Introduction

Overview of Argument

> There is no question, which on account of its importance, as well as difficulty, has caus'd more disputes both among antient and modern philosophers, than this concerning the efficacy of causes, or that quality which makes them be follow'd by their effects.[1]

Despite the profound difficulty associated with determining causation, the need to do so is nonetheless deeply embedded in all legal systems, and the law of the WTO is no exception. Legal systems are generally interested in the concept of causation for three practical reasons.[2] The first is *attributive* – that is, the law draws on causal principles in order to ascertain whether responsibility should be affixed to an agent on account of his, her or its actions or omissions.[3] The second use is *explanatory*, in the sense that the law attempts to determine how earlier conditions may have led to a later state of affairs.[4] Third and finally, the law requires causation to make *predictions* about the likely future contribution of a condition to a state of affairs.[5]

Whilst most areas of law are primarily interested in causation for its assistance with attributing responsibility to an agent (e.g., negligence law, criminal law and contract law), it will be argued that WTO law draws on causation to assist with each one of the three rationales listed above. It will be seen that Chapters 2, 3 and 5 of this book are interested in causation for its attributive potential, whilst Chapter 4 will draw on

[1] David Hume, *A Treatise of Human Nature* (LA Selby-Bigge ed, 1789) (revised by PH Nidditch, 2nd edn, OUP 1975) Bk I, pt III, s xiv, 156.
[2] Antony Honoré, 'Causation in the Law' *The Stanford Encyclopedia of Philosophy* (Winter edn, 2010) <http://plato.stanford.edu/archives/win2010/entries/causation-law/> accessed 26 September 2015.
[3] ibid.
[4] ibid.
[5] ibid.

causation for its explanatory and predictive capacities. Due to the greater range of reasons for drawing on causation, it follows that causation in WTO law requires a greater arsenal of causal tests than some other areas of law for interrogating causation. As such, this book will employ both non-quantitative causal tests aimed at attributing responsibility (such as the traditional *sine qua non* and weak necessity/strong sufficiency tests) as well as quantitative tests (such as Linear Regression Analysis and the Statistical Significance Test). These causal tests will be detailed in Chapter 1 of this book.

Causation in WTO law is distinctive for a second reason – that is, it involves drawing causal links with respect to something as complex and multifaceted as financial markets and international trade flows. As such, at several points the agreements in WTO law require a fact-finder to separate the causal factor being interrogated from other known factors that may also have contributed to the effect in question. This process of distinguishing the causal factor in question from other known factors is called a non-attribution analysis. WTO law explicitly requires a non-attribution analysis to be undertaken at several points, whilst at others, this book suggests that it may be implied by the nature of the causal analysis in question. The term 'other known factors'[6] will be used throughout this book as an elliptical way of saying 'all those factors that

[6] The term 'other known factors' is used in WTO, *United States: Anti-Dumping Measures on Certain Hot-Rolled Steel Products from Japan—Report of the Appellate Body* (24 July 2001) WT/DS184/AB/R (AB, *US—Hot-Rolled Steel*) [226]. Various other terms are used in the jurisprudence to mean the same thing; for example, 'known factors' is used in WTO, *Mexico: Definitive Countervailing Measures on Olive Oil from the European Communities—Report of the Panel* (4 September 2008) WT/DS341/R [7.297]; WTO, *Thailand: Anti-Dumping Duties on Angles, Shapes and Sections of Iron or Non-Alloy Steel and H-Beams from Poland—Report of the Panel* (28 September 2000) WT/DS122/R (Panel, *Thailand—H-Beams*) [7.273]; WTO, *European Union: Anti-Dumping Measures on Imports of Certain Fatty Alcohols from Indonesia—Report of the Panel* (16 December 2016) WT/DS442/R [7.196]. 'Other factors' is used in WTO, *European Union: Anti-Dumping Measures on Biodiesel from Indonesia—Report of the Panel* (25 January 2018) WT/DS480/R [7.438]; WTO, *Argentina: Safeguard Measures on Imports of Footwear—Report of the Panel* (25 June 1999) WT/DS121/R (Panel, *Argentina—Footwear (EC)*) [8.264]–[8.267]; WTO, *Argentina: Safeguard Measures on Imports of Footwear—Report of the Appellate Body* (14 December 1999) WT/DS121/AB/R (AB, *Argentina—Footwear (EC)*) [134]; WTO, *United States: Safeguard Measures on Imports of Fresh, Chilled or Frozen Lamb Meat from New Zealand and Australia—Report of the Panel* (21 December 2000) WT/DS177/R; WT/DS178/R (Panel, *US—Lamb*) [7.259]–[7.279]; WTO, *United States: Definitive Safeguard Measures on Imports of Certain Steel Products—Report of the Panel* (11 July 2003) WT/DS248/R; WT/DS249/R; WT/DS251/R; WT/DS252/R; WT/DS253/R; WT/DS254/R; WT/DS258/R; WT/DS259/R [10.332]; WTO, *Indonesia: Safeguard on Certain Iron or Steel Products—Report of the Panel* (18 August 2017) WT/

could potentially have contributed to the effect being investigated and that must be excluded by performing a non-attribution analysis'.

In short, those parts of WTO law with which this book is concerned require a causal link to be drawn between factors at the same time that they require a causal link between other factors to be excluded. Accordingly, the terms 'causation' or 'causal link' for the purposes of this book might be understood in the context of the need to establish that an injury, effect or outcome was brought about by a Member's policy and was not caused by any other independent phenomenon that may have occurred at the same time.[7] In this sense, the causation analyses under examination in this book have both positive and negative features. This dual character means that any useful methodology for determining a causal link must be able to reliably discriminate between those factors that were causative vis-à-vis those factors that were immaterial to bringing about an outcome.

This book will discuss nine different parts of WTO law that all have this dual character. The first three, to be discussed in Chapter 2, all relate to trade remedies. The first trade remedy to be discussed is safeguard measures (Articles 2.1 and 4.2(a) and (b) of the *Agreement on Safeguards*[8]), which allow a WTO Member temporarily to protect a domestic industry from an increase in imports of a product if those imports are causing, or threatening to cause, serious injury to that industry. Next, this book will consider antidumping measures (Articles 3.1 and 3.5 of the *Agreement on Implementation of Article VI of the General*

DS490/R; WT/DS496/R [7.5.4.3.1]; WTO, *European Union: Countervailing Measures on Certain Polyethylene Terephthalate from Pakistan—Report of the Appellate Body* (16 May 2018) WT/DS486/AB/R (AB, *EU—PET (Pakistan)*) [5.151]; WTO, *United States: Anti-Dumping and Countervailing Measures on Certain Coated Paper from Indonesia—Report of the Panel* (6 December 2017) WT/DS491/R [7.222]; WTO, *China: Countervailing and Anti-Dumping Duties on Grain-Oriented Flat-Rolled Electrical Steel from the United States—Report of the Panel* (15 June 2012) WT/DS414/R [7.62]. The term 'other known factors' has been chosen because it captures the meaning of both of the other terms used.

[7] This definition draws, to some extent, on the definition of 'causation' in Marion Jansen, Joost Pauwelyn and Theresa Carpenter, 'The Use of Economics in International Trade and Investment Disputes: Complex, Contentious but Oh-So-Important for the Sustainability of Trade and Investment' in Marion Jansen, Joost Pauwelyn and Theresa Carpenter, *The Use of Economics in International Trade and Investment Disputes* (CUP 2017) 5.

[8] *Agreement on Safeguards*, LT/UR/A-1A/8 (signed 15 April 1994, entered into force 1 January 1995) (Safeguards Agreement).

Agreement on Tariffs and Trade 1994[9]), which are measures that a Member may impose on foreign imports that are priced below fair market value and are causing harm to the Member's domestic industry. Third, countervailing duties (Article 15.5 of the *Agreement on Subsidies and Countervailing Measures*[10]) will be discussed – namely, duties that a Member can impose on a foreign Member's exports if the exports have been found to have been subsidised and to have caused injury to domestic producers in the importing country.

Chapter 3 concerns non-attribution and causal link analyses in the context of serious prejudice (Articles 5(c) and 6.3 of the SCM Agreement). Serious prejudice arises where a foreign Member's subsidy causes adverse effects to another Member's trade interests in relation to a particular product in a specified market. Chapter 4 then turns to consider Article XX of the *General Agreement on Tariffs and Trade*,[11] Article XIV of the *General Agreement on Trade in Services*[12] and Article 2.2 of the *Agreement on Technical Barriers to Trade*.[13] These provisions may exempt a Member's measure from the disciplines of the GATT, GATS or the TBT Agreement, respectively, under certain circumstances. Such exemption may take place where a number of criteria are satisfied, only one of which is that a Member's policy measure is found significantly to have contributed to achieving its intended policy objective.

Chapter 5 discusses Article 22.6 of the *Understanding on Rules and Procedures Governing the Settlement of Disputes*[14] and Article 4.10 of the SCM Agreement, which permit a complaining Member to bring retaliatory measures against a responding Member where that responding Member refuses to comply with a DSB ruling. In order to calculate the

[9] *Agreement on Implementation of Article VI of the General Agreement on Tariffs and Trade 1994*, LT/UR/A-1A/3 (signed 15 April 1994, entered into force 1 January 1995) (Antidumping Agreement or AD Agreement).

[10] *Agreement on Subsidies and Countervailing Measures*, LT/UR/A-1A/9 (signed 15 April 1994, entered into force 1 January 1995) (SCM Agreement).

[11] *General Agreement on Tariffs and Trade 1994*, LT/UR/A-1A/1/GATT/1 (signed 15 April 1994, entered into force 1 January 1995) (GATT 1994).

[12] *General Agreement on Trade in Services*, LT/UR/A-1B/S/1 (signed 15 April 1994, entered into force 1 January 1995) (GATS).

[13] *Agreement on Technical Barriers to Trade*, LT/UR/A-1A/10 (signed 15 April 1994, entered into force 1 January 1995) (TBT Agreement).

[14] *Understanding on Rules and Procedures Governing the Settlement of Disputes*, LT/UR/A-2/DS/U/1 (signed 15 April 1994, entered into force 1 January 1995) (DSU).

level of retaliation owed to the complaining Member, the adjudicators must calculate the likely level of nullification and impairment caused, whilst also taking account of other known factors. Chapter 5 argues that non-attribution and causal link analyses might be used to interrogate the relationship between a responding Member's failure to comply with a DSB ruling and the complainant Member's level of nullification and impairment. The jurisprudence has not discussed the need to perform non-attribution and causal link analyses with respect to the areas of law canvassed in Chapters 4 and 5. Nonetheless, Chapters 4 and 5 will argue that the need to do so may be implied by the nature of the causal link analysis in question.

It will be seen in Chapters 3, 4 and 5 that some parts of the current jurisprudence attempt to infer the effects of a cause from an *a priori* judgment about the nature of that cause. To put this another way, the current jurisprudence, at various points, attempts to presume the effect that a cause will have without actually interrogating that effect empirically. This approach, therefore, relies on intuition or a kind of 'common sense' approach to causation. The result is that an unsubstantiated presumption becomes the basis for drawing a causal link. Whilst this tendency manifests in different ways in Chapters 3, 4 and 5, at the root of each of them is a fundamental logical fallacy that not only misunderstands the nature of causation but also results in flawed conclusions. These logical fallacies will be pointed out as and when they occur in each of the chapters that discuss WTO law.

Due to the shortcomings of this intuitive approach in determining causation, this book argues in favour of actually interrogating the empirical effects of an outcome before attempting to derive its causal origins, wherever possible. This book will put forward a methodology for analysing non-attribution and causal links that draws on real-world data and econometric analysis. Econometrics may be defined as 'a special type of economic analysis in which the general theoretical approach – often formulated in explicitly mathematical terms – is combined frequently through the medium of intricate statistical procedures – with empirical measurement of economic phenomena'.[15] The advantage of using an approach that relies on econometric analysis is that it actually interrogates the effects of the causes based on empirical data, instead of

[15] Wassily Leontief, 'Econometrics' in Howard Ellis (ed), *A Survey of Contemporary Economics* (The Blakiston Co 1948) 388 quoted in Gerhard Tintner, 'The Definition of Econometrics' (1953) Econometrica 31, 40.

presuming them. This empirical data, in turn, 'makes for a more accurate outcome', which, in turn, 'enhance[s] the legitimacy of the system'.[16]

Econometric analysis must, of course, be used within the parameters allowed by the customary rules of interpretation of public international law, including Article 31 of the *Vienna Convention on the Law of Treaties* (VCLT).[17] It is suggested that economics and econometrics could be found to fit within the meaning of 'context', 'object and purpose' or 'subsequent practice' (Article 31.1–3 VCLT), 'special meaning . . . if it is established that the parties so intended' (Article 31.4 VCLT) or the phrase, 'supplementary means of interpretation' ('including', but not limited to, 'the circumstances of [the treaty's] conclusion') in Article 32 VCLT.[18]

The methodology developed in this book is derived from paragraph [69] of *US—Wheat Gluten*, in which the AB set out a three-step process for performing a non-attribution and causal link analysis in relation to the Safeguards Agreement.[19] This process is as follows: (1) authorities must separate the injurious effects of increased imports from the injurious effects produced by other known factors; (2) authorities must then attribute to imports the harm they alone have produced before attributing to other known factors the harm that they have occasioned in turn; and (3) finally, authorities should determine whether there is a causal link between imports and 'serious injury or threat thereof'; and if so, whether such a causal link involves a 'genuine and substantial relationship of cause and effect' between these two elements. This three-step methodology will be called the Tripartite Non-attribution/Causal Link Analysis, and its explication and application form the heart of this book. That is, whilst the Tripartite Non-attribution/Causal Link Analysis was developed by the AB in relation to safeguard measures, this book will suggest that it may also usefully be applied to those eight other areas of WTO law that were identified earlier as requiring non-attribution and causal link analyses.

[16] Joost Pauwelyn, 'The Use, Non-use and Abuse of Economics in WTO and Investment Litigation' in Jorge A Huerta-Goldman, Antoine Romaneti and Franz X Stirnimann (eds), *WTO Litigation, Investment Arbitration and Commercial Arbitration* (Kluwer 2013) 171.

[17] *Vienna Convention on the Law of Treaties* 1155 UNTS 331 (1969) (signed 23 May 1969, entered into force 27 January 1980).

[18] Pauwelyn (n 16) 184. Pauwelyn makes this argument only in relation to the use of the term 'economics'. It is suggested that the argument might further be extended specifically to include the term 'econometrics', too.

[19] WTO, *United States: Definitive Safeguard Measures on Imports of Wheat Gluten from the European Communities—Report of the Appellate Body* (22 December 2000) WT/DS166/AB/R (AB, *US—Wheat Gluten*) [69].

Advantages and Disadvantages of an Econometric Approach

One of the chief advantages of the Tripartite Non-attribution/Causal Link Analysis is that it tends to result in a genuine non-attribution analysis. It will be seen that, in the absence of the Tripartite Non-attribution/Causal Link Analysis, fact-finders are not in a position to assess the *interaction* between the causal factor in question (e.g., imports) and other known factors, leading to a causal analysis of dubious reliability. The Tripartite Non-attribution/Causal Link Analysis, on the other hand, performs a non-attribution analysis that allows other known factors to be identified and disaggregated from the causal factor in question.

A second benefit of the Tripartite Non-attribution/Causal Link Analysis is that it brings consistency to the non-attribution and causal link analyses, which, in turn, tends to promote greater legal certainty. Chapter 2 discusses the requirement imposed upon a domestic competent authority to draw a causal link between imports and harm to an industry. Each domestic competent authority is free to devise its own methodology, which has resulted in a lack of consistency and transparency between Members. Similarly, the jurisprudence in Chapter 3 evidences a degree of confusion between cases, particularly with respect to how the non-attribution analysis should be performed. The Tripartite Non-attribution/Causal Link Analysis offers a way of bringing greater clarity and consistency to a finding of serious prejudice. Both Chapters 4 and 5 concern provisions that do not explicitly require non-attribution and causal link analyses; and, as such, the jurisprudence also evidences a degree of inconsistency. This inconsistency could be resolved by having a more formalised approach, in the manner of the Tripartite Non-attribution/Causal Link Analysis. Once again, such a formalised approach would allow Members more easily to predict the way in which their case would be adjudicated.

Having just set out two key advantages of the Tripartite Non-attribution/Causal Link Analysis, it is important to consider some of the pitfalls with using a methodology reliant on econometric analysis. Indeed, these pitfalls are such that, if not managed sufficiently well, the benefits of the Tripartite Non-attribution/Causal Link Analysis discussed earlier become more illusory than real. Specifically, despite their scientific appearance, methodologically unsound econometric models can often suggest correlations between two variables that are statistically related but not, in fact, causally linked.[20]

[20] See, for example, Ted Goertzel, 'Myths of Murder and Multiple Regression' (2002) 26(1) The Skeptical Inquirer 19, 20.

This is because correlations are frequently drawn between two phenomena as a result of temporal ordering. As Moosa observes, however, 'the mere fact that something happens before something else does not mean that the first something causes the second something'.[21] These kinds of correlations are often called 'spurious correlations',[22] which may be defined as 'false indicators of causality, typically arising when an extraneous variable that affects two other variables is omitted'.[23] For example, Vigen has noted farcical correlations between per capita cheese consumption and the number of people who died by becoming tangled in their bedsheets![24] Moreover, incorrect econometric models can actually have the perverse effect of being used to support ideologically driven propositions.[25]

It is suggested that there are, nonetheless, three mechanisms for safeguarding a causal link analysis from the kinds of spurious correlations just described: (1) quality controls surrounding the econometric models used; (2) common sense or intuition about whether correlations appear to make sense; and (3) the contextualising nature of the law itself. Turning to the first, many of the spurious correlations or suspect analyses produced by econometrics are the result of poor methodologies and research standards.[26] Indeed, in the context of econometrics, it is easy for poor methodologies to be 'obscured by a maze of equations',[27] such that 'only other highly trained regression analysts can understand, let alone refute, them'.[28] Notwithstanding the seriousness of these methodological problems, it is arguably overly drastic to dismiss the potential contribution of econometrics to the causation debate entirely. Instead, it is suggested that higher standards or best practice guidelines might be established and followed in relation to the way in which models are selected and applied.[29] In other words, instead of throwing the baby

[21] Imad Moosa, *Econometrics as a Con Art: Exposing the Limitations and Abuses of Econometrics* (Edward Elgar 2017) 170.
[22] See generally Tyler Vigen, *Spurious Correlations* (Hachette Books 2015).
[23] Imad Moosa, 'Blaming Suicide on NASA and Divorce on Margarine: The Hazard of Using Cointegration to Derive Inference on Spurious Correlation' (2017) 49(15) Appl Econ 1483, 1483.
[24] See Tyler Vigen, 'Spurious Correlations' <www.tylervigen.com/spurious-correlations> accessed 14 September 2021.
[25] Moosa, *Econometrics as a Con Art* (n 21) 18.
[26] Michael McAller, Adrian Pagan and Paul Volker, 'What Will Take the Con Out of Econometrics?' (1985) 75(3) Am Econ Rev 293, 306.
[27] Goertzel (n 20) 21.
[28] ibid 23.
[29] McAller, Pagan and Volker (n 26) 306; and Pauwelyn (n 16) 186–87.

out with the bathwater, greater safeguards could be put in place to ensure more accurate and reliable econometric models that are based on sounder assumptions.

Second, many spurious correlations can often be dismissed simply by using common sense. For example, a correlation as spurious as the one involving per capita cheese consumption and the number of people who died by becoming tangled in their bedsheets would easily be discounted once subjected to common sense. In other words, cointegration should not be relied upon to the point that it leads a fact-finder to suspend their common sense and unquestioningly accept spurious relationships between data sets.[30] In this sense, the intuitive or common sense approach to determining causation based on *a priori* judgments that is currently used by the AB need not be seen as completely at odds with econometric analysis. Instead, it is suggested that the optimal approach to determining causation should draw on both schools of thought – namely, econometrics tempered by common sense.

Third, yet another defence against inadvertently accepting spurious correlations comes from the contextualising nature of the law itself. That is, legislation and legal agreements have the effect of delimiting the number of factors, parties and time periods that are relevant to a particular legal issue. For example, in the WTO context, if a domestic competent body were trying to ascertain whether imports caused harm to a domestic industry, this necessarily narrows down the material and temporal factors that might have impacted a domestic industry. This does not mean that a fact-finder might not still draw incorrect causal links, but it does mean that the very wild spurious correlations highlighted by Tyler Vigen earlier are less likely be drawn since they fall outside the limits prescribed by the law.

A second, even more significant problem with econometric analysis relates to the fact that sufficient reliable data is not always available. As the Panel said in *Australia—Apples*, '[i]n the absence of sufficient data, and particularly if numbers are chosen in an arbitrary manner, a quantitative method would only give a misleading impression of objectivity and precision'.[31] The difficulty in collecting sufficient, reliable data is magnified in the case of developing countries, where resources required to

[30] Moosa, 'Blaming Suicide on NASA' (n 23) 1485.
[31] WTO, *Australia: Measures Affecting the Importation of Apples from New Zealand—Report of the Panel* (9 August 2010) WT/DS367/R (Panel, *Australia—Apples*) [7.441].

collect the requisite data may be even more constrained.[32] Where insufficient data is unavailable for econometric models, which are inherently data-intensive, there may be other quantitative methods that can be used that require less data to be inputted. For example, the partial equilibrium model, based on supply and demand conditions,[33] or the 'Cost of Production Test'.[34] Each method has pros and cons, and the method chosen will ultimately depend on the type and quality of data available.

In the event that there is insufficient data even for these other quantitative tests, it may be that fact-finders need to fall back on the AB's non-quantitative approach to inferring the effects of a cause based on *a priori* judgments about the nature of that cause. Self-evidently, this approach is not ideal for all the reasons discussed earlier, and should therefore not be used unless there is no alternative. Moreover, because some of the quantitative approaches rely on drawing correlations, it is still useful to compare the results of these correlations with the AB's more common sense approach based on inference. This is because, as was just discussed, a common sense approach can help to guard against relying on spurious correlations. In this sense, this book does not dismiss the AB's approach to determining causation out of hand, but it is contended that it should be supplemented with a quantitative approach where sufficient data is available to do so.

A third difficulty with the use of econometric analysis in the context of WTO law is that its inherently technical and mathematical nature makes it difficult for lawyers to understand and apply. That is, numerous panel reports reflect a reluctance to engage with economic arguments, and have, at various times, minimised or even dismissed quantitative evidence brought by Members.[35] Given that the WTO legal agreements are

[32] Jai Mah, 'Injury and Causation in the WTO Agreement on Safeguards' (2001) J World Intellect Prop 373, 382. Although Mah's point is made in relation to safeguards, it could be extended to other contexts where data is required to be collected for the purposes of performing econometric analysis.

[33] See generally Kenneth Kelly, 'The Analysis of Causality in Escape Clause Cases' (1988) 37 (2) J Ind Econ 187.

[34] Dukgeun Ahn and William J Moon, 'Alternative Approach to Causation Analysis in Trade Remedy Investigations: "Cost of Production" Test' (2010) 44(5) JWT 1023, 1041–47.

[35] See, for example, WTO, *Japan: Taxes on Alcoholic Beverages—Report of the Panel* (11 July 1996) WT/DS8/R; WT/DS10/R; WT/DS11/R (*Japan—Alcoholic Beverages II)* [6.31]; WTO, *Korea: Taxes on Alcoholic Beverages—Report of the Panel* (17 September 1998) WT/DS75/R; WT/DS84/R (*Korea—Alcoholic Beverages*) [10.44]; WTO, *United States: Subsidies on Upland Cotton—Report of the Panel* (8 September 2004) WT/DS267/R (Panel, *US—Upland Cotton*) [7.1205] and WTO, *European Communities: Measures*