

Institution: University of Sussex		
Unit of Assessment: 16 – Economics and Econometrics		
Title of case study: Tools for Trade Policy: Facilitating better trade policy-making via research-based software and training		
Period when the underpinning research was undertaken: Jan 2000 – Dec 2020 (ongoing)		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Michael Gasiorek	Professor of Economics	1991 – present
Peter Holmes	Reader in Economics	1974 – 2020
Alasdair Smith	Professor of Economics	1981 – 2007 (now Emeritus)
L. Alan Winters	Professor of Economics	1999 – present
Period when the claimed impact occurred: Aug 2013 – Dec 2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact <p>Sussex research on international trade has enabled more effective decision-making by trade policy practitioners around the world. Two research-based software tools (TradeSift and Trade Analysis using Partial Equilibrium Simulations – TAPES), together with related training and consultancy, have improved the capacity of practitioners to analyse trade policy options and develop appropriate negotiating positions. Capacity-building, via training programmes using TradeSift, has been delivered to several national governments, regional economic communities and international organisations, including: Pakistan, India, Ukraine, and ECOWAS. Since the 2016 EU referendum, training and a bespoke version of TAPES, as well as analytical input, have been delivered to the Scottish, Northern Irish and UK governments, enhancing their ability to analyse post-Brexit scenarios and support UK trade interests.</p>		
2. Underpinning research <p>Sussex research underpinned the development of two software tools to improve trade policy decision-making by governments. TradeSift facilitates rapid manipulation of large volumes of highly detailed trade data based on an analytical framework and diagnostic indicators that allow users to 'sift' intelligently through (millions of rows of) data. TAPES provides more formal partial equilibrium modelling of trade policy choices and offers the opportunity to simulate the effects of different trade policy choices. TradeSift, TAPES and related capacity-building work are underpinned by Sussex trade research conceptually and methodologically.</p> <p>Conceptually: The impact of changes in trade (policy) on an economy are complex. For example, while a free trade area may lead to more trade between partner countries, that increase does not necessarily increase economic welfare. That depends on how much trade switches away from non-partner countries (trade diversion), and how much trade increases from lower prices (trade creation). For an importing country, trade creation is welfare-increasing while trade diversion is welfare-decreasing. Economists' typically assess such effects either through sophisticated computable general equilibrium (CGE) models or econometric estimation. The Sussex Framework [R4, R5] shows that many conclusions on the impact of trade policy can be obtained by identifying generally applicable principles ('rules of thumb') and evaluating them with a handful of proximate diagnostic indicators.</p> <ul style="list-style-type: none"> The formal CGE modelling in R1 and the partial equilibrium model of R6 underline the importance of <i>trade creation</i>, <i>trade diversion</i> and the <i>competitive environment</i> in understanding trade policy effects and why/how they are driven by interactions between the underlying structure of trade and changes in trade barriers. 		

- Research on the EU-CARIFORUM Economic Partnership Agreement in R2 (based on a DFID-funded project) illustrates the use of diagnostic indicators to evaluate costs and benefits of free trade agreements, such as an Economic Partnership agreement. For example, trade creation is more likely between countries when there is greater similarity in trade structures, which can be captured with the *Finger-Kreinin* index. Another diagnostic indicator, *sole supplier analysis*, shows the importance of identifying the structure of trade with potential partners at a highly disaggregated level.
- R2, and another DFID-funded project, R4, led to development of the Sussex Framework, the underpinning 'rules of thumb' and the range of associated diagnostic indicators.
- A further key element of Sussex research was the analysis of a possible EU-India free trade agreement, as in R5, which applied the Sussex Framework principles and developed new diagnostic indicators such as the Revealed Export Competitiveness Pressure Index (RECPi). The RECPi identifies the extent to which two countries compete with each other in third markets (e.g. Pakistan and India competing in the EU).
- Gravity modelling, as in R3, underlines the importance of economic size (and distance) of countries in driving bilateral trade flows, which in turn led to the development of another new indicator. The *Revealed Market Access* indicator provides a non-parametric means of evaluating the presence of trade barriers while controlling for country size.
- The modelling in R1, the insights from R2, R3 and R4, and application of the Sussex Framework in capacity-building work, led to research using and further developing the TAPES partial equilibrium model, R6. The key novel feature was the ability to analyse the potential effects of Brexit in such a model with the inclusion of the role of supply chains and intermediate costs – a feature previously seen only in CGE models. An additional feature was the ability to model trade under imperfect competition using disaggregated trade data. These developments have a direct counterpart in TradeSift with inclusion of data on trade in value-added (capturing supply chain integration) and use of the *Intra-industry* trade indicator.

Methodologically: A key insight is that trade policy formulation does not need to rely on sophisticated econometric or CGE modelling. Substantive policy conclusions can be derived from structured analysis of trade data and the use of diagnostic indicators and simpler partial equilibrium modelling. The underpinning research was consolidated in the form of the **TradeSift** and **TAPES** software. TradeSift uses minimum theoretical assumptions to draw maximally robust policy conclusions. TAPES provides a more formal approach to simulating effects of policy changes.

Sussex capacity-building provided over the last ten years draws directly from the conceptual research insights, in-depth knowledge of highly complex trade data and development of software tools that operationalise the insights.

3. References to the research

- R1: **Gasiorek, M., Smith, M.A.M.** and Venables, A. J. (2003) The Accession of the UK to the EC: A Welfare Analysis, *Journal of Common Market Studies*, 40(3) pp. 425–447. <https://doi.org/10.1111/1468-5965.00363>
- R2: **Gasiorek, M.** and **Winters, L.A.** (2004) What Role for the EPAS in the Caribbean? *The World Economy*, 27(9), pp. 1335–1362. <https://doi.org/10.1111/j.0378-5920.2004.00655.x>
- R3: Augier, P., **Gasiorek, M.** and Lai-Tong, C. (2005) The Impact of Rules of Origin on Trade flow, *Economic Policy*, 20(43), pp. 568–624. <https://doi.org/10.1111/j.1468-0327.2005.00146.x>
- R4: Evans, D., **Holmes, P., Gasiorek, M., Rollo, J.** and Robinson, S. (2007) Assessing Preferential Trade Agreements using the Sussex Framework. *Trade Negotiations Insights*, 6(2). pp. 1-4. <https://www.sussex.ac.uk/webteam/gateway/file.php?name=cariswp01.pdf&site=261>
- R5: **Gasiorek, M., Holmes, P., Rollo, J., Winters, L.A.** et.al. (2009) *Innocent Bystanders: Implications of an EU-India Free Trade Agreement for Excluded Countries*, London: Commonwealth Secretariat. Available on request.

R6: **Gasiorek, M.**, Smith, A. and Tamberi, N. (2020) Value chains and domestic competitiveness. *National Institute Economic Review*, 252. pp. 45-51.
<https://doi.org/10.1017/nie.2020.17>

R1-3 are in internationally-recognised journals which have rigorous peer-review processes.

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4. Details of the impact

The economic effects of changes in trade policy, notably preferential agreements, are difficult to assess and require analytical and negotiating resources that are scarce. Via a University spinout company (InterAnalysis), economists at Sussex have developed two software tools for trade policy-making and capacity-building, as well as providing training and analytical input into trade policy formulation.

Capacity-building has been delivered through training courses and the software applications. The training is based on the principles of trade policy and the application of the diagnostic indicators (developed in **R2, R4, R5**) integral to TradeSift. This is designed to enable policymakers to understand, for example, how to maximise the benefits from a free trade agreement or identify offensive or defensive interests in a negotiation. TradeSift was developed as a time- and cost-effective tool for policymakers designed around the principles of international trade that led to the Sussex Framework [**R1, R4**]. The software cuts through the challenges of obtaining those scarce analytical and negotiating resources by providing a logical basis for assessing trade policy in a clear, rigorous, consistent way, and identifies how and why to use diagnostic statistics from readily available trade, tariff, and trade barriers databases. It deals with both shallow and deep integration [**R2, R3, R5**]. The software provides officials with the means to formulate policy options and engage in trade negotiations.

TradeSift delivers a rapid, easily comprehensible analysis of international trade, and can be applied to a wide range of trade policy issues including: regional trade agreements, multilateral or unilateral trade liberalisation, trade disputes, identifying export opportunities and general trade performance monitoring. TradeSift enables the user to identify and analyse at a granular level the structure of a country's trade hence the conditions under which trade creation or trade diversion may occur. The software comes with a set of built-in indicators and provides a toolkit, framework, and conceptual manual to help users understand how and why to apply various indicators for different types of trade analysis [**R4, R5**]. It helps to shape policymakers' trade priorities and policy without technical and high-cost econometric or CGE modelling which has both a high financial and personnel cost.

Informing trade negotiations and building capacity:

Since August 2013, 13 training courses have been delivered across Pakistan, India, several African countries, and the Ukraine. This has equipped officials with analytical and technical skills and provided policymakers with insights, which have then been used to: a) identify trade priorities, b) inform trade policy decisions and trade negotiations, and c) build capacity for trade policy analysis and more effective trade policy-making.

Anonymised training feedback on the courses indicates that 80% of participants found the training very useful to their daily work, 82% expected to use TradeSift in their daily work, and 86% saying that their colleagues would benefit from such training [**S1**].

On the provision of TradeSift and TAPES to the Government of Pakistan (2014, 2019 and 2020), Robina Ahmed, National Tariff Commission, Ministry of Commerce, writes:

"The government of Pakistan has found its collaboration with InterAnalysis extremely impactful. Since August 2013, 54 Pakistan trade officials have attended TradeSift training

courses. The courses have enhanced our analysis and formulation of trade policy in our bilateral negotiations with trading partners. As a result, 40 TradeSift licences reside within the Ministry of Commerce for use by its officers. This combination of training in trade policy analysis and the installation of the software has been put to use in our trade negotiations with Turkey, Thailand and China.” [S2].

The success of these programmes led to requests for an online training module on trade policy and use of TradeSift. Delivered in spring 2020, this is a required module for all incoming civil servants in the Ministry of Commerce.

In 2015, training for ECOWAS member states was provided as valuable preparation for WTO tariff-schedule negotiations and for negotiating priorities for the Africa Continental Free Trade Area:

“Several member states are using TradeSift as a tool to generate negotiating priorities based on trade and economic performance. The tools allow for the identification of priority sectors for export and development using checklists of issues and ‘rules of thumb’... This provides a basis for countries to prepare a market access schedule for liberalization.” Kola Sofola, Principal Programme Officer – Trade, ECOWAS [S3].

Similarly, training officials in India’s Department of Commerce as well as influential think-tanks such as CUTS and IIFT has contributed to negotiations on India’s free trade agreements:

“The software has further added value to our quarterly dossier on Preferential Trade Agreements, the contents of which have been appreciated by senior officials in the Department of Commerce, Government of India”. Pradeep Mehta, Secretary General, CUTS International [S4].

Training for Ukraine’s Ministry of Economic Development and Trade (MEDT) in 2018 facilitated analysis of the country’s export markets and growth potential:

[text removed for publication] [S5].

Identification of trade priorities:

Whereas TradeSift uses historical data to infer the impact of policy options and choices, TAPES, builds upon [R1] and [R6], and provides a more formal and technical approach to simulating the future impact of different trade policy choices. It thus provides ‘forecasts’ of the impact of different policy choices and is useful for understanding the possible economic consequences of those choices. The model has been used by the Scottish Government (July 2017 – March 2018) to assess the impact of Brexit on the Scottish fishing industry:

[text removed for publication] [S6].

The researchers are also currently using the model to evaluate the impact of the Northern Irish (NI) Protocol on the NI economy for the Department for the Economy:

“We are also delighted to be partnering with you in a research project concerning the potential implications of the Northern Ireland Protocol and in the PE modelling of outcomes for the NI economy. The results of this research will be made available at a Ministerial level and will help us to better understand the consequences of the Protocol.” Director, Analytical Services Division, Northern Ireland Department of the economy [S9].

The research led to the development [R6] of an advanced variant of the model (G-TAPES) which incorporates changes in intermediate input costs. This was developed for the UK Government (July – November 2018 and January – March 2019) and is being widely used by the Department for International Trade (DIT) and across Whitehall, to assess the impact of future free trade agreements and as an input into post-Brexit trade negotiations:

“We are very satisfied with the model... it has been used in a wide range of trade policy applications across various government departments (including DIT, BEIS & DEFRA and to a lesser extent HMT) to help inform officials and Cabinet develop government trade policy.

For all such work it has helped... inform us of potential offensive and defensive interests for both the UK and other countries... The scale of interest can probably best be indicated by the number of analysts who are now regularly using the model. Within DIT there will shortly be ten analysts, with another four in BEIS and a couple in DEFRA. It is also now classified as one of DIT's business critical models." Chris Alexander, DIT, UK Government [S7a].

In addition, from 2017 to 2019, the researchers have provided training on trade statistics, trade modelling and using TradeSift to more than 100 UK government staff, including analysts from various UK government departments (most notably DIT), economists from the Scottish and Northern Irish governments, and the UK Regulatory Policy Committee. This has helped to inform national trade priorities and develop policy and negotiating positions [S6, 7b and 8]:

"The use of the trade indicators and comparative statistics generated from TradeSift helped to inform Scotland's current trade position and will be used on an ongoing basis to inform Scotland future priorities." Steven Morton Office of the Chief Economic Adviser, Scottish Government [S8].

[text removed for publication] [S7b].

[text removed for publication] [S9].

5. Sources to corroborate the impact

- S1. Training feedback
- S2. Statement from Robina Ahmed, National Tariff Commission, Ministry of Commerce, Government of Pakistan – 28.01.2021
- S3. Statement from Kola Sofola, Principal Programme Officer – Trade, ECOWAS – 14.09.2018
- S4. Statement from Pradeep S. Mehta, Secretary General, CUTS International, India – 29.08.2018
- S5. Statement from [text removed for publication]
- S6. Statement from [text removed for publication]
- S7. Statements from the Department for International Trade, UK Government
 - a) Chris Alexander, Economist – 23.11.2020
 - b) [text removed for publication]
- S8. Statement from Steven Morton, Office of Chief Economic Adviser, Scottish Government – 31.08.2018
- S9. Statement from [text removed for publication]