



Department for
International Trade

Analysis

The Impact of Publicly Funded Export Promotion Services

A systematic review prepared for the Department of International Trade.

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Frontier Economics is one of Europe's largest economics consultancies, with more than 250 graduate economists working across seven offices. They specialise in providing robust, independent advice to businesses, regulators and government agencies on issues related to competition, commercial strategy, regulation and public policy.

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EXECUTIVE SUMMARY

This systematic review synthesises evidence from the academic and non-academic literature relating to the net economic impact of publicly funded export promotion services. The review focuses on the types of client-facing export promotion services provided by the Department for International Trade (DIT).

Specifically, the review focuses on a number of research questions: market failures that justify government provision of export promotion services; the effects of export promotion on exporting behaviour, firm-level economic outcomes, and wider economic outcomes.

The review was conducted between October 2017 and January 2018, based on a protocol agreed with the Department for International Trade. Approximately 400 studies were considered for inclusion in the review based on application of the protocol. Of these, a total of 209 were included in the full review following an initial sift for relevance against the research questions.

Market Failures

1. Export promotion services help firms overcome barriers to trade. There is therefore a rationale for government intervention when the private sector provides a sub-optimal level of export promotion services due to market failures.
2. The evidence supports the existence of information failures: a market failure where firms miscalculate or are misinformed about the costs and benefits of exporting.
3. The evidence supports the existence of positive externalities: a market failure where the societal benefits for exporting and export promotion services exceed the private benefits, leading to under-provision.
4. Information failures, externalities and lack of trust are likely to be pervasive, leading to co-ordination failures, which can undermine the incentives for businesses to cooperate with each other for collective benefit.
5. There is some evidence of missing markets: a market failure associated with the fact that the benefits of diplomatic services accrue to all firms, leaving the government uniquely placed to deliver them.

Export promotion services help firms overcome the barriers to trade. They include services that disseminate information, mitigate cultural barriers, provide advice to reduce trade costs, and match buyers and sellers to overcome network barriers. These services can be provided by either the private sector or the government.

A primary motivation for government intervention in any market is to overcome market failures, which occur when the private sector does not provide a good or service at the level desired by society. In these situations, government intervention in the market can improve social and economic outcomes.

The literature finds that the government is uniquely positioned to overcome a number of market failures including information failures, positive externalities, coordination failures and missing markets. These market failures mean that private export promotion services are not offered at socially desirable levels.

An important market failure is information failure, where some firms may not be informed about the benefits and costs of exporting their products to a particular market (Copeland, 2008). Firms may incorrectly estimate the demand for their products or the costs of exporting. Providing these firms with reliable information on the costs and benefits of exporting can overcome this market failure, decreasing exporter uncertainty, and increasing the number of exporters and the value of exports. This is particularly relevant for small and medium sized enterprises (SMEs).

A second important market failure relates to the positive externalities from exporting: the extent to which societal benefits from exporting outweigh private benefits. As firms generally make decisions that maximise their private benefit, rather than accounting for these wider societal benefits, the amount of exports is likely to be lower than optimal in the absence of government intervention.

A related market failure is co-ordination failure. Information failures, externalities and lack of trust are likely to be pervasive, leading to co-ordination failures, which can undermine the incentives for businesses to cooperate with each other for collective benefit.

A final market failure relates to the provision of commercial diplomacy and related activities that benefit all potential exporters. Because these services are non-excludable (firms cannot be charged for taking advantage of an improved reputation for UK business), they can be considered a missing market. Where markets are missing, government is likely to be uniquely placed to deliver the service to ensure all firms benefit from an improved commercial reputation for the UK.

The key gap in the evidence relates to quantifying the magnitude of these market failures, particularly the scale of positive externalities.

Effect on exporting

1. The literature generally finds that export promotion has a positive and significant effect on exporting behaviour. This includes getting firms to start exporting, to expand exporting to new markets, and to increase the value of exports in existing markets.
2. There is limited evidence on how this effect varies for different types of export promotion services, or how individual services interact (for example if

combinations of services lead to outcomes that are greater than the sum of their parts). This is a key gap in the literature.

3. There is some evidence that more intensive support (more export promotion treatments per firm) improves export outcomes.
4. The best evidence suggests that export promotion is most effective at improving the economic outcomes of small firms with no previous experience of exporting.

A large number of studies attempt to quantify the impact of publicly funded export promotion interventions on exporting outcomes. There is a large amount of evidence from beyond the UK that export promotion has a positive effect on exporting, although estimates of the magnitude of this effect differ. Different international studies, for example, estimate that a 10% increase in export promotion budget would increase export value by 2.5% to 16.9% (Kang, 2010; Sousa and Bradley, 2009). At the firm level, Cansino et al. (2013) find that export promotion increased the ratio of export turnover to total turnover by 10% at treated Spanish firms. It is, however, likely that the divergence in these empirical findings at least partly reflects differences in the types of export promotion provided by different countries.

Specifically to the UK, a recent, robust study by Rincón-Aznar et al. (2015) finds that UKTI export support has a positive effect on firm level internationalisation (exporting and turnover at foreign subsidiaries); leading to an 8% increase in the likelihood of positive overseas turnover growth, a 1.5% increase in the likelihood of entry overseas, and a 4.7% increase in the share of overseas turnover (based on a sample excluding the largest companies (top 5% in terms of assets)).

Studies differ on whether this effect on exporting outcomes is due to changes on the extensive margin (new firms exporting or exporting to new markets) or the intensive margin (existing exporters increasing their exports of a particular product to a particular market). For example, Mion and Muûls (2015) show that UK export promotion support can help firms already exporting grow their goods exports by 8.8%, and helps new exporters start exporting with 46.4% higher goods exports values. They also find that the intensive margin effect drives the impact on total exports. Biesebroeck et al. (2015) find that increases in the intensive margin account for 55% of total export increases resulting from export promotion.

There is limited evidence that disaggregates export promotion into its component services. This is generally because firms receive more than one export promotion intervention over time, making it difficult to isolate the effect of individual services without precise treatment data and a very large sample size. Where studies do disaggregate export promotion services, it is often into two or three activity 'types'. These studies generally find that 'active' export promotion such as advice or troubleshooting is more effective than 'passive' export promotion such as providing information (Biesebroeck et al., 2015; Haddoud et al., 2017). There is also evidence that treating one firm with a combination of export promotion services is likely to have larger effect on exports than treating a number of firms with only one activity each (Broocks and Biesebroeck, 2017; Martincus and Carballo, 2010a; Schminke

and Biesebroeck (2015). This suggests that intensity of support matters for export outcomes. This could reflect the 'systems nature' of exporting as a complex pathway requiring intervention at multiple points.

The evidence suggests that export promotion is most effective at helping small firms with no previous experience of exporting. For example, recent, robust evidence finds that export promotion leads to a 10.7% increase in propensity to export for small firms, compared with a 3.5% increase in propensity for large firms (Broocks and Biesebroeck, 2017). These findings are in line with the hypothesis that small, inexperienced firms face the largest barriers to exporting.

There is mixed evidence regarding whether export promotion is most effective when firms self-select, or when firms are targeted for support by the export promotion organisation.

The literature consistently finds that the impact of export promotion is not constant over time; rather that it 'builds up' over a number of years (Munch and Schaur (2018)). There is also some evidence that sustained support to a firm over a number of years has a larger benefit than one-off support to a number of firms. (Biesebroeck et al., 2015). This is consistent with the intensity argument.

The key gaps in the evidence relate to disaggregating export promotion services at a more granular level using rigorous quantitative methods. Future studies could address this gap, as well as gaining insight into interactions between individual policies. More evidence on the long-term sustainability of the benefits would also be useful, particularly in the UK.

Effect on firm-level outcomes

1. The literature finds that export promotion has a positive and significant effect on firm-level outcomes, including employment, revenue, business survival and productivity.
2. There is mixed evidence on how these effects differ by firm type.

There is some evidence that links export promotion services to firm-level outcomes such as employment, revenue, firm survival and productivity. UK firms self-report increased turnover, employment and productivity as a result of publicly funded export promotion, and effects on a number of these measures has been verified by more rigorous econometric analyses. For example, Rincón-Aznar et al., (2015) find that UK firms who received UKTI support could expect turnover growth in the following year to increase by 1.45%, and labour productivity growth to increase by 1.85%.

There is robust empirical evidence that publicly funded export promotion in Denmark increased employment, sales and productivity for small firms by 3.0% to 9.3% (Munch and Schaur (2018)). There is also a broader literature that finds a correlation between exporting and firm-level outcomes, but does not demonstrate that these outcomes are caused by exporting.

Some studies attempt to evaluate the magnitude of this effect for individual export promotion services. However, there is limited robust empirical evidence on granular services. As with exporting outcomes, there is evidence to suggest that small, inexperienced firms tend to benefit proportionally more from export promotion (Rincón-Aznar et al., 2015). However, there is also some evidence that revenue and profit benefits may be greater for firms who already export (Boston Consulting Group, 2004). The evidence also suggests that, because of their scale, the absolute increase in the value of exports is likely to be greater for large firms.

Effect on economy-wide outcomes

1. Export promotion increases the exports and the productivity of both supported and unsupported firms, suggesting spillover benefits.
2. There is limited evidence on the size of these spillover effects and no evidence on how they vary by activity or firm type.

There is a narrow literature that addresses the effect of export promotion on wider economic outcomes. The aggregate economic outcomes of export promotion can be derived from the sum of individual firm outcomes, plus an additional spillover effect, where spillovers are benefits of export promotion that affect a broader set of firms than those specifically targeted by the intervention.

Some studies attempt to directly quantify the impact of export promotion on GDP, however the causal link between export promotion and the change in GDP is difficult to demonstrate. Other studies focus on spillovers. There is some evidence of export spillovers, where unsupported firms begin exporting or increase their export value as a result of supported firms' exporting behaviour. There is also evidence to support the hypothesis that an increase in the productivity of some firms (identified as a benefit of exporting) drives other firms in the same region or sector to improve their productivity.

The key gap in the literature is quantifying the size of these spillover effects, particularly in the UK context, and understanding how they vary by activity and firm type.

1 Introduction

This section outlines the context for the systematic review, the questions it addresses, and the methodology employed.

1.1 Scope of the review

The Department for International Trade (DIT) commissioned Frontier Economics to carry out a systematic review of the evidence relating to the net impact of publicly funded export promotion services on exporting behaviour, firm outcomes and economy-wide impacts. The review will inform DIT's understanding of the possible net impact of its customer-facing export promotion services and highlight gaps in the existing evidence base.

The evidence will support the Department in developing its Export Strategy and inform its wider work to develop a Value for Money (VfM) calculator to assess publicly funded export promotion services. It is important that this calculator is based on robust evidence applied within a framework that identifies the causal links between export promotion services and key economic outcomes and impacts.

This report presents the findings of the systematic review. The systematic review addresses four main groups of questions:

1: What is the rationale for export support activities? What is the rationale for government intervention to support exporting (market failures)? How do barriers and market failures differ by firm characteristic (size, sector, location, export market, export experience)?

2: What is the relationship between publicly funded export promotion and exporting outcomes? How does this differ by export promotion activity (for example events, digital) and export promotion models (such as targeted, self-selecting)? What is the time profile of the impact (lag between support and outcomes being realised; duration of impact)? How do these issues differ by firm characteristic (size, sector, location, export market, export experience)?

3: What is the relationship between publicly funded export promotion, exporting and firm-level economic outcomes? (Including employment, revenue, investment, productivity, firm survival). What mechanisms explain these links, how long do they take to materialise and how long do the effects persist? How do these issues vary by the type of export promotion support? How do these issues vary by firm characteristic (size, sector, location, export market, export experience)?

4: Are there other links between exporting and wider economic outcomes beyond the exporting firm that could impact the ultimate macroeconomic benefits of export support? What is the nature of these links (for example spillover effects), how long do they take to realise and how long do they persist? How do these issues vary by the type of export promotion support? How do these issues vary by firm characteristic (size, sector, location, export market, export experience)?

In addressing each question, the systematic review summarises robust estimates of the strength and direction of these effects and whether they deteriorate or reinforce over time. It also captures how effects vary for different firm types and for different combinations of export promotion services.

A critical part of the review is to identify gaps where the evidence is either non-existent or methodologically weak, and to suggest how future research could improve the evidence base.

1.2 Approach to the review

The systematic review was conducted in three stages:

- Identify and select relevant literature: We collated evidence from existing literature reviews and complemented this with systematic searches of academic databases. We identified additional papers by ‘snowballing’ from the reference lists of returned papers and searches of grey literature. This list of literature was filtered to exclude papers that did not address the research questions, or related to a time-period or geography that was significantly different from the contemporary DIT export promotion context.
- Assess the validity of the findings: This was done in two ways:
 - First, we assessed the ‘internal validity’ or robustness of the findings. For quantitative studies, we used a five-point Maryland Scientific Methods Scale. For qualitative studies, we made a judgement on the robustness of the evidence based on the research methodology and implementation.
 - Second, we assessed the ‘external validity’ of the findings to determine if they are relevant to the DIT context: for example, the recency of the evidence, the similarity of the services studied to those currently offered by DIT, and whether the evidence came from advanced economies.
- Synthesise the evidence: We extracted the key evidence from the literature into a single evidence register, identifying the findings that relate to each question, as well as details on the internal and external validity of the paper.

The review was conducted between October 2017 and January 2018 based on a protocol that was agreed with DIT. This protocol set out the questions of interest, search terms, evidence sources analysed, parameters of the review and the approach to assessing validity. The full protocol is in ANNEX A.

Approximately 400 studies were considered for inclusion in the review based on application of the protocol. Of these, a total of 209 were included in the full review following an initial sift for relevance against the research questions. A list of the papers referenced in each section of the systematic review is in ANNEX B.

2 Rationale for government intervention

This section reviews the literature on the rationale for government provision of export promotion services to overcome barriers to trade. The literature finds that the government is uniquely positioned to overcome a number of market failures which imply that private export promotion services are not offered at socially desirable levels. These market failures include information failures, positive externalities, co-ordination failures, and missing markets. The quality of the evidence demonstrating the importance of these market failures varies: some are based on strong empirical evidence, while others are grounded in theory. This section concludes by identifying key research questions that could fill gaps in the evidence base.

2.1 Overview

Export promotion services help firms overcome barriers to trade. They include services that disseminate information to mitigate cultural barriers, provide advice to reduce trade costs, and match buyers and sellers to overcome network barriers. These services can be provided by either the private sector or the government.

A primary motivation for government intervention in any market is to overcome market failures¹ which occur when the private sector does not provide a good or service at the socially efficient level. In these situations, government intervention in the market may improve outcomes for the economy as a whole.

Government intervention in the market to provide export promotion services to UK firms should be justified by market failures that result in socially suboptimal levels of provision by private export promotion companies.

2.2 Information failure

When a firm makes the decision to enter a new market, this is inherently more risky and uncertain than operating in a market where it is already established (Leonidou et al., 2011; Julian & Ahmed, 2005). The firm must estimate the costs and benefits of doing business overseas, and often the information required to inform this estimate is costly and time-consuming to acquire. These can be characterised as sunk costs (see for example Copeland, 2008), because they cannot be recouped if the firm does not proceed to export. Importantly, the cost of acquiring this information is not proportional to the volume the firm plans to export (Haddoud et al., 2017).

Where information acquisition costs mean that uncertainty remains high, potentially profitable business ventures may be foregone. This highlights the importance of information as a business resource (Copeland, 2008; Leonidou et al., 2011). There are two key categories of information that business do not have sufficient access to:

- Information on the process of exporting: Martincus and Carballo (2008) note that firms must understand the formal export process in their home market; the import process in the target market; alternative merchandise shipping methods and the

¹ HMT (2018), 'The Green Book; Central government guidance on appraisal and evaluation'; Other rationale for government intervention include achieving strategic objectives, improvements to existing policy, or meeting distributional objectives.

associated costs; the potential markets abroad and their demand profiles; and channels through which to market their products. DIT (2017) found that potential exporters value information on tax implications of exporting (67% of respondents), and regulation and customs issues (65%). HMRC (2014) found that many small and medium sized enterprises (SMEs) had limited understanding of the import export journey, and lacked information and support to help them navigate an unfamiliar process.

- Market specific information: A survey by the British Chamber of Commerce found that firms considering exporting identified that information on and access to overseas distributors and partners was an important barrier to seeking out international markets (British Chamber of Commerce, 2015). Brooks and Biesebroeck (2017) explain that this information is also important for existing exporters, because intelligence on market conditions and distribution channels requires constant maintenance, particularly during economic downturns when business partners might cease trading. Kneller & Pisu (2007) highlight that firms lack an understanding of cultural differences with export markets. DIT (2017) agreed, finding that 52% of firms value information on 'language and cultural issues'. The survey also found that respondents valued information on potential customer contacts (68%) and intelligence on demand and competitors (64%). CEBR (2016) explains that information failures differ depending on the export region. 9% of firms cited 'lack of know how' as the key barrier to exporting to Europe, compared to 14% of firms considering Africa, South America or the Middle East.

There is also evidence that firms systematically underestimate the benefits of exporting. Gray (1997) finds that managerial awareness of exporting benefits is low. More recently, the Energy Industries Council (2017) found that exporting is low because firms are not aware of export opportunities and do not understand why they are relevant. Alexander and Warwick (2007) explicitly claim that firms underestimate the potential benefits of exporting versus the real, often fixed, costs and suggest that government is well placed to narrow this information gap. In particular, they highlight the diverse resources that governments have to influence business understanding, including international embassies and trade promotion agencies.

Information failures are particularly important for small firms. Copeland (2008) claims export promotion could lower the fixed costs of entering a particular market, given the public good properties of general export information (the information is relevant for any business doing business overseas). Larger firms have the economies of scale that make maintaining a base of knowledge about potential export markets, suppliers and distributors more affordable, meaning that small firms may be disadvantaged. Similarly, Munch and Schaur (2018) suggest that companies which are able to spread the fixed costs of acquiring information over large sales volumes will have an advantage over firms with lower sales volumes. Therefore, bundling basic information on exporting and spreading the acquisition costs over many businesses purchasing the information is most likely to positively affect smaller

businesses which otherwise would not be able to recover this fixed cost. These firms may instead have attempted to export by trial and error, at times making costly mistakes, or may have forgone exporting altogether.

Governments are particularly well placed to address information failures and spillovers, providing firms with reliable information on the costs and benefits of exporting and increasing the number of exporters. Copeland (2008) argues that there will be cases where one firm invests in acquiring information about a potential market and other firms benefit without having to bear the cost. In these cases, there may be underinvestment in the acquisition of information, discouraging marginal firms from exporting to new markets. While the private sector may be able to collect this information on behalf of many firms, if the benefits of some kinds of information are truly public, then governments are best placed to collect and distribute this information.

Moreover, Alexander and Warwick (2007) note that governments can more readily be seen as trusted intermediaries, meaning that firms may be more willing to act on advice and support received by government than from other parts of the private sector. This is supported by London Economics (2011), who emphasise the role of governments in intermediation between foreign and domestic firms. The authors note that governments have access to information that cannot be easily replicated by private agencies. Further, when dealing with issues abroad, a government export promotion agency is likely to have more trust with the foreign government than a similar private agency. However, the paper is primarily theoretical and relies on a survey, primarily of trade associations and chambers of commerce.

Finally, information failures can also mean that firms are not aware that export promotion services are available to them, and therefore do not seek out such services. DIT (2017) finds that only 31% of firms agreed that there 'is a lot of support available to help small and medium businesses start exporting'. Fischer and Reuber (2003) show that those with less international experience will have less awareness of export support services and be less likely to use them. This finding is supported by CBI (2015) who surveyed UK businesses on export support and found that many CBI members, especially those that are first time exporters, are unaware of the services provided.

2.3 Positive externalities

A second important market failure relates to the positive externalities from exporting. The benefits to society from exporting often outweigh the private benefits to the exporting firms. As firms generally make decisions based on these private benefits, the amount of exports is likely to be lower than would be optimal from a wider societal perspective. This rationalises government support.

Lederman et al. (2006) conclude that publicly funded export promotion agencies are more effective than privately funded alternatives. The authors suggest this occurs because privately owned export promotion organisations provide less export promotion than the level preferred by society, specifically citing the positive externalities associated with exporting, such as the public benefits of gathering

information. This means that the firms cannot internalise the social benefits, so the profit maximising level of information provision is lower than the socially efficient level.

One example of such positive externalities is that non-exporters may emulate exporters. Alexander and Warwick (2007) refer to this as a 'demonstration effect', where one firm's decision to enter into an export market can inspire other 'following' firms to export (perhaps, relating to the first failure above, by demonstrating that costs of exporting are lower than the firms estimated). Lederman et al. (2006) cite the initial investment that 'pioneer' firms make but fail to recapture fully as other firms follow, although the paper does not elaborate on the extent to which 'following' firms recapture the 'pioneer' firm's market share in the foreign market.

Positive externalities may also exist at the exploratory phase of exporting. Copeland (2008) notes that the success or failure of firms attempting to enter new markets conveys information to other firms which can subsequently adjust their expectations about the prospects of entering the same market. The author argues that this is likely to lead to underinvestment in market exploration.

Positive externalities may also exist because of productivity externalities. The International Trade Centre (2015) infer, using a fixed effects approach on a cross-country dataset, that trade increases the productivity of both exporting firms and non-exporting firms. In particular, they find that the positive effects of export promotion on GDP per capita exceeds the effects on exporters, suggesting that productivity also increases at non-exporting firms. However, it is unclear to what extent the paper controls for factors affecting GDP per capita. Moreover, this finding, which focuses on developing countries, may not be directly relevant in the UK context.

Foreman-Peck and Wang (2013) agree with the International Trade Centre study, citing underinvestment in exporting skills such as language skills. The authors argue that larger public investment in language skills will lead to employees being more able to facilitate internationalisation at multiple firms. If a single firm invests in language skills for an employee, the firm may not be able to recoup the benefits of their investment because the employee may apply their exporting language skills in another firm. This is similar to wider evidence that firms under-invest in human capital development that is not fully firm-specific.

These examples suggest that if government support can encourage 'pioneer' firms to export, the impact on total exports and wider economic outcomes will be larger via demonstration effect of the benefits of exporting, signalling effect that reveals the profitability of the export destination market, followed by productivity externalities.

Co-ordination failures

A related market failure is co-ordination failure. Information failures, externalities and lack of trust are likely to be pervasive, leading to co-ordination failures, which can undermine the incentives for businesses to cooperate with each other for collective benefit.

Biesebroeck et al. (2015) suggest some export support is likely to rely on a network of offices around the world to provide troubleshooting services to new and existing exporters. While the benefits from such services could be facilitated by the private sector, the authors argue that the required scale makes government an efficient provider. Likewise, Bernard and Jensen (2004) claims government can provide a coordination role for new or existing exporters, in effect reducing the costs of exporting.

Wang et al. (2016) also argue Government is better placed as a provider of in-depth localised information as they have extensive overseas networks including embassies, consulates and foreign offices who are well informed of local market conditions and distribution channels, and can therefore provide detailed, up to date information which would be too expensive for any but the largest of firms to acquire privately.

Therefore, there is a strong theoretical case for why government can play a critical role in pooling necessary information, acting as a trusted source of advice and guidance, and using its convening power to bring businesses together and stimulate private sector cooperation.

2.4 Missing Markets

Some export promotion interventions, such as activities that raise the profile of the UK's exports in general, might be non-excludable (meaning once the service is provided, both payers and non-payers benefit). The private sector is likely to undersupply services in these circumstances, resulting in missing markets.

A key example of missing markets is related to commercial diplomacy. Rose (2005) shows that embassies can be used as an export promotion tool. Government delegates such as ambassadors or diplomatic associates can play a key role in promoting a country's interests abroad, including exports to the host country. The author finds that placing an embassy abroad can raise exports to that country by 6% to 9%. These results are based on a gravity model, which passes numerous robustness checks and controls for reverse causality. The trade flows of 22 "large exporting countries" are included in the model, hence the range of findings.

This evidence suggests there is a unique role for government-to-government dialogue and commercial diplomacy activities. In the absence of government provision, it is unlikely that these services would be provided by the private sector.

2.5 Key gaps in the evidence

Quantifying positive externalities

While there is a relatively well-established theoretical case for positive externalities from exporting, there is much more limited empirical evidence that quantifies the magnitude of the externality.

It is hypothesised that firms are more likely to begin exporting or expand into new markets if they observe a firm in their region or sector doing the same. Future studies could test this hypothesis by investigating empirically whether a firm is more

likely to export if it operates in the same region or sector as a 'pioneer' firm. One approach to answering this question would be to compare non-supported firms in sectors and markets that are the focus of DIT 'high-value campaigns', with non-supported firms in other sectors and markets that were considered for 'high-value campaigns' but not selected.

Evidence from general business surveys or detailed case studies about the importance of pioneer firms in persuading businesses to consider exporting could also give some sense of the potential magnitude of these externalities. However, this would be based on self-reported statements of what drove firms to begin the export journey.

3 Effect of export promotion services on exports

The previous chapter set out the evidence of market failures that justify government intervention. This section reviews the literature on the effect of government intervention on exporting outcomes. It considers evidence on how the impact of publicly funded export promotion on exporting outcomes differs by export promotion activity and by firm characteristic, as well as the time profile of the effect. Multiple studies describe the impact of export promotion services on exports, with the majority finding that export promotion services help increase exports. While many studies cite survey evidence, more weight is given to the results of econometric analysis in this report.

3.1 Overall effect of export promotion

There is a large amount of evidence that export promotion has a positive effect on exporting, although estimates of the magnitude of this effect differ. This is primarily because the definition of policies differs across countries and time, as do the methodology and precise nature of the question answered by each study.

The International Trade Centre (2015) notes that 4.5% of UK export revenue can be attributed to export promotion services. This is broadly consistent with international estimates, although some studies find a much larger effect. The authors use a cross-country fixed effects model with semi-parametric controls, and it is a relatively robust model. However, there are no time-varying control variables, and the authors fail to show the residuals are serially uncorrelated, suggesting the results could be biased. Kang (2010) shows that an increase in the Korean export promotion budget of 10% would lead to a 2.45% to 6.34% increase in exports while Sousa and Bradley (2009) studied Portuguese small and medium sized enterprises (SMEs) exporters, finding that their performance abroad would improve by 16.9% following a 10% increase in export assistance. Whilst Sousa and Bradley (2009) used a reasonable methodology with good control variables; Kang (2010) used a more robust gravity model with a large dataset and suitable control variables, implying that the overall impact is potentially lower than Sousa and Bradley (2009) suggest.

Francis and Collins-Dodd (2003) focused on Canadian high-technology SMEs, finding that firms felt large positive impacts on their export marketing ability, geographic market strategy and export knowledge. However, the effects on export intensity as a result of export support were insignificant, with the authors claiming that it is difficult to disentangle the overall effect of government support on exports. Furthermore, their findings were based on a business survey with robustness checks of the statistical analysis.

Cansino et al. (2013) found that Spanish SMEs that used export promotion services increased their export intensity. Specifically, when measured against a control group, their ratio of export sales to total sales had increased by 10% after using export promotion services, where the control group were registered to use export promotion services, but used no export promotion services.

Specifically to the UK, Rincón-Aznar et al. (2015) assess a number of outcomes related to export performance using a propensity score matching analysis and difference-in-differences model. The results in Figure 1 suggest UKTI export services had a positive effect on firm level internationalisation,² even excluding the largest 5% of firms. For these firms (excluding the largest 5%), the UKTI export services led to an 8% increase in the likelihood of positive overseas turnover growth, a 1.5% increase in the likelihood of entry overseas, and a 4.7% increase in the share of overseas turnover.

The methodology used is the most appropriate given the available data. However, there are three important data limitations that affect the estimation of internationalisation measures. First, the dataset contains a large number of missing values, where firms did not report export revenues. The authors assume missing values imply that the firm did not export, but this approach means that the estimation approach may be influenced by changes in reporting patterns over time. Second, the dataset measures overseas turnover, and does not distinguish between exports and sales by overseas subsidiaries. Lastly, matching imperfections mean only 49% of the total observations were used, which may systematically exclude smaller firms. There are numerous robustness checks performed on this analysis, and the methodology appears to overcome motivation, reporting and self-selection biases.

Figure 1 The effect of UKTI support on internationalisation and survival

Dependent variable	Probability of survival	Positive overseas turnover growth	Entry overseas	Overseas turnover as a share of turnover
Effect of UKTI support: All companies	0.0172***	0.0863***	0.0165***	0.0479***
Effect of UKTI support: Excluding largest companies (top 5% in terms of assets)	0.0163***	0.0808***	0.0150***	0.0471***

Source: Rincón-Aznar et al. (2015), Table 12, Page 57

Note: *** indicates significance at the 1% level.

Impact by Intensive and Extensive Margin

Export promotion can have two distinct effects on a firm's exports. It can increase exports on the extensive margin, which considers the number of products exported and the number of export markets. Alternatively, it can increase exports on the intensive margin, increasing the average value of exports for a given product and

² Firm internationalisation measures both exporting and turnover at foreign subsidiaries.

market. The evidence suggests that export promotion has a positive effect on both intensive and extensive margins.

Mion and Muûls (2015) study this distinction in detail for the impact of UKTI export services. The authors use propensity score matching to measure the effect of UKTI export services on intensive and extensive margins for different firm types and conclude that “intensive margins are particularly affected” across firm types, and for different types of services.

With respect to export experience, Mion and Muûls (2015) analyse how UKTI export services affected current exporters and non-exporters. Using propensity score matching, the results in Figure 2 show that current exporters can increase total exports by 8.8%, of which the change in intensive margin is 5% and increase in the number of countries exported to is 3.5%. Whilst non-exporters³ increase total exports by 46.4%, of which the change in intensive margin is 24.3% and increase in the number of countries exported to is 19.6%.

Figure 2 Propensity score matching estimators for UKTI treatment effect

	Exporter in year of UKTI support	Non-exporter in year of UKTI support
Change in total exports	0.088***	0.464**
Change in number of countries	0.035***	0.196**
Change in number of products per country	0.002	0.026
Change in intensive margin	0.050**	0.243*

Source: Mion and Muûls (2015), Table 18, Page 40

Note: * indicates significance at the 10% (*), 5% (**) and 1% (***) levels.

When the same analysis is performed on market specific UKTI export services (see Figure 3), the change in total exports and the change in intensive margins for current exporters decreases slightly, whilst the change for non-exporters falls by around 50%. The significance of the extensive margin effect changes slightly. The change in number of products per country becomes significant (the change is 3.1% for exporters, and 5.0% for non-exporters). The authors claim that the difference between market-specific and non-market-specific support is at the product margin. This suggests market specific UKTI export services has significant impacts on the fixed costs associated with selling a new product overseas.

³ Defined as firms not exporting in the year of UKTI export support.

Figure 3 Propensity score matching estimators for market-specific UKTI treatment effect

	Exporter in year of UKTI support	Non-exporter in year of UKTI support
Change in total exports	0.078**	0.246***
Change in number of countries	0.004	0.063***
Change in number of products per country	0.031***	0.050**
Change in intensive margin	0.044*	0.132**

Source: Mion and Muùls (2015), Table 33, Pages 50-51

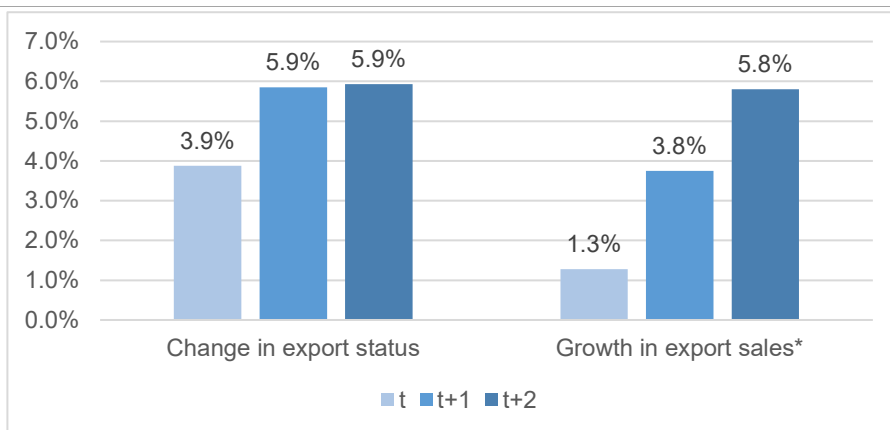
Note: * indicates significance at the 10% (*), 5% (**) and 1% (***) levels.

The authors attempt to quantify this increase in exports for the average and median firm two years after treatment. For firms that have previously exported, the increase in exports for the average firm in this group is £1,056,000 and the increase for the median firm is £153,000. With respect to non-exporting firms, the average firm in this group exports £580,000 more in two years after the treatment, whilst the median firm exports £7,000 more.

In terms of methodology, the use of propensity score matching and a Heckman selection model means the paper is relatively robust, with additional robustness checks to ensure the correct model is specified. The paper also attempts to control for unobservable characteristics by calculating an Inverse Mills ratio. In terms of data, there may be selection problems despite the large sample size, as the sample systematically excludes smaller firms.

Munch and Schaur (2018) find that export promotion interventions in Denmark have a positive effect on export status and export value which builds up over the three years post treatment covered in the study. The study finds export promotion increases the probability of being an exporter in the treatment year by 3.9% relative to the control firms, and this effect increases by about 5.9% one and two-years post-treatment (see Figure 4). They also find the growth in export sales is concentrated to a few sub-groups, firstly medium sized firms (20 to 50 employees) see an increase of about 12% and 16% over a two and three year period. Secondly, small firms (less than 20 employees) see an increase of about 5.7% and 6.0% in the treatment year and one-year post-treatment. The study uses a difference-in-differences approach and is able to effectively control for numerous observable firm characteristics that drive selection into treatment using propensity score matching.

Figure 4 The treatment effect over time



Source: Munch and Schaur (2018), Table 3 and 4, Pages 40

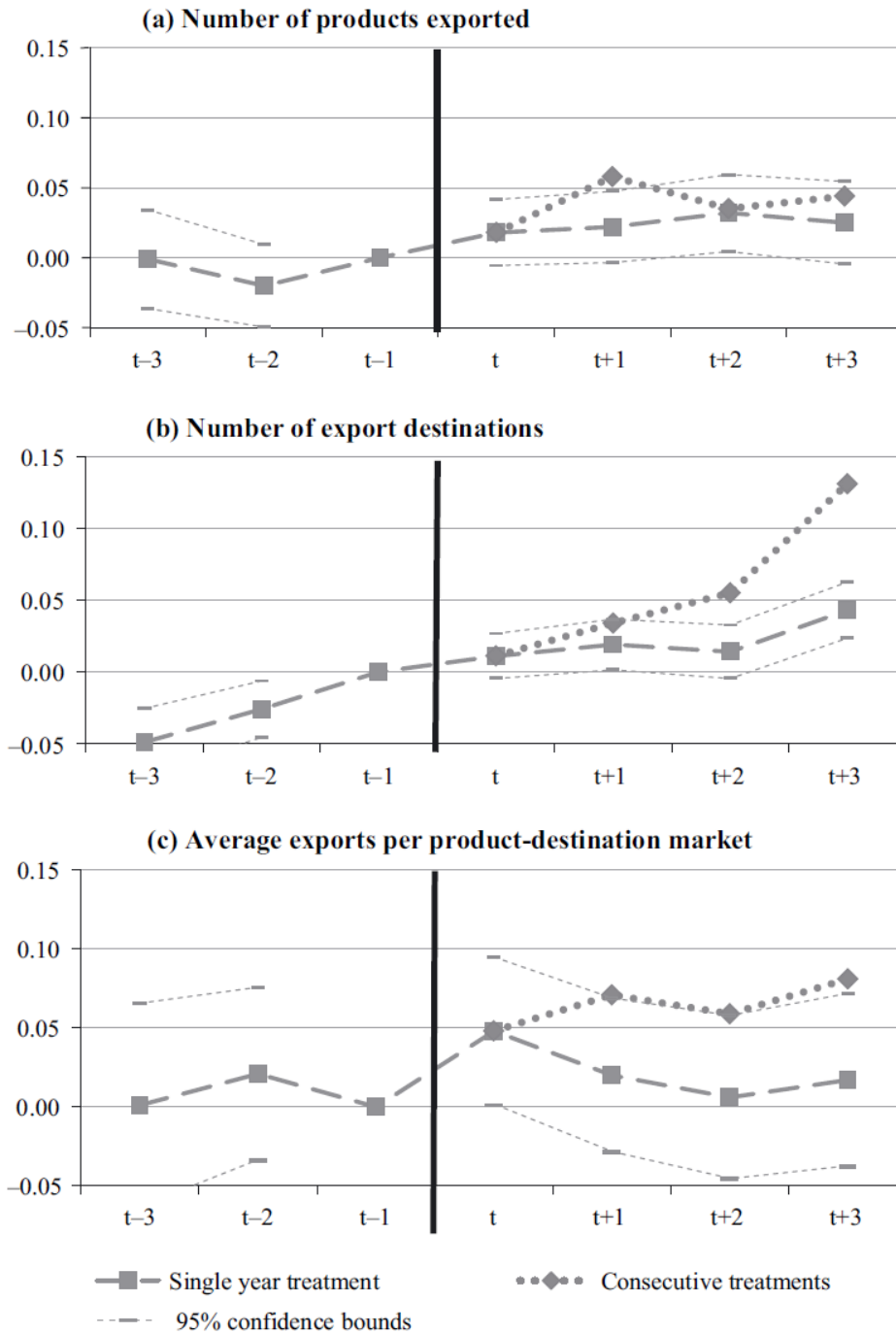
Note: * The effect growth in export sales is statistically significant one year after receiving treatment.

Other studies confirm both the existence of an extensive and intensive margin. UKTI (2014) claims that UKTI users are more likely to enter new markets than non-users, and are more likely to export new products or to new customers (meaning they increase exporting on the extensive margin). However, this paper is based on survey evidence, and is a less robust form of evidence.

Biesebroeck et al. (2015) note that export promotion interventions do not always result in similar increases in extensive and intensive margins. In a study on Canadian firms, the authors find that increases in the intensive margin account for 55% of total export increases resulting from export promotion, slightly dominating the 22% and 23% increase in extensive margins on new products and new destinations. The authors provide two explanations of why intensive margin effects may be higher than respective extensive margin effects. First, the authors hypothesise that export promotion interventions primarily affect the fixed costs of exporting. As such, for price sensitive exports, export promotion interventions are likely to have a substantial impact on the value of exports in a single product/market category but may not have an effect on the number of product/market categories a firm can export to. Second, export promotion interventions may have a greater effect at helping firms to adapt their 'market-specific product-appeal' where firms already have a knowledge of the market. This 'learning-by-doing' effect occurs because it is easier for export promotion interventions to convey this information to firms that are already exporting to the market.

The authors also find that single-year treatment (controlling for multiple treatments in a year) only has a short-term effect on the intensive margin, while consecutive years of treatment result in a sustained long-term increase in intensive margins. At the extensive margin, the difference between single-year and consecutive-year treatment is more substantial with regard to the number of export destinations, however consecutive years of treatment do not provide any benefit over single-year treatment in terms of the number of products exported.

Figure 5 The effect of single year treatment and consecutive year treatment on exports



Source: Biesebroeck et al. (2015), p. 1502

Note: Year t is the year of the first treatment. OLS, with logarithm of firm level exports as dependent variable.

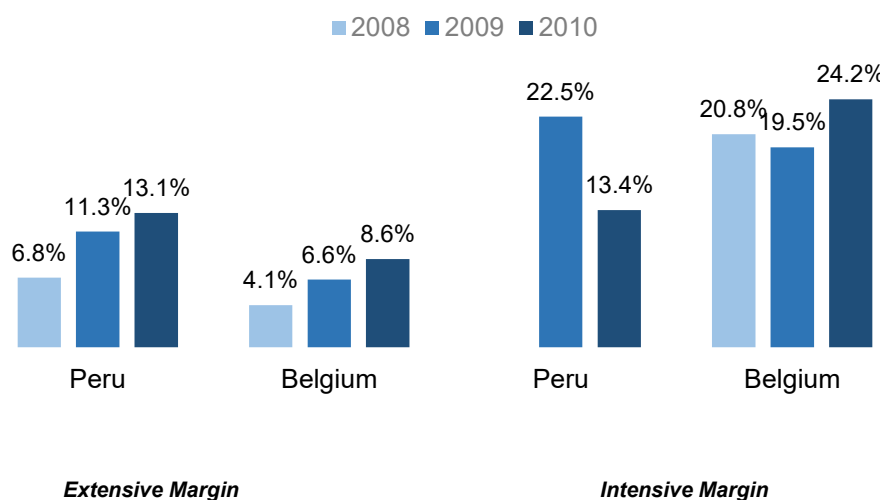
Conversely, a study in Peru by Martincus and Carballo (2008) finds that export promotion helps extensive margins over intensive margins, increasing the number of countries exported to by 10%, and number of products by 12%,⁴ whilst increases in exports per product and exports per country were insignificant. PROMPEX, the

⁴ The number of products per country were not significant.

Peruvian export promotion agency, tends to focus on informational services but does offer a variety of export promotion services. However, the study did not distinguish between services offered, only analysing the effect of using any export promotion service. A key note of the study is that the treatment variables were lagged relative to the export margins. Both studies used difference-in-differences estimators with propensity score matching and used robust control variables. Biesebroeck et al. (2016) explores export promotion during the financial crisis in two countries: Belgium and Peru. The results suggest positive extensive and intensive margins for both countries using a variety of robust methodologies. The probability of exporting, increased by 4.1% to 8.6% for Belgium, and by 6.8% to 13.1% for Peru. Intensive margins (or the level of exports) were higher for both countries: increasing 19.5% to 24.2% in Belgium and 13.4% to 22.5% in Peru.

This difference could be explained by two factors: the difference in persistence of export promotion support, and the type of export promotion support received. Firstly, the long-term effects of export promotion policies are a lot stronger if firms receive support in consecutive years. The extensive margin tends to persist even after a single year of support, but for the intensive margin to persist (and to enjoy a sustained increase in total exports) export promotion services need to persist. This is the conclusion reached by Biesebroeck et al. (2015), but also corresponds to Martincus and Carballo (2008), because the latter authors use lagged treatment effects and only find effects on the extensive margin. This suggests that if there are effects on the intensive margin, they do not last longer than a year. Secondly, the type of export promotion support varies substantially between countries and over time, potentially because of immeasurable country differences, such as the quality of service provided. The following section discusses how impact varies by the type of export promotion support.

Figure 6 Impact of export promotion on exports at the extensive and intensive margins, Peru and Belgium



Source: Biesebroeck et al. (2016)

Brooks and Biesebroeck (2017) suggest that extensive margin effects are particularly difficult to differentiate from intensive margin effects given the associated data requirements. While estimating the combined effects of export promotion on internationalisation requires data on the timing of the intervention and the value of total exports (as in Rincón-Aznar et al., 2015), estimating extensive and intensive margin effects separately requires data on the export status of each firm (by market) and a range of control variables that need to be linked from firm census or balance sheet information. This is particularly challenging as firms that move from being non-exporters to being exporters are likely to be small, meaning that datasets need to cover the universe of active firms without a minimum size threshold.

3.2 Effect by export promotion activity

There are many types of export promotion services available to policymakers, with each attempting to overcome different barriers to exporting.

Individual export promotion services

Some studies estimate the potential impacts of individual export promotion services. Differentiating between the effects of distinct export promotion services is important for prioritising export promotion spending and for understanding which barriers and market failures governments should focus on addressing. Where export promotion activities are grouped into broad categories encompassing a wide range of distinct interventions, insights for government prioritisation would be less specific.

Alvarez (2004) shows that, in Chile, participating in export promotion schemes can make a significant difference. For example, the author finds that participation in export committees led to a 14% higher probability of becoming an exporter whereas trade missions⁵ and tradeshows⁶ do not increase the probability of firms becoming permanent exporters. However, the paper uses a probit model to measure participation, based on a small-sample survey, suggesting the results may be less robust. Conversely, Wilkinson and Brouthers (2006) find that, in the USA, attending tradeshows is positively associated with export performance. This paper employs marginally more sophisticated techniques, using control variables in a cross-sectional regression. However, the data was ultimately derived from another small-sample survey.

Spence (2003) finds that UK trade missions can be effective, but are most effective for firms that gain knowledge before participating in the trade mission, communicate with potential business partners before the trade mission and proactively follow-up on the networks created on trade missions. Despite being based on survey evidence, the response rate to this survey was high, whilst the multivariate regression used control variables, suggesting a relatively good methodology. However, Head and Ries (2010) find that trade missions in Canada have no effect on exports. The study found trade missions are associated with high exports, but that

⁵ Trade missions are a group of government officials and firm representatives that travel to an export market to promote their country's exports.

⁶ Trade shows are industry focused events, hosting a variety of countries and companies; with the aim of creating networks for exporting firms.

these exports were high before and after the trade mission. The specification, a pair fixed-effect model, is more robust as it captures unobserved factors influencing trade that existed prior to the trade missions. The paper also discusses the control variables used.

A UK based paper, Breinlich et al. (2012), assessed firms using UKTI services, in particular the Overseas Market Introduction Services (OMIS). The authors assessed whether participation in OMIS had an effect on subsequent overseas turnover growth⁷. The results suggested that OMIS increased overseas turnover growth by 9%, although it did not have an impact on overseas turnover as a share of overall turnover. Using OMIS in conjunction with at least one of the other UKTI services weakens the overall effects: the probability of overseas market entry in subsequent years is lowered by 5%. The study used a robust estimation method of propensity score matching with nearest neighbour estimation and use two sets of robustness checks. The data are from a large dataset of UK firms, matched with firm level export data. However, the data on overseas turnover were likely to be a noisy measure of actual export activity for two reasons. First, the dataset contains a large number of missing values, where firms did not report export revenues. Reporting overseas turnover is voluntary for most firms. For this reason, when overseas turnover is not reported, it is not possible to distinguish whether this is because it is zero, or because it is below the reporting threshold. Moreover, some firms report overseas turnover and overall turnover when they are not required to do so, resulting in reporting bias. Second, the dataset measures overseas turnover, and does not distinguish between exports and sales by overseas subsidiaries.

Other studies assess the relative effects of different export promotion services, which are typically grouped into a few distinct categories. For example, Biesebroeck et al. (2015) split the types of Canadian services into two broad groups: troubleshooting services and informational services. Troubleshooting includes a wide variety of specific services that help firms solve issues they come across whilst exporting, such as customs clearance, contract bidding, storage and insurance. It also includes helping firms to organise visits to promising export markets and potential expansion areas. Information provision helps firms determine their suitability for exporting, assessing market navigation and identifying events and contacts to help begin exporting. The study found that troubleshooting increased the intensive and extensive margins more than information services. The increases at the intensive margin from troubleshooting services (11.1%) were over three times higher than from informational services (3.5%), while the overall increase from troubleshooting services (15.0%) was almost two times higher than from information services (9.2%). The results are intuitive, as troubleshooting can help firms overcome barriers during the export process, and thus improve the intensive margin (increase the value of exports).

Most recently in the UK, Haddoud et al. (2017) disaggregated the effects of experiential and information export promotion services to test the importance of

⁷ Overseas turnover measures both exporting and turnover at foreign subsidiaries.

networking between domestic SMEs and foreign firms in the manufacturing sector. The authors highlight that these services have indirect effects on firms' export levels through the networks made as a result of the export promotion services, and hypothesise that these indirect effects lead to increased export performance. Informational services broadly include workshops, seminars and training programmes; whilst experiential services include trade shows, trade missions and support by trade offices abroad. It found that experiential export promotion services had a statistically significant effect on SME manufacturers' export performance, while informational services were considered statistically insignificant. The authors argued that this supports the hypothesis that improving the quality of SMEs' relationships with other agents, particularly with foreign buyers, has an indirect, but positive influence on their export performance. Whilst this study did have a set of control variables, the results do not necessarily imply causality. Ultimately, the data was based on a representative but small-sample survey.

Finally, Rogers and Helmers (2010) compared the effect of two UKTI schemes, Passport to Growth and Export Marketing Research Scheme (EMRS), on the probability of the firm stopping exporting. The authors find that firms under the Passport scheme are 5.7% less likely to exit the market, whilst participation in the EMRS scheme will lead firms to be 4.8% less likely to exit the market. The study used relatively robust data sources (Passport and EMRS treatment data, FAME data, European Patent Office PATSTAT data), and included a number of control variables.

Interaction between export promotion services

The literature also explores the interaction between export promotion services to understand the impact of using more than one export promotion service. Martincus and Carballo (2010a) showed that whilst trade missions, counselling services or help setting a trade agenda have low effectiveness as standalone export promotion tools, they can be effective in increasing exports when used in combination with each other. This is particularly true for combining help setting a trade agenda with other services. Whilst this study was empirically robust, fulfilling conditional independence assumptions for propensity score matching, the study was set in Columbia, which is not necessarily a good comparison country for the UK (the range of export promotion interventions used in Columbia are categorised differently from the ones used in the UK, and exporting conditions are likely to be markedly different).

This study defines three categories of trade promotion support and looks at combinations of all three services. The authors had to make sure the treatments were mutually exclusive within a year to be able to explicitly evaluate whether there are complementarities among services, that is, whether combined services are more effective in promoting exports than individual ones (for example whether participation in a trade mission combined with counselling and previously arranged trade agendas has a larger impact on exports than just trade mission participation).

Schminke and Biesebroeck (2015) use data from Belgium to compare combinations of three export promotion services: 'actions', 'subsidies' and 'other support' (where

other support includes different types of communication with the export promotion agency). The study finds that by themselves, each of these export promotion services increases a firm's export propensity by 2.6%, 6.4% and 5.3% respectively. However, combining two services multiplies this effect. For example, combining 'actions' with 'subsidies' increases export propensity by 9.3% while combining 'subsidies' with 'other support' increases export propensity to 11.9%. The study uses a number of control variables along with robustness checks, but it is not as robust as propensity score matching approaches.

Broocks and Biesebroeck (2017) agree, claiming that subsidies, alongside other active forms of support can have a positive effect on a firm's propensity to export (also in Belgium), when measured against firms with other types of support. This is a much more robust study, using fixed effects on a linear probability model. The study uses a comprehensive dataset, with robustness checks on different specifications, with a control for selection bias.

Biesebroeck et al. (2015) finds using multiple treatments of different services in a given year leads to a larger effect on the total value of exports. The study uses Propensity Score Matching and Difference in Differences methods, with and without Fixed Effects. The study attempts to control for observable characteristics that drive selection into treatment and for the average differences over time between treatment and control.

Specifically to the UK, Rincón-Aznar et al. (2015) assess the impact of using multiple treatments, including multiple treatments of the same service and multiple treatments of different services. The authors consider firms that use between two and five treatments, and those that use more than five treatments in a given year. The authors find the impact of using multiple treatments on the propensity to export is positive and significant (1.7%). Further, the overseas share of turnover increases by 5.0% as a result of multiple treatment; a positive and significant result. As previously discussed, this measure of overseas turnover includes both exports and the turnover of overseas subsidiaries or affiliates, which has implications for the interpretation of the authors findings. Compared with high impact services⁸, both propensity to export (1.4%) and overseas share of turnover (4.8%) were improved by UKTI services, and were significant, but lower than using multiple services. This implies that using multiple UKTI services might be more beneficial than using one service at a high impact. The methodology used to derive these results is robust, as the authors used propensity score matching to control for firm differences, and used a difference-in-differences estimator, as well as a series of robustness checks.

Similarly, Mion and Muûls (2015) show that firms that received multiple instances of support from UKTI (including multiple treatments of the same service and multiple treatments of different services) increased their export value by 30% compared to firms that only received one instance of support. The study does not, however, find

⁸ These are UKTI export services which appear to have relatively high impact as measured by the improved business performance measure in the client survey (have achieved sustainable (i.e. longer-term) improvements in productivity and profitability, after they have secured additional sales.)

evidence that this difference is sustained: two years after the interventions were received there was not significant difference between the export performance of multiple treatment and single treatment firms.

Conversely, Breinlich et al. (2012) find mixed results in their analysis on the combined impact of using OMIS and another treatment. Whilst export turnover growth increased 5% as a result, the likelihood of export market entry in the next year decreased 5%. The authors caution that unobserved factors could be a reason for the lower likelihood of export market entry.

3.3 Effect by firm type

The literature also discusses whether the impact of export promotion services is different for different types of firm in terms of size and export experience, or how supported firms are selected.

Firm size and export experience

Broadly speaking, the evidence suggests that export promotion is most effective at helping small firms with no previous experience of exporting. However, the effects on large firms are likely to be larger in absolute terms because of their relative scale.

Munch and Schaur (2018) explain this finding is intuitive because smaller firms typically face barriers to enter overseas markets that require an upfront investment to learn about market conditions which is difficult to recover for the smallest firms.

Leonidou et al. (2011) show that export promotion effects on enhancing UK firms performance in export markets are more significant for smaller⁹ and more inexperienced firms, when compared with larger firms that are already exporting. However, this analysis did not use control variables, and as such is not robust.

The general findings are supported by Broocks and Biesebroeck (2017) who find heterogeneous effects of Canadian export promotion services on the export propensity of different sized firms. The authors find the impact of export promotion services is almost three times as great on small firms (firms with 1 to 5 workers) as it is on larger firms (firms with more than 20 workers). For small firms, export promotion leads to a 10.7% increase in propensity to export, where for large firms, the corresponding increase in export propensity is 3.5%. For medium-sized firms (firms with 5 to 20 workers) the increase is 5.4%. However, as large firms are likely to export anyway, the marginal effect of export promotion for these firms is expected to be limited.

Martincus and Carballo (2010b) analysed the distributional effect of Chilean export promotion, dividing firms into 10 deciles, and assessing the effect of export promotion on each group's average exports. The authors found that the average effect of export promotion across all firms increased total exports by 6.8%. However, the effect on the smallest decile was much greater, increasing total exports by 27%, whilst all estimates above the 40th percentile were insignificant. The use of

⁹ Small firms were defined as firms with lower than median "sales turnover".

propensity score matching, with a quantile regression, suggests a robust methodology.

Similarly, Africano et al. (2011) found that Portuguese SMEs, many of which are in the services sector and lack export experience, tend to find trade missions more useful than larger firms. This study only used a limited set of control variables and was based on a survey (albeit a survey with a representative sample).

Schminke and Biesebroeck (2015) claims that micro firms and small firms benefit more from Belgian export promotion than large firms. The authors find that the smallest group of firms (with less than 10 employees) have a 9.2% increase in their propensity to export as a result of export promotion services, whilst the effects are insignificant for large firms (with more than 250 employees). The authors suggest that this finding could be driven by the EU-wide aspiration to encourage SME firms to export. If the support provided to SMEs is more targeted or more generous than that available to larger firms, this could explain some of the difference in effect size.

Selecting supported firms

There is mixed evidence regarding whether export promotion is most effective when firms self-select, or when firms are targeted for support by the export promotion organisation.

Biesebroeck et al. (2015) claim that support is more effective for the firms that self-select into treatment, as opposed to firms chosen by the Canadian export promotion agency. The average treatment effect of the entire population gives a 9.3% increase in export value, but the treatment effect of self-selected firm gives a 9.9% increase, both of which are significant effects. The intuition is that self-selecting firms are more likely to intrinsically understand the benefits of exporting, and will maximise the opportunities given by the export promotion policy. Thus, if the programme were to be extended beyond the current scope of firms, the impact on export value would diminish.

Conversely, Lederman et al. (2006) makes several arguments for targeting export promotion services at particular firm types, rather than allowing self-selection. In particular, he singles out large firms with the potential to export but that do not currently export. He also rules out spending money on established exporters, because the value of exports declines with the amount spent on export promotion budgets. However, no explanation is offered by the authors, suggesting more needs to be done to interpret the causality of these results. This is especially true because it is a cross-sectional survey of export promotion agencies, with a mix of developed and developing countries. Despite the sophisticated techniques, more robustness checks could have been done to ensure the validity of the author's conclusions.

Lastly, Munch and Schaur (2018) find that amongst small firms in Denmark, the effects of export promotion interventions are similar regardless of whether the firms self-selected into treatment or were identified by the trade council. The exception to this finding is the effect of treatment on employment, where firms selected by the

trade council experienced a statistically significantly larger effect than self-selected firms in the year following treatment.

Other firm characteristics

Broocks and Biesebroeck (2017) test the hypothesis that the effect of export promotion on a firm's propensity to export depends on the firm's capital-labour ratio and its position in the wage distribution. However, the authors find only modest evidence to support this relationship.

Biesebroeck et al. (2016) focused on how export promotion was particularly important for firms facing financial difficulty, noting that it helped firms to overcome the fixed costs associated with exporting and, therefore, to increase exports on the extensive margin. These benefits can help diversify sales and hedge against local business cycles. Further, the authors find evidence that continuous assistance over a number of years generates stronger benefits than one-off support, but those effects are estimated on many fewer firms.

Breinlich et al. (2012) find a variety of firm level heterogeneous effects based on firm type, sector and size. For example, IP-active¹⁰ firms benefit considerably less from OMIS than non-IP-active firms in terms of export entry in subsequent year. The only significant result for IP-active firms is the likelihood of export entry in the following year, which increases 2.4% as a result of using OMIS. However, non-IP-active firms find their likelihood of export entry increases by 3.8%, whilst other indicators (such as likelihood of positive export turnover growth and other firm level effects) are positive and significant. OMIS leads to a larger increase (12%) in the growth rate of the share of export turnover to total turnover for manufacturing firms compared to service firms (2.4% and insignificant). The effect of OMIS increases with firm size when looking at export turnover growth but evidence is not entirely reliable as there are few treated firms in the sample.

3.4 Time profile of effect

Sustained support over time

Whilst it can be argued that some export promotion policies have decreasing returns to scale (meaning the effect of two troubleshooting consultations has less than twice the effect of a single consultation), there is some evidence that sustained support to a firm over a number of years has a larger benefit than one-off support to a number of firms.

For example, Biesebroeck et al. (2016) finds that export support in Belgium and Peru doesn't yield significant benefits within a year, but that sustained support to a firm over a number of years can generate stronger benefits.

Broocks and Biesebroeck (2017) agree, finding the effects of export promotion activity are not necessarily obvious within a year of the treatment because of the delayed effects of export promotion. This is particularly prevalent for firms that

¹⁰ IP-active firms refers to firms active in creating intellectual property.

received more intensive forms of support, such as trade fairs abroad, compared to more sporadic forms of support such as requests for information.

It is clear that sustained efforts of export promotion strategies have the most impact, particularly on the intensive margin. This is noted in section 3.1, which shows policies that support extensive margins (such as policies that support fixed costs of exporting) have effects over a longer time period, whilst policies that support the intensive margin (helping the variable costs of exporting) need more sustained support.

Effect persistence

There is also evidence to suggest that the impact of export promotion services is not constant over time.

Spence (2003) found that UK trade missions can have a strong effect on sales, even 24 months after the initial trade mission, although this depends on continuing to build on the relationships formed during the trade mission.

Munch and Schaur (2018) identify the likelihood of changing export status, and the growth of exports over a three-year period since the Danish export promotion support was received. In terms of export status, small firms (between 1 and 20 employees) were almost twice as likely to export in the first, and second years after receiving export promotion support. In terms of export growth, in general firms have stronger growth in their first and second year of exporting than their treatment year. This is a particularly significant result for medium sized firms (between 20 and 50 employees) who grow exports by 12% in the first year, and 16% in the second year.

Figure 7 Change in export status and growth in export value

Firm size	Treatment year	First year	Second year
Change in export status			
All firms	0.0388	0.0585	0.0593
Small firms (1 – 20 employees)	0.0470	0.0735	0.0783
Mediums firms (20 – 50 employees)	0.0234	0.0342	0.0449
Large firms (More than 50 employees)	0.0141	-0.0303	0.0328
Growth in export value			
Firm size	Treatment year	First year	Second year
All firms	0.0128	0.0375	0.0580
Small firms (1 – 20 employees)	0.0565	0.0599	0.0472
Mediums firms (20 – 50 employees)	0.0341	0.1200*	0.1575*

Large firms (More than 50 employees)	0.0193	-0.0149	0.0546
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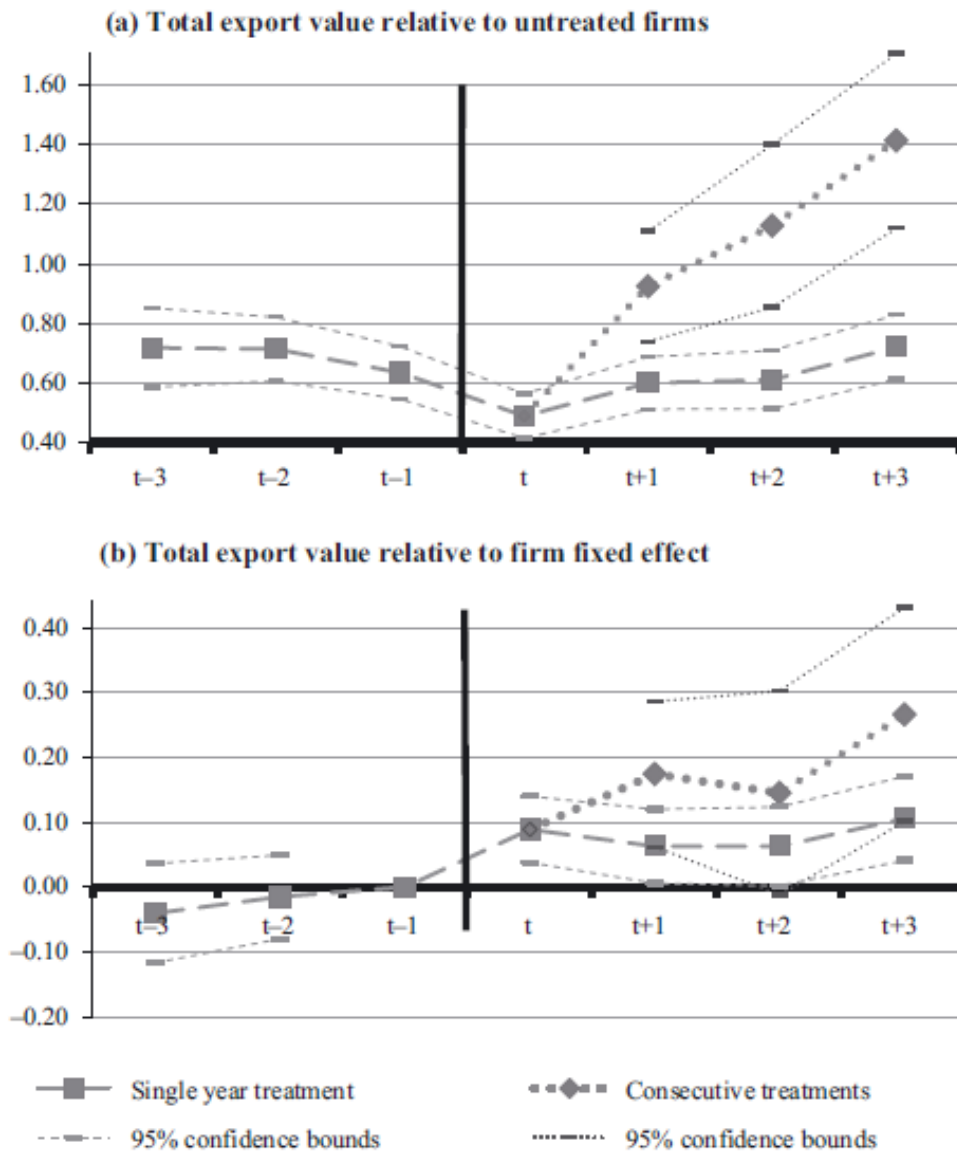
Source: Munch and Schaur (2018)

Note: * indicates significance at the 5% significance level

UKTI (2014) also describe the impact over time, except comparing experienced goods exporters to non-exporters. The paper finds that export promotion support helps firms avoid 'dropping-out' of goods exports: 24% of non-users were categorised as intermittent goods exporters, compared to 15% of UKTI users. Alvarez (2004) and Lederman et al. (2006) found export promotion can significantly increase firms' probability of export survival.

Biesebroeck et al. (2015) compare how one-off export promotion services compare over time against sustained export promotion services. Treatment in a single year led to slight increases in export value against untreated firms, which remained reasonably constant over three years. However, treatment in consecutive years led to sustained increases in consecutive years over and above the single-year treatment firms (see Figure 8). Using propensity score matching followed by difference-in-differences methodology, the results are robust. However, the potential caveat of Figure 8 is that the treatment of firms may refer to a repetition of the same treatment, or a combination of different treatments, which may make the results inconsistent.

Figure 8 Relative export values of treated firms



Source: Biesebroeck et al. (2015), page 1497

Note: Year t is the year of the first treatment. OLS, with logarithm of firm level exports as dependent variable.

3.5 Key gaps in the evidence

Understanding the effect of individual export promotion services

The most significant gap in the evidence relates to providing granular analysis of the impact of specific export promotion services on exporting behaviours. There are two reasons why suitable evidence is difficult to obtain. First, as firms are often supported by a combination of export promotion interventions, disaggregating services requires very large samples of data. For this reason, the majority of studies group services in broad categories, or do not disaggregate them at all. Separately, even where granular evidence is available for third countries, it is not easy to map the impacts onto the services offered in the UK given that countries define export promotion services differently.

Understanding the interaction between export promotion policies

A related gap in the evidence is how different policies interact with each other, particularly whether providing one firm with many different services is more effective than providing these services to different firms. For the same reasons mentioned above, this is difficult to estimate using traditional econometric tools. An alternative approach may be to use contribution analysis (drawing on multiple sources of evidence where each piece of evidence in isolation may be relatively low powered) or systems modelling to understand how services work together.

Understanding the effect of export promotion policies over time

The literature does not study the long-run effects of export promotion on exporting outcomes. There are two main reasons for this gap. First, as firms often receive multiple export promotion interventions over time (for example, receiving information in one year and then tailored advice the next), it is difficult to isolate the long-run effects of a single intervention. Second, there are inherent complexities in compiling datasets that track individual firms over long periods of time. Future studies could address this gap by building a longitudinal dataset that tracks the same firms over an extended period before and after receiving export promotion support, though it would be important to include as much data as possible on other factors that could influence export outcomes to allow a careful econometric analysis to be undertaken.

Understanding how effect varies by sector and market

There is limited literature that explores how the impact of export promotion services varies depending on the sector of the exporting firm or the destination export market. While there are plausible theoretical reasons to expect that barriers to trade may be more significant for particular export markets, or that additionality may be greater for particular sectors, there is limited empirical evidence to confirm this. Future studies could test these hypotheses by including sector and market variables in the analysis where possible. Even distinguishing between services and manufacturing sector exports, or between EU and non-EU exports would provide useful insights currently missing from the evidence base.

4 Effect of export promotion services on firm-level outcomes

This section reviews the literature on the impact and relative effectiveness of publicly funded export promotion on broader firm-level economic outcomes including employment, investment, productivity, growth and survival. It considers evidence on how these relationships differ by export promotion activity and by firm type, as well as the time profile of the effect. The broad results are conclusive: export promotion has a positive impact on firm level outcomes. The section concludes by highlighting key gaps in the evidence, and potential future research questions.

4.1 Overall effect of export promotion

At a general level, export promotion has a positive impact on firm level outcomes. These outcomes are broadly categorised in four ways:

- Employment
- Investment in R&D and Capital
- Productivity gains
- Growth in sales, and associated survival

A summary of the key findings for each outcome is given below; further evidence is explored in subsequent sections of this chapter.

Employment: Munch and Schaur (2018) analysed the effects of export promotion on employment. The high-level findings suggest small firms see significant increases in employment as a result of export promotion. Breinlich et al. (2012) agree, citing positive effects on employment growth as a result of Overseas Market Introduction Services (OMIS). In contrast, Broocks and Biesebroeck (2017) found no effect on employment as a result of export promotion, although this is based on a small sample over a short time period. Whereas, Rincón-Aznar et al. (2015) find the effect on employment growth is positive and significant, and increases with firm size. When applying a propensity score matching and difference-in-differences approaches the effect on employment growth is positive and significant only for larger firms, with the largest effects for those firms with at least 250 employees.

Investment in R&D and capital: Less research has been done on the effects of export promotion on firm-level investment. This is mainly because a counterfactual cannot be easily determined, and causality cannot always be attributed to the export promotion program. However, London Economics (2013) attempted this analysis, using regression analysis to estimate the probability of increasing research and development as a result of using export promotion services. They found small and insignificant effects: only 10 to 15% of firms reporting increasing R&D after using UKTI services in the UK. While the method tries to account for other drivers of R&D investment changes, the outcomes are self-reported (PIMS survey data: DIT (2016)) and there is no control group analysis, so the study has limited power to consider causality.

Productivity gains: A number of studies attempt to measure the impact of export promotion on productivity. As well as assessing the impact of export promotion on employment, Munch and Schaur (2018) also assessed labour productivity. The high-level results show labour productivity effects are significant for smaller firms over a longer time period. As per the effects on employment, Breinlich et al. (2012) find positive effects on productivity as a result of export promotion policies and Leonidou et al. (2011) find positive effects of export promotion on the effectiveness of capital usage.

These studies discuss the difficulty of measuring causality and accounting for the direction of causality between export support, exports and productivity. For example, Breinlich et al. (2012) notes that firms using UKTI services are not a random subset of UK firms. Rincón-Aznar et al. (2015) show that firms supported by UKTI export interventions had a higher median labour productivity than non-supported firms. These studies control for observable differences in productivity between treated and non-treated firms.

Growth in sales: Most of the research with respect to the wider impacts of export promotion focuses on growth and sales. For example, UKTI (2014) measures the impact of export promotion services on firm sales. The study finds UKTI export services resulted in additional sales of around £49.7 billion for 48,220 supported firms for the year ending in September 2014. The findings are based on self-reported estimates from the client survey. Importantly, a large number of firms report no financial returns, meaning that the finding is based on a small number of firms that reported a larger sales impact. This skewed distribution of impacts implies that generalising the result to apply to all firms may not be appropriate: the mean impact is likely to be distorted upwards by the small number of firms which experienced a large effect, while the median effect may not generalise to firms that did experience a large effect. UKTI (2006) finds that 63% of responding firms attribute some proportion of their turnover growth to UKTI, whilst 41% claim UKTI impacted their employment growth. However, these results are all based on survey data, with limited attempts to account for additionality.

The recent UK study by Rincón-Aznar et al. (2015) focus on the above firm level outcomes. Using a robust propensity score matching and a difference-in-differences estimator, the authors find that UKTI support positively affects turnover growth and labour productivity growth. The results in Figure 9 can be interpreted as follows: firms receiving UKTI support can expect turnover growth in the following year to increase by 1.45%, and labour productivity growth to increase by 1.85%. The authors show that the increase in turnover growth can lead to an annual turnover increase of £502,000 for the mean UKTI-supported firm, and an increase of £173,000 for the median supported firm. The coefficients for turnover growth and labour productivity growth are similar when measuring all firms and when excluding the largest 5% of firms, suggesting that large firms are not skewing the result. Employment growth and growth in assets are deemed to be insignificant for both measurements.

Figure 9 Effect of UKTI support on firm outcomes

Effect of UKTI support	Employment growth	Turnover growth	Assets growth	Labour productivity growth
All companies				
Propensity score matching and DiD	-0.00286	0.0145***	0.00402	0.0185***
Excluding largest companies (top 5% in terms of assets)				
Propensity score matching and DiD	-0.00288	0.0145***	0.00519	0.0167***

Source: Rincón-Aznar et al. (2015) Table 8, Page 49.

Note: *** indicates significance at the 1% level.

This paper also finds UKTI export support is positively linked with firm survival, when applying a propensity score matching approach. This effect is enhanced when using multiple UKTI export support.

The general trends hold internationally. Durmusoglu et al. (2012) show that using export promotion services helped Turkish small and medium sized enterprises (SMEs) to achieve their financial and strategic goals, as well as improving their stakeholder goals and organisational learning goals. However, as with the UK-based papers, this study is based on a small sample survey with a medium response rate. Furthermore, the study is based on Turkish SMEs, so is not necessarily comparable to the UK context.

4.2 Effect by export promotion activity

A number of studies look at the firm-level outcomes associated with specific export promotion services.

London Economics (2008) conducted analysis regarding the impact of trade fairs on turnover growth. Survey evidence suggested that there are significant benefits to be gained from attending trade fairs. Conversely, econometric analysis found that firms that attended trade fairs experienced lower turnover growth than the corresponding control group. However, the number of potential control firms is limited, which could reduce the validity of the quantitative findings. Further investigation into the benefits of trade fair attendance would be informative.

Interaction between services

A number of studies analyse the difference between using one export promotion intervention and using multiple different interventions. For example, Rincón-Aznar et al. (2015) claim that participation in multiple programmes is likely to lead to better economic outcomes for the firm, such as turnover growth, as well as increasing the likelihood of firm survival. Breinlich et al. (2012) disagree with this conclusion. When measuring the benefits of Overseas Market Introduction Services (OMIS), they find

positive effects on growth rate of total assets (4.6%), employment (3.3%), turnover (5.2%), and productivity (2.1%), as well as an increased likelihood of survival (3.5%). However, the expected growth rate of total assets and change in employment are approximately halved when OMIS was used in conjunction with other services. Both studies use robust estimation techniques and good data sources, with Rincón-Aznar et al. (2015) using propensity score matching with difference-in-differences, whilst Breinlich et al. (2012) use propensity score matching. The differing results may be specific to the export promotion services used in each study, or the nature of firms using different combinations of export promotion services.

4.3 Effect by firm type

Export promotion has heterogeneous impacts on different types of firms. The impacts tend to be larger for small and inexperienced firms because these firms tend to have more scope for expanding and learning.

For example, Rincón-Aznar et al. (2015) find that the magnitude of positive impact is largest for smaller firms. Similarly, Munch and Schaur (2018) show the effect of export promotion is stronger for small firms (defined as between 1 and 20 employees), with a limited impact in medium- and large-sized firms (between 20 and 50 employees, and more than 50 employees respectively). In particular, the authors claim that small firms experience positive effects on employment (4% increase over two years), sales (8.4% increase over two years) and productivity (3.6% increase over two years). The authors find that large firms tend to divert output from domestic to foreign markets, rather than increase their overall sales.

Leonidou et al. (2011) also find smaller and inexperienced firms gain the most from export support services, although the benefits tend to lie in export related resources, defined as the assets that can enable the firm to improve its efficiency and effectiveness. This is different to export related capabilities (defined as a complex bundles of skills and knowledge that enable firms to make use of their assets), for which they find little positive effect as a result of export promotion. In any case, the authors recommend that export promotion services focus more on small firms looking to enhance their export resources. This study is based upon survey evidence, which has a sufficient sample, but no control variables are used, and there is no control for self-selection into export promotion programs. A more robust study, Breinlich et al. (2012), focuses on a difference-in-differences method with propensity score matching. The authors show that small firms (where the smallest firms are categorised as the firms in the bottom tercile in terms of assets owned), manufacturing firms, and non-IP active firms benefit the most (although the study focuses only on firms participating in OMIS services). Notably, the biggest impacts on total assets, turnover and productivity growth rates are on previously non-exporting firms; whilst employment growth rate impacts are on previously exporting firms. This is another example of 'big wins' for a small subset of firms.

Kneller and Pisu (2004) summarise the issue well, showing that inexperienced firms with high export intensity tend to benefit the most from export promotion services. These are firms that have larger export shares, and have been exporting for a

shorter period. This makes intuitive sense, as those who have the most exposure, but are relatively new would likely have the most to gain from additional support. As a result, the literature appears to suggest that small firms consistently experience smaller benefits from export promotion, whilst large firms rarely experience a significant impact. However, when large firms do experience an impact, they are able to harness the impact to a greater extent. This study relied on survey evidence as its primary data source, although the authors ensured they surveyed a control group. However, there is no evidence on how the authors controlled for self-selection. The authors use probit regression analysis, and use binary variables to assess whether the results are robust.

There is some evidence that suggests experienced firms are more likely to benefit from export promotion services. UKTI (2005) claims that experienced firms¹¹ are most likely to gain significant benefits from export promotion support in “hard business performance” (meaning sales and profitability) terms. However, there is no link between the size of the firm and the benefits from export promotion. The intuition is that experienced firms, of all sizes, are better placed to harness the support and increase business performance. However, the reliability of these results is questionable, as this was a telephone survey that did not control for all the potential biases. Similarly, Boston Consulting Group (2004) finds (based on evaluation of other studies) that a greater proportion of established exporters (52%) improved their business performance within 2 years as a result of UKTI assistance compared to new exporters (32%). However, the studies discussed are dated, and may not reflect the current and future export promotion services, whilst there is no evidence of a robust methodology and the characteristics of ‘established’ exporters are not defined.

4.4 Time profile of effect

Whilst most empirical models assess a lagged impact of export promotion, such as Schminke and Biesebroeck (2015), there are few papers that assess how the impact varies over time. Munch and Schaur (2018) extend their work, to include the impact of export promotion on firm-level outcomes. Specifically, they measure the growth in total sales, value-added, number of employees and value-added per worker (meaning labour productivity). In terms of total sales, the authors note that sales growth of 4.9% and 8.5% in the first and second year after treatment, although the effect is significant only for small firms.¹² The employment story is similar, with small firms reporting small increases in employment in the years after the export promotion impact. However, the impact on labour productivity is slightly different for small firms (see Figure 10). In the initial period, labour productivity decreases around 1.5%; but in the long run, labour productivity increases 3%, as firms adjust to their new strategy for exporting. Similarly to sales growth, the long run effects are limited to the smallest firms.

¹¹ Defined by the firms with over 15% of their turnover attributable to exports.

¹² Sales growth is measured relative to the year before treatment.

Figure 10 Value added per worker (Labour productivity)

Firm size	Treatment year	First year	Second year
All firms	-0.0021	0.0031	0.022*
Small firms (1 – 20 employees)	-0.0145	0.0014	0.0303*
Mediums firms (20 – 50 employees)	-0.0288*	0.0302	-0.0296
Large firms (More than 50 employees)	0.0123	-0.0136	0.0057

Source: Munch and Schaur (2018)

Note: * indicates significance at the 5% significance level.

Broocks and Biesebroeck (2017) carried out an empirical study on the impact of export promotion on non-exporters and supported firms. Whilst they primarily studied the impacts on firm-level exports, they also analysed the impact on general firm outcomes, in particular employment and survival probability, and how these changed over time. In summary, none of the time periods studied show any significant effects. However, the coefficients were positive (which, if significant, would suggest export promotion helps employment growth and survival probability), but the sample size was small, and only tested across one sample period. The methodology was robust, using fixed effects in a linear probability model with appropriate robustness checks applied, whilst self-selection bias was mitigated.

4.5 Key gaps in the evidence

Understanding the effect of export promotion policies over time

As with section 3, the literature does not study the long-run effects of export promotion on firm-level outcomes. The reasons are the same: firms may receive multiple episodes of export promotion support over time making it hard to define periods when treatment ends, and there is a lack of long-run longitudinal data permitting researchers to track outcomes over extended periods. Future studies could address this gap by building a longitudinal dataset that tracks firm-level outcomes for the same firms over an extended period, before and after treatment. Any attempt to study long-run effects of export promotion would have to control for confounding factors that could affect firm-level outcomes; naturally we would expect it to become harder to isolate the impact of export promotion support many years after treatment, though this is possible with a treatment/control analysis which also tracks performance of similar non-treated firms.

What are the characteristics of the firms with ‘big wins’?

The literature consistently finds that export promotion has a small impact on most firms and substantial impacts on a small number of (usually large) firms. The literature is unclear what characteristics the firms that exhibit ‘big wins’ have in common, beyond their size. Identifying the characteristics of firms for whom additionality is greatest can help export promotion services target firms with the potential for ‘big wins’. This work would be related to research into how barriers to

exporting differ by firm characteristics, and would be important for understanding how to target export promotion services. Both qualitative and quantitative methods could be used to explore this topic in depth (for example, combining econometric analysis using surveys linked to administrative business performance data with a number of case studies of firms which exhibit 'big wins' to understand the mechanisms that drove exports and the importance of the export promotion support on the outcome).

Understanding how effects vary by sector and market

There is limited literature that explores how the impact of export promotion services on firm-level outcomes varies depending on the sector or the export market. While there are plausible theoretical reasons to expect that barriers to trade may be more significant for particular export markets, or that additionality may be greater for particular sectors, there is limited empirical evidence to confirm this. Future studies could test these hypotheses by including sector and market variables in the analysis where possible.

5 Effect of export promotion services on wider economic outcomes

This section reviews the literature on the impact and relative effectiveness of publicly funded export promotion on wider economic outcomes. Specifically, it focuses on evidence of spillovers that affect a broader set of firms than those targeted by export promotion interventions.

5.1 Overall effect of export promotion

The aggregate outcomes of export promotion can be calculated as the sum of individual firm outcomes, plus an additional spillover effect. Spillovers are benefits of export promotion that affect a broader set of firms than those specifically targeted by the export promotion intervention. There is however limited evidence quantifying these effects or describing how they occur.

Aggregate effect of export promotion

There are few studies that quantify the wider effects of export promotion services, but each study uses slightly different measures, and can attribute very different values to export promotion depending on the measure used. It is difficult to reliably isolate the impact of export promotion services in valuing the wider outcomes, as there are a number of causal steps assumed.¹³

For example, the International Trade Centre (2015) claims that export promotion services have a positive effect on GDP in the majority of the 76 countries in its study. The results suggest that, on average, a 1% increase in export promotion spending generates a 0.0455% increase in GDP per capita. The authors find that UK GDP is 13.1% higher than it would be in the absence of export promotion services. This study uses a cross-country panel with fixed country effects and time effects which capture some variation in local and global effects on the outcome, although time-varying controls are not included. The study also relies on combinations of survey datasets from across countries.

London Economics (2011) calculates that the overall economic effect of UKTI was in excess of £5 billion in 2010. The finding is based on qualitative interviews and surveys of UKTI representatives, firms engaged in overseas business and alternative providers of export promotion services.

Export Spillovers

Export spillovers occur when unsupported firms begin exporting or increase their export value as a result of supported firms' exporting behaviour. As discussed in Section 2, Alexander and Warwick (2007) find 'demonstration effects', where one firm's decision to enter into an export market can allow others to follow suit more easily. Bernard and Jensen (2004) and Lederman et al. (2006) propose a similar

¹³ For example, the study needs to reliably attribute the accurate exports associated with the export promotion programme, then accurately attribute the exports with any wider effects—identifying and isolating the export promotion effect is difficult.

hypothesis, although neither of the studies show any robust evidence to demonstrate the existence of the demonstration effect.

Productivity Spillovers

Productivity spillovers occur when increases in the productivity of a supported firm result in increases in the productivity of non-supported firms in the same region or sector. Rincón-Aznar et al. (2015) assess the mechanisms of wider spillover effects. They explore whether the contribution of supported firms to aggregate labour productivity growth is dominated by gains accrued by supported plants becoming on average more productive over time, or by a market selection process. The authors find that ‘dynamic competition effects’ occur when supported firms become more productive, so there is a reallocation of market shares towards the supported firms. They caution against drawing firm conclusions for the aggregate UK economy because of data limitations.

Kneller and Pisu (2006) surveyed firms receiving export promotion support, asking them about their impression of spillovers. Just over a third of firms agreed that they had shared lessons-learned from exporting with other domestic organisations, whilst a quarter of firms reported that the impact of exporting had improved their firm, which in turn has benefited their customers, suppliers or competitors. However, the empirical evidence surrounding spillovers was mixed and the dataset (1992 to 1999) is potentially outdated.

UKTI (2005) also surveyed firms receiving export promotion support, and asked about their impression of spillovers (see Figure 11). Their responses were compared to firms that did not receive any export promotion support. The findings showed that all types of ‘users’ of export promotion services were more likely to share their export experiences with other firms. For example, 71% of experienced¹⁴ UKTI users reported some trade spillovers, versus 48% of non-users.

Neither the UKTI (2005) nor Kneller and Pisu (2006) studies present particularly robust measures of spillovers, being based on surveys, but they do provide consistent evidence that firms perceive the spillover channels.

The survey evidence is supported by a broader literature that looks at spillovers that result from an increase in exporting, regardless of whether that increase was the result of export promotion. Broocks and Biesebroeck (2017) measured how existing exporters were impacted by new exporters entering their product-market and found overall positive effects. This suggests that existing exports increase when new exporters from the same country enter the same market. The regression analysis finds that the new entry of a supported firm into the export market increases existing firms’ exports by 9.3%, using a robust fixed effects analysis in a linear probability model. However, the authors note that this effect is less obvious when they control for the lagged value of exports, suggesting the unobserved demand shocks may be partly responsible for the positive finding.

¹⁴ Defined by the firms with over 15% of their turnover attributable to exports.

Figure 11 Survey evidence of spillovers

	Users		Non-Users	
	Inexperienced	Experienced	Inexperienced	Experienced
Evidence of actual impact on suppliers or competitors	11%	18%	0%	18%
Evidence of knowledge sharing	35%	54%	10%	37%
Total trade spillovers	64%	71%	29%	48%

Source: UK Trade and Investment (2005).

Note: Evidence of actual impact on suppliers or competitors are firms that have made improvements to their products, services or process efficiency as a result of their export activity and feel that this has had an effect on the operations of their UK based suppliers or competitors; Evidence of knowledge sharing are firms that have shared their export experiences with other UK firms; and Total trade spillovers are firms that have improved their marketing strategy as a result of their export activity and either introduced or increased training on marketing or taken other actions to improve their marketing skills or capability .

This impact corresponds to Koenig et al. (2010) who found some local spillover effects of exporting in France. The authors define a ‘spillover variable’ designed to capture the agglomeration effects of nearby exporters. This ‘spillover variable’ had positive and significant effects on the probability of exporting, although the ‘spillover variable’ does not have an effect on the volume exported. The methodology was reasonable, using a conditional logit model and some control variables.

5.2 Key gaps in the evidence

Spillover effects by activity and firm type

There is a very limited literature seeking to quantify the magnitude of spillovers relating to export performance. Future studies should attempt to quantify these effects and assess how they vary by firm size, exporting experience and export promotion activity. One approach could be to identify particular large-scale export promotion interventions targeted on particular geographic or product markets and assess whether there are benefits to other firms within the same market, ideally looking at several years of business performance data after treatment concludes. It may be possible to use neighbouring markets as ‘controls’ if it can be shown that the treatment was indeed well-targeted on the intended market.

6 Conclusions

This section recaps the key findings of the systematic literature review on market failures and impact of export promotion interventions on export, firm-level outcomes and wider economic outcomes. It closes by providing an overview of the most important gaps in the evidence base and suggestions for future research.

6.1 Findings

This systematic literature review synthesises evidence from the academic and non-academic literature relating to the economic returns to export promotion services. Specifically, it considers the market failures that justify government provision of export promotion services and the effects of export promotion on exporting behaviour, firm-level economic outcomes, and wider economic outcomes. The review found that:

Market failures: Export promotion helps firms overcome barriers to trade. There is therefore a rationale for government intervention when the private sector provides a sub-optimal level of export promotion services due to market failures. The evidence supports the existence of information failures; a market failure where firms miscalculate the costs and benefits of exporting. The evidence also supports the existence of positive externalities; a market failure where the societal benefits for exporting and export promotion services exceed the private benefits, leading to under-provision. There is some evidence of missing markets: a market failure associated with the fact that the benefits of diplomatic services accrue to all firms, leaving the government uniquely placed to deliver them. Information failures, externalities and lack of trust are likely to be pervasive, leading to co-ordination failures, which can undermine the incentives for businesses to cooperate with each other for collective benefit.

Effect on exporting: The literature finds that export promotion has a positive and significant effect on exporting at both the extensive and intensive margins. There is limited evidence on how this effect varies for different types of export promotion services, or how individual services interact. Export promotion is most effective at improving the economic outcomes of small firms with no previous experience of exporting.

Effect on firm-level outcomes: The literature finds that export promotion has a positive and significant effect on firm-level outcomes, including employment, revenue, business survival and productivity. There is mixed evidence on how these effects differ by firm type.

Effect on economy-wide outcomes: Export promotion increases the exports and the productivity of both supported and unsupported firms. There is limited evidence on the size of these spillover effects and no evidence on how they vary by activity or firm type.

6.2 Key gaps in the evidence

There are a number of key ways that the evidence base on export promotion could be improved. Specifically, by using empirical techniques to quantify the impact of export barriers and market failures, and building a comprehensive longitudinal treatment dataset to better understand the effect of export promotion.

Similarly, the literature on market failures could be improved by using empirical methods to quantify the scale of spillover effects. Future studies could investigate empirically whether a firm is more likely to export if it operates in the same region or sector as a 'pioneer' firm. One approach to answering this question would be to compare non-supported firms in sectors and markets that are the focus of DIT 'high-value campaigns', with non-supported firms in other sectors and markets that were considered for 'high-value campaigns' but not selected.

While there is a substantial body of literature that quantifies the overall effect of export promotion on export behaviours, there is an evidence gap associated with disaggregating this effect: understanding the contribution of individual policies, understanding how different policies interact, and understanding how their effect changes over time. The key obstacle to addressing these questions is the absence of a comprehensive dataset describing the treatments that each firm has received over an extended period of time, in which services or treatment types are defined consistently. Future studies could address these gaps in the literature by linking a more granular treatment dataset to firm-level export outcome data that tracks firms over an extended period before and after receiving export promotion support. This would facilitate a careful econometric investigation into contribution effects, interactions and effect time profiles. With sufficient data, a similar approach could be used to test how the effectiveness of export promotion varies by sector or market. Augmenting the linked export outcome dataset with data on other outcomes would facilitate testing broader hypotheses relating to the impact of export promotion on firm-level outcomes and wider economic outcomes.

Annex A: Systematic Review Protocol

A1 Scope and research questions

Impact Review: Literature related to the economic impact of publicly funded trade promotion services (focused primarily on export promotion).

Q1: What is the rationale for export support activities? What is the rationale for government intervention to support exporting (market failures)?

How do barriers and market failures differ by firm characteristic (size, sector, location, export market, export experience)?

Q2: What is the relationship between publicly funded trade promotion and exporting outcomes? How does this differ by trade promotion activity (events, digital etc.) and trade promotion models (i.e. targeted, self-selecting etc.)? What is the time profile of the impact (lag between support and outcomes being realised; duration of impact)?

How do these issues differ by firm characteristic (size, sector, location, export market, export experience)?

Q3: What is the relationship between publicly funded trade promotion, exporting and firm-level economic outcomes (employment, revenue, investment, productivity, firm survival, etc.)? What mechanisms explain these links, how long do they take to materialise and how long do the effects persist?

How do these issues vary by the type of trade promotion support?

How do these issues vary by firm characteristic (size, sector, location, export market, export experience)?

Q4: Are there other links between exporting and wider economic outcomes beyond the exporting firm that could impact the ultimate macroeconomic benefits of export support? What is the nature of these links (e.g. spillover effects), how long do they take to realise and how long do they persist?

How do these issues vary by the type of trade promotion support?

How do these issues vary by firm characteristic (size, sector, location, export market, export experience)?

A2 Method

We will conduct the review in three phases:

- identify and select relevant literature
- assess the validity of the findings and methods
- synthesise the evidence

A3 Identify relevant literature

We reviewed the existing DIT rapid evidence assessment to understand the scope of the literature and to inform the search strategy. Based on the review, we propose to

identify relevant literature using a broad Boolean search of Google Scholar, Science Direct and JSTOR on the following terms:

- (trade OR export OR internationalisation) AND (promotion OR support OR facilitation)
- 'trade promotion' OR 'trade support' OR 'trade facilitation' OR 'trade development' OR 'export promotion' OR 'export support' OR 'export facilitation' OR 'export development' OR 'internationalisation promotion' OR 'internationalisation support' OR 'internationalisation facilitation'
- 'trade promotion' OR 'trade support' OR 'trade facilitation' OR 'trade development' OR 'export promotion' OR 'export support' OR 'export facilitation' OR 'export development' OR 'internationalisation promotion' OR 'internationalisation support' OR 'internationalisation facilitation') AND (value-for-money OR VfM OR impact OR appraisal OR evaluation)

We will select the first 25 articles for each term from each database, as ranked for relevance by each database (a maximum of 225 papers)

We will supplement the results of this search through additional methods:

- other literature listed in the DIT rapid evidence assessment;
- Identifying 'grey' literature based on discussions with the DIT working group and our expert partners;
- identifying relevant non-English language literature using Google Scholar searches where it fills a gap in the English language literature;
- identifying literature referred to by relevant meta-studies or literature reviews captured through these processes; and
- identifying relevant literature by mining references in the returned literature to 'snowball' the pool of possible studies.

We propose to exclude studies published prior to 1990. Trade promotion services have changed substantially with the advent of digital technology and the internet and the findings from older papers are therefore less likely to be relevant. We also proposed to exclude papers that rely wholly or largely on evidence from non-OECD countries which are less likely to be relevant to the UK context.

Select relevant literature

All studies identified through these processes will be downloaded and stored. This long-list of studies will be subject to an abstract sift to assess whether they provide evidence related to the research questions for any of the reviews. Where papers have no abstract, the introduction and conclusions will be reviewed. Relevant papers will be subject to a full review and synthesis (see below). Where there is doubt about relevance, the paper will be assessed by a senior team member for relevance.

The review processes will be iterative and the methods above can be adapted or refined as the review progresses.

Assess the validity of the findings and methods

We will assess the validity of the findings and methods of all relevant publications through our identification and selection process. We will consider:

- internal validity: how robust are the findings and methods used?
- external validity: how relevant are the findings or methods to the DIT trade promotion context?

Internal validity for quantitative papers will be assessed through a critical Maryland Scientific Methods Scale (SMS). This involves assessing:

- the strategy adopted to identify a counterfactual. Evaluating the impact of an intervention on a 'treated' group should include estimating credibly what would have happened in its absence (the counterfactual scenario). Evaluation strategies typically involve identifying comparator groups to estimate the counterfactual.
- implementation of the strategy. An approach that would score higher in principle on the SMS will not always produce a more robust counterfactual. For example, a cross-sectional regression that fails to control for important differences between treated and comparator group will not necessarily be more robust than a simpler before-after comparison of outcomes in the treated group which controls for other time-varying drivers of the outcomes. Therefore, the initial SMS score may need to be adjusted downwards if the work considered does not provide evidence that the chosen strategy has been applied correctly. This will include considering the following:
 - discussion of assumptions: are the key identification assumptions discussed and defended credibly? (for example have common trends been demonstrated for difference-in-differences studies? Does the study test the sensitivity of the findings to other assumptions?)
 - data limitations: are there limitations in terms of the selection, size and measurement of the sample which could make the results less robust (for example sample size is not sufficiently large or systematic measurement error)?
 - biases: are there sample selection bias issues (for example failure to account for drivers of selection into treatment)? Are there likely to be motivation biases (such as supported firms with positive outcomes being more likely to respond to surveys)? Is there evidence that 'null' findings (no significant effects) are infrequently observed in the published literature? Are there likely to be response biases to qualitative studies or problems with the study's independence?

External validity will be assessed in terms of whether there are reasons why the findings or methods of the reviewed study would not apply to UK trade promotion services undertaken by DIT. Literature that focuses on substantially different geographies, older time periods, or very specific groups of supported firms, activities or impacts may not generalise to our area of interest.

These assessment criteria will apply to all strands of literature in the systematic review. For the review of evaluation methods, however, we will also need to assess whether a particular method could be feasibly applied to an impact evaluation of trade promotion.

For qualitative papers, we would not be able to apply the SMS as typically there is no attempt to construct a counterfactual. Interviews or case studies may ask those involved to articulate a counterfactual and we would assess whether or not this was done and, if possible, how it was done.

There are frameworks that have been established for assessing qualitative research.¹⁵ These typically contain a large number of assessment criteria, not all of which are relevant to this review (for example the ethics of the approach). We propose to select some key parts from these frameworks to reach a view on the quality and external validity of the evidence. In particular we would explore:

- were the research aims and objectives clearly established and rationalised?
- how many interviews/case studies were conducted? Is the approach to sampling and selecting participants clearly identified and defended? Is there discussion of whether the results are generalisable to the wider population and how the sample group compares to the wider population?
- are potential limitations in the sampling and reach of the analysis identified?
- is it clear how conclusions have been reached from the evidence presented? Are competing hypotheses for the conclusions reached identified and is it clear why they are rejected?
- are granularities in conclusions (e.g. variation by respondent type) clearly identified and justified?

Synthesise the evidence

For all papers subject to a full review, we will extract the key evidence into a spreadsheet format. We used the category headings in the DIT rapid evidence assessment as a starting point, but adjusted the headings to align with the trade promotion logic model and our approach to assessing the validity of findings and methods.

¹⁵ <https://www.gov.uk/government/publications/government-social-research-framework-for-assessing-research-evidence>, for example.

List of category headings

Category Heading	Detail
Publication ID	
Publication title	
Publication citation	
Publication year	
Data time period	
Geography	
Business sector	
Summary	
List of activities studied	Using logic model categories
List of outputs, outcomes, impacts studied	Share of exports, value of exports, GDP etc.
Findings: market failure and rationale for intervention	By firm characteristic (size, sector, location)
Findings: impact of trade promotion services on exports (outputs)	Individual trade promotion services, as well as trade promotion organisations. Categorisation of activities, time profile of effect
Findings: impact of exporting on firm-level outcomes (outcomes)	By firm characteristic, including long-run effects
Findings: broader economic impacts of exporting (impacts)	Based on firm level data
Empirical paper?	Yes, No
Method	Broad categories
Method detail	Intervention timing, controls for selection bias, assessment of wider impacts, key caveats.
Data summary	Number of observations, source, coverage, selection bias, reporting bias, validation.
Data summary – counterfactual	
Internal validity – strategy	Maryland scale.
Internal validity – strategy implementation	Data limitations, assumptions and biases
External validity	Relevance in terms of time, geography, activities and impacts, as well as replicability
Appraisal best practice – time profiles	Time profiles, granularity, depreciation, discounting.
Appraisal best practice – additionality	Substitution, dead-weight, displacement and spill-overs
Appraisal best practice - interaction	Isolation of interventions and interactions (time and intensity)
Relevant papers cited	
Web link	Paper, data

Source: Frontier analysis, DIT

Once the literature review has been completed, we will evaluate gaps in the literature in terms of its relevance to DIT’s current activities, its coverage appropriate impact measures or its robustness.

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