the decision has been taken to use only two-year averages, for 2013 and 2014. That is the most consistent comparison with the unemployment test and the rest of the data used in this paper. It would be more distortive to use a three-year average 2012-2014. The assumption has also been made that all local authorities within a NUTS 3 grouping have the same GVA per head as that of the grouping as a whole. This is the only practicable approach. Although it clearly leads to distortive results at the individual local authority level, across the UK as a whole the effect should even out. For every low-income authority which fails the test because it has been amalgamated with more affluent neighbouring districts, some districts will pass the test because of the statistical influence of a low-income blackspot. The issue is theoretically most acute in Northern Ireland because, following a local government reorganisation in 2015 (which amalgamated 26 councils into 11), the current boundaries do not dovetail with the NUTS 3 areas. It is less relevant in practice because the available data indicates that, apart from Belfast City, the whole of Northern Ireland would pass the income test anyway.

In respect of the unemployment test, ONS do not publish data for a consistent measure of unemployment in each local authority across the whole of the UK. The widest coverage is data extracted from the Annual Population Survey (accessed 16/11/16 from the NOMIS website) for each local authority in Great Britain for the unemployment rate for those aged 16-64 over the calendar years 2013, 2014 and 2015. There are two drawbacks with this data for the purposes of compiling Map 2: (i) although there is a comparable unemployment rate for Northern Ireland as a whole, results for the individual councils are not available; and (ii) in a number of instances ONS suppress the data for a given local authority in a given year on the grounds that they do not consider the result to be statistically reliable.

In applying the unemployment test to Northern Ireland, NISRA data (accessed from the NINIS website 16/11/16) on average claimant count rates for each local authority for the calendar years 2013, 2014 and 2015, compared to the UK average over the same period, has been used as a proxy. This is unlikely to give a distortive result since the available evidence indicates that all local authority areas in Northern Ireland would pass the unemployment test in any event. In respect of Great Britain authorities, where the underlying data for any year has been withheld by ONS as being unreliable, that year has been excluded from the averaging. That left four authorities (the City of London; the Isles of Scilly; Ryedale; and West Somerset) where no local unemployment average could be derived. Therefore ONS data on December claimant count rates for each year were again compared to the UK average as a proxy figure. In all four cases, the test was not passed.

The location of industries

ONS produces data on 'location quotients' for each industry in the SIC classification. These may be calculated in one of either two ways:

- Industry X's share of the jobs in Area A, compared to the Industry X share of the national total of jobs – this would be a measure of the degree to which Area A specialises in workers for Industry X (i.e. Industry X has a higher or lower share of the jobs in Area A than its national average)

- The proportion of the jobs in Industry X which occur in Area A, compared to the proportion of the national total of jobs which fall in Area A – this would be a measure of the degree to which Industry X is relatively concentrated in Area A (i.e. Industry X has placed a higher or lower proportion of its workforce in Area A than the national average would suggest)

Algebraically, these expressions are identical. If the quotient equals 1.00, it means that the presence of Industry X in Area A is identical to the national average. A figure greater than 1.00 indicates both that Industry X is concentrated in Area A, and that Area A specialises in jobs in Industry X. The larger the quotient, the stronger the effect being exhibited.

This is not the same as saying that the industry with the highest quotient for Area A is necessarily the largest employer in Area A. It would be quite possible for an industry with a low national workforce to be wholly concentrated within one local authority (with, in consequence, a very high location quotient in that area) and yet to be relatively insignificant in absolute terms within the employed workforce for that authority as a whole. For example, if the only breeder of pink flamingos in the country happened to live in Sunderland, Sunderland would have a very high location quotient for the pink flamingo industry, and the location quotient for the car industry would be smaller (although higher than 1.00) notwithstanding the much larger workforce employed at the local Nissan factory.

However, what a high quotient for an industry in a given authority indicates is the degree to which assistance directed at that area would benefit that industry, because of the extent of its concentration at that locality. It is in that sense that the figures are used in this paper.

The ONS data used in this paper is derived from the 2011 Business Register and Employment Survey, covering local authorities within Great Britain. There are no comparable data for Northern Ireland. The best available reports proportions of the workforce for NUTS 3 areas in terms of very broad industry groupings. The figures indicate that in all five of these sub-areas of Northern Ireland, the largest employer is the public sector (“Public Administration, education and health”), followed by Excluded services (“Distribution, Hotels and Restaurants”). In all five sub-areas “Manufacturing” is ranked third, but there is no further analysis by product type, and hence no means of assessing the degree to which each local authority is affected by EU-27 tariffs.

In assessing industrial location, therefore, the simple assumption has been made that none of the authority areas in Northern Ireland count as having a seriously-affected industry (whether agricultural or otherwise) in the Top 3 rankings, and none of them have Top 3 rankings drawn wholly from Excluded services. That is probably unrealistic. The point is somewhat academic in practice since the whole of Northern Ireland passes the tests for qualifying as a ‘disadvantaged region’, with everywhere outside Belfast City falling within Area III, so there is maximum scope for mitigation through regional aid.

In compiling the specific details for each ‘seriously-affected’ industry (Tables 16, 18, 20, 22, 24 and 26) a significance threshold of a quotient of 3.0 has been used, i.e. a location is not included unless the workforce employment in the industry is at least three times the national average (although this is relaxed slightly for Table 26).

Electricity figures

The source data for electricity usage is taken from BEIS “Digest of UK Energy Statistics” (DUKES), Table 5.1, released 28 July 2016. For the purposes of that publication a distinction is drawn between usage by the energy industry itself, and ultimate end-users. This distinction is not relevant for this paper, which is concerned with the actual users of all generated electricity, so energy industry usage is added back. Some might have a conceptual difficulty with the notion of passing a cost saving on electricity to a generator who uses their own product anyway and is not buying it in from outside, but every GWh of their own electricity which a generating company uses is a GWh which they cannot sell to a customer and have lost income, and these businesses are surely recognising their own energy costs somewhere in their accounts. Therefore there are differences between the official DUKES figures and this paper in regard to headline total usage and shares for each industry.

DUKES reports user industries in very broad categories which are derived from the SIC system and which do not reconcile easily to the categories used in this paper. The main difficulties arise in regard to DUKES groupings ‘Non-ferrous metals’ and ‘Mineral products’. It is assumed that these refer to aluminium production and ceramics respectively, industries which are known to be energy-intensive and which both fall within the ‘seriously-affected non-agricultural products’ category. That almost certainly overstates the true position, but introduces a less material discrepancy than would treating either in a different category. Less contentious is the assumption that the DUKES grouping ‘Other industries’ refers to a form of manufacturing that comes within the ‘middle products’ category.

Costing of the mitigation proposals

In assessing the benefit of the CPS abolition, the total revenue raised for HM Treasury (£1.2 billion) is apportioned among each consumer group in the percentages given in Table B11. Where any of the consumer groups in Table B11 straddles more than one HS

Chapter, the benefit is apportioned among them using the value of their exports, as a proxy for economic activity.

In assessing the benefit of increased R&D credits, the basic assumption is as explained in the main text, that a 1% increase in RDEC rate is equivalent to a benefit of $^{10}/_{11}$% of actual R&D spending by businesses. The total R&D expenditure for 2015 is taken from Table B4 and the relevant increased rates applied to each type of R&D. Where any of the business groups in Table B4 straddles more than one HS Chapter, the benefit is apportioned among them using the value of their exports, as a proxy for economic activity.

TAP payments are calculated as being 1% of exports for each HS Chapter, but further capped at the amount required to fully mitigate those costs. If CPS abolition and R&D credits have already done so, no TAP payments are scored for a product.

Regional aid payments are taken as the balancing amount required to fully mitigate costs. Payments to agricultural product groups are taken as incurring no leakage. Payments to ‘middle product’ and ‘de minimis product’ groups are taken as incurring leakage at the average rate for all assisted areas. In the case of ‘seriously-affected’ products, a more precise calculation is made using an average leakage rate. The assisted areas in Tables 16, 18, 20, 22, 24 and 26 are scored by type, weighted according to the location quotient of each (e.g. an Area I authority with a location quotient of 10 would score as a weighting of 10 for the Area I leakage rate). This produces a blended rate which varies from product to product depending on the composition of the areas in which it is concentrated.

Author

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