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**Which countries are more likely to initiate a dispute in the
WTO Dispute Settlement Mechanism?**

*An empirical analysis of all the WTO dispute cases with regards to
level of economic development and trade interdependence*

Thalia Wyns
s0090289

Masterproef voorgelegd met het oog op het behalen van de graad van
Master in de Politieke Wetenschappen

Promotor: Dirk De Bièvre

Medebeoordelaar: Arlo Poletti

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Abstract (Nederlands)

Deze masterthesis handelt rond het geschillenmechanisme van de Wereldhandelsorganisatie. Welke landen zijn diegenen die vaak gebruik maken van het geschillenmechanisme? Het valt namelijk op dat sommige landen er zelden gebruik van maken, terwijl anderen het mechanisme veel vaker benutten. In deze thesis wordt er getracht om deze vraag te beantwoorden door de invloed van twee onafhankelijke variabelen te analyseren. Het niveau van de economische ontwikkeling van een land is de eerste onafhankelijke variabele. Of een land een ontwikkelingsland is of niet kan mogelijkwijs invloed uitoefenen op de kans dat een land een klacht indient bij het WTO geschillenmechanisme. Een tweede variabele is trade interdependence of handelssamenhang. Dit meet of een land meer of minder afhankelijk is van internationale handel. Het analyseren van de mogelijke invloed van de onafhankelijke variabelen wordt gedaan via een Poisson regressieanalyse. Er zijn drie conclusies die hieruit voortkomen. Een eerste conclusie is dat ontwikkelingslanden minder geneigd zijn gebruik te maken van het Geschillenmechanisme, terwijl de tweede conclusie een negatief verband vindt tussen trade interdependence en het gebruikmaken van het geschillenmechanisme. De laatste conclusie volgt uit een analyse die beide effecten tegelijk onderzoekt. De conclusie die hieruit kan gemaakt worden is dat de twee onafhankelijke variabelen elkaars invloed op de afhankelijke variabele ontkrachten.

Abstract (English)

This master's thesis is centered around WTO Dispute Settlement initiation. Who are the complainants? Why do some countries rarely make use of the DSM, while others used it on a regular basis? This dissertation is an attempt to answer these questions by analyzing the influence of two independent, external variables. The level of economic development is the first variable. Whether or not a country is developing or developed influence initiation has been widely researched, and seems like a fitting variable to analyze. The second variable is trade interdependence. After analyzing the influence from both independent variables on initiation by conducting a Poisson regression analysis, the conclusions of this dissertation are threefold. Being a developing country does significantly influence your initiation behavior negatively, and having a high trade interdependence also influences initiation significantly in a negative manner. Last but not least, when both independent variables are interacting with the dependent variable, their effects seem to cancel each other out. These three effects are thereafter discussed in the conclusions of the dissertation.

1. Introduction

This dissertation is focused on dispute initiation in the WTO Dispute Settlement System. The Dispute Settlement Mechanism has been reinvented in 1995 when the General Agreement on Tariffs and Trade became the World Trade Organization (WTO-a, 2014). There had been a lot of criticism on the way the GATT system worked considering dispute settlement (WTO-b, 2014). The GATT Dispute Settlement system was therefore modified in order to create an unbiased system that can settle dispute cases regarding international agreements as well as help developing countries stand up for their international trade rights. The creation of the WTO Dispute Settlement Mechanism was hailed as the unbiased beating heart of a new era of international trade by the WTO itself, because of its newly improved legal system (WTO-a, 2014). Since these statements are a tad optimistic and that it does not completely match the reality of today, nearly 20 years after the creation of the World Trade Organization, we decided to look into the matter in a more detailed way. The main question this thesis therefore attempts to at least partially answer is: Which countries are more likely to initiate a dispute in the WTO Dispute Settlement Mechanism?

This question is important for international trade as well as for the enforcement of international trade laws. It is common knowledge nowadays that these international agreements and trade laws are often drafted in an extremely vague manner in order to be politically correct. In this political environment, most new WTO trade agreements tend to be difficult to comprehend and can be violated by countries unintentionally (Schaffer, 2003). The Dispute Settlement Mechanism presides over cases of intentional as well as unintentional violations of WTO trade agreements and laws. When there are cases of unintentional violation, the task of the WTO DSM comes down to actually interpreting the rules and making a decision concerning the violation. This means that countries who participate eagerly in initiating complaints are better positioned than others to shape the interpretation of existing regulations (Schaffer, 2003). These countries technically receive more chances to interpret the international trade agreements in their favor by initiating disputes. We can therefore assume that whatever influences initiation, can at least partially influence who interprets and shapes international laws.

First, it is necessary to point out that there are many possible variables that can influence a country to initiate a dispute (Barbieri, 1996; Oatley, 2006; Putnam, 1988; Schaffer, 2003;

Yildirim, 2013). In this dissertation the influence of two variables in specific is looked at more closely. The reasons for this choice will be further discussed in chapter three. The variables that will be analyzed are economic development classification and trade interdependence. The first variable, economic development classification, focuses on the type of country and its economic development (Bown, 2009). Is a country developed, or still developing (Daly, 1997)? It will be analyzed whether a developed country is more likely to initiate a dispute or not, since this is a well-discoursed theme within recent literature and seems to be highly likely (Bown, 2005; Davis, 2009; Schaffer, 2003).

The second explaining variable that is interesting to look into is trade interdependence. It has been mentioned several times in recent literature that trade interdependence has its influence on peace and conflict (Barbieri, 1996; Mousseau, 2000). Other authors claim it is also possible that this can influence behavior when it comes to international relations and compliance to international law (Yildirim, 2013). This second variable is also analyzed to see if it influences initiation. It is presumed in this dissertation that higher trade interdependence means that a country is more likely to initiate, because it has more at stake when another country unintentionally violates a trade agreement that influences their field of trade.

These variables are measured and analyzed by using specific formula's concerning trade interdependence (Barbieri, 1996) and data gathered from several sources, such as the World Bank, The United Nations and the World Trade Organization (UN, 2013; WorldBank, 2008; WTO-d, 1995-2013). More details surrounding data collection and formulas, as well as the type of analysis, is found in chapter four.

In this thesis, we take a closer look at both variables to test if they influence dispute initiation as well as look into the possibility of them influencing each other. After delving into the existing literature about initiation and explaining why these variables were chosen as the main focus of this thesis, the dataset is defined. After defining the dataset, an empirical analysis is performed in order to see if the hypotheses put forward in this thesis and recent literature on the subject are correct. This will be further discussed in chapter 5.

After performing the chosen Poisson regression analysis on the dataset, there are three pertinent developments that lead to the conclusion of this dissertation. First of all, if one looks at the type of country as a distinct variable, the analysis shows that this highly influences initiation. A developed country is much more likely to initiate a dispute. This result by itself would be very negative for the World Trade Organization. It would mean that developing

countries are given less chances to interpret WTO rules and shape international trade. That implies that the WTO falls short of its goal to ensure that trade flows as smoothly, predictably and freely as possible, as well as its goal to improve the welfare of all the peoples of the member countries (Schaffer, 2003). Secondly, however, it seems that trade interdependence impacts a country's decision to initiate in a negative way. This goes against the assumption that was made in this dissertation (Yildirim, 2013). Lastly, since most developed countries have a relatively high trade interdependency compared to others (Sullivan, 2003), the analysis shows us that when both variables are in play, both of the variables' effects are heavily nuanced. These independent variables seem to partially cancel each other's effect.

2. The Dispute Settlement Mechanism in brief



2.1 From GATT to WTO

The World Trade Organization was officially created in 1995, but the system it is based on dates back as far as 1948. It realized the attempt to create an organization on an international scale that would not just create a forum for governments to negotiate trade agreements. It also operates a system of trade rules that is created to keep countries from violating the negotiated trade agreements. Next to both of these important tasks, the WTO is also a place for countries and their governments to settle trade disputes in the Dispute Settlement Mechanism (WTO-a, 2014). The creation of the WTO succeeded in realizing what the failed attempt at creating the International Trade Organization in 1948 could not. This erstwhile forgotten ITO was reinvented in an updated version via the creation of the WTO (WTO-b, 2014).

It all started in Havana, in 1947. Twenty-three countries had come together to discuss the possibilities of a charter that could negotiate tariff concessions and other advantages, as well as an international organization for trade. These tariff concessions came into effect by 30 June 1948 through a Protocol of Provisional Application. It was the start of the General Agreement on Tariffs and Trade with 23 official contracting parties. These contracting partners were also part of a larger group that was negotiating the creation of an international organization for trade. They had specific ideas regarding the relationship between the GATT and the ITO Charter, but they also allowed for the possibility that the ITO might not be created. The Havana conference itself began a month after the GATT were signed. The chapter regarding the International Trade Organization was agreed upon, but proved to be impossible to ratify in certain countries soon after. This meant that the GATT became the only multilateral

instrument governing international trade from 1948 until the WTO was established in 1995 (WTO-b, 2014).

The General Agreement on Tariffs and Trade did not take long to turn into an unofficial international organization. It was known informally as the GATT. Over nearly five decades it evolved through several rounds of negotiations. The last and largest GATT round was held in Uruguay. It lasted from 1986 to 1994 and created the basic foundations that led to the WTO's creation. Whereas the GATT had mainly dealt with trade in goods, the WTO and its agreements now cover trade in services, and in traded inventions, creations and designs (WTO-b, 2014; WTO-c, 2013).

Essentially, the WTO is a place where member countries go to try to sort out the trade problems they face with each other. The World Trade Organization firmly believes in talking and negotiating with one another. The WTO was born out of negotiations, and everything the WTO does is the result of negotiations (WTO-a, 2014). This organization does not simply help countries to negotiate trade barriers or tariff reductions in a neutral environment, but in some circumstances it also provides countries with the needed market protection. This is an organization that is not merely specialized in trade liberalization, but in everything that can be linked with international trade (WTO-c, 2013).

At the heart of the World Trade Organization are the trade agreements, negotiated and signed by most of the world's trading nations. These documents provide the legal rules for international trade and commerce. They are essentially contracts, binding governments to keep their trade policies within agreed limits. The third important instrument within the WTO is partially based on these agreements. The WTO helps members settle disputes regarding international trade and trade laws. Trade relations cannot help but often involve conflicting interests. Agreements, including those painstakingly negotiated in the WTO system, often need interpreting in order to find the right meaning of the rule or agreement. It is imperative that when a conflict of interest arises, the settlement is done in a neutral environment with a standard procedure that is based on an agreed legal foundation (WTO-a, 2014). This Dispute Settlement Mechanism is the main focus of this dissertation, and will therefore be looked at more closely in the next subchapter.

2.2 The DSM proceedings

According to the World Trade Organization itself, the Dispute Settlement “*is the central pillar of the multilateral trading system, and the WTO’s unique contribution to the stability of the global economy. Without a means of settling disputes, the rules-based system would be less effective because the rules could not be enforced. The WTO’s procedure underscores the rule of law, and it makes the trading system more secure and predictable.*” (WTO-a, 2014)

The dispute cases in the settlement system are essentially about WTO members that believe that a fellow member has violated the trade rules. When a member country finds that this is the case, it can act as a complainant by using the multilateral system of settling disputes instead of taking action unilaterally. This means that they agree to abide by the agreed procedures, and respect the judgments made in the Dispute Settlement Proceedings. Before the arrival of the WTO era, a procedure for settling disputes already existed under the old GATT. This procedure, however, was heavily criticized. It had no fixed timetables, rulings made by following this procedure were much easier to block, and many cases dragged on for a long time inconclusively because of this (WTO-g, 2014).

How long can it take for a dispute to be settled? Settling disputes is the responsibility of the Dispute Settlement Body which consists of all WTO members. The Dispute Settlement Body has the authority to establish panels of experts to consider the case, and to accept or reject the panels’ findings or the results of an appeal. The first stage in a dispute is the consultations, where the countries in dispute have to talk to each other to see if they can settle their differences by themselves. This stage can take up to sixty days. If consultations fail, the complaining country can ask for a panel to be appointed. This panel creates a report that helps the Dispute Settlement Body to make a ruling, but in reality, this panel is very difficult for the Body to overrule or overlook. It can take up to 45 days to create a panel, and it should conclude its report within six months (WTO-g, 2014). Panels consist of various instruments, hearings, and may consult experts if this is needed. Their final report must be sent so all WTO members within three weeks, and should there be no appeals, it is adopted by the Dispute Settlement Body within 60 days. This means that, if there are no appeals, a ruling by the WTO Dispute Settlement should take no more than a year, which is pretty efficient (WTO-g, 2014).

After this ruling, if the defending country is seen as having done something wrong, it should offer compensation. It is extremely important to note, however, that the WTO does not work with punishments, but with remedies. The priority is for the offending country to realign its policies with the WTO trade agreements. The losing defendant must follow the recommendations of the panel report or the appeals report. If complying with the recommendation immediately proves impractical, the member will be given a reasonable period of time to do so. In any case, the Dispute Settlement Body monitors how adopted rulings are implemented. Any outstanding case remains on its agenda until the issue is resolved (WTO-g, 2014).

2.3 Developing country status in the World Trade Organization

After looking at how the dispute settlement works, it is also imperative to show the provisions that the WTO makes for developing countries and their problems because of the subject of this dissertation. On its official site, the WTO states that it deals with the special needs of developing countries in three distinct ways, being the provision of extra technical assistance, the special provisions within the WTO agreements and the creation of the Committee on Trade and Development (WTO-h, 2014).

The WTO agreements include numerous provisions giving developing and least-developed countries special rights or extra leniency called “special and differential treatment”. Amongst these are provisions that allow developed countries to treat developing countries more favorably than other WTO members. Other measures regarding developing countries in the WTO agreements include: extra time for developing countries to fulfil their commitments because they usually don’t have the means to adapt in a fast manner, provisions designed to increase developing countries’ trading opportunities through greater market access in order to improve their economies, provisions for various means of helping developing countries so they can deal with commitments such as animal standards, and other provisions (WTO-h, 2014).

Least developed countries are especially focused on in the WTO. All the WTO agreements recognize that they must benefit from the greatest possible flexibility, and members that are economically superior to them must make extra efforts to lower import barriers on least-developed countries’ exports (WTO-f, 2014).

What is also very interesting to look at, though, is the provision of extra technical assistance for developing countries. The WTO secretariat has provided developing countries with special advisors to assist them in their WTO disputes. Not only does the WTO's Training and Technical Cooperation Institute assist them in this manner, in 2001 a number of WTO members set up an Advisory Centre on WTO Law (ACWL). The members of the ACWL are countries contributing to the funding of the center, and those receiving legal advice. All least-developed countries are automatically eligible for advice, free of charge. Other developing countries and transition economies have to be fee-paying members in order to receive advice (WTO-h, 2014). This Centre will be looked at in a bit more detail in the next subchapter, since it provides assistance to developing countries in the Dispute Settlement Mechanism.

It is also imperative to note that these provisions for developing countries are only given to countries that receive developing country status. According to the WTO, *“There are no WTO definitions of “developed” and “developing” countries. Members announce for themselves whether they are “developed” or “developing” countries. However, other members can challenge the decision of a member to make use of provisions available to developing countries.”* (WTO-h, 2014) Many authors such as Schaffer believe that this categorization is not fully up to date, and not fully correct. They believe that this makes the whole system biased, because not all developing countries receive the benefits and provision they need (Schaffer, 2003). The least developed countries list consists of those countries which have been designated as such by the United Nations. There are 48 least-developed countries on the UN list, 33 of which to date have become WTO members (WTO-f, 2014).

2.4 The Advisory Centre on WTO Law



“The Advisory Centre on WTO Law was established in 2001 pursuant to the Agreement Establishing the ACWL as an organization independent of the WTO. The ACWL's mission is to provide developing countries and Least Developed Countries with the legal capacity necessary to enable them to take full advantage of the opportunities offered by the WTO.”(ACWL-a, 2014)

First of all, the ACWL can give legal advice on all procedural and substantive issues that may arise under WTO law. This legal advice is provided free of charge to its Members and to the Least Developed Countries free of charge up to a maximum number of hours to be determined by the Management Board. The table of membership for the ACWL has been updated in April 2014 and consists of 32 members (see Table 1) (ACWL-b, 2014)

Members entitled to ACWL services

Category A:

Hong Kong, China

Joined at a later date:

Chinese Taipei

Category B:

Bolivarian Republic of Venezuela

Colombia

Egypt

India

Pakistan

Phillipines

Thailand

Uruguay

Joined at a later date:

Oman

Mauritius

Turkey

Indonesia

Viet Nam

Seychelles

Category C:

Bolivia

Dominican Republic

Ecuador

Guatemala

Honduras

Kenya

Nicaragua

Panama

Paraguay

Peru

Tunisia

Joined at a later date:

Jordan

El Salvador

Sri Lanka

Costa Rica

Cuba

Table 1: Membership list of the ACWL

(from <http://www.acwl.ch/e/members/Introduction.html>)

Least Developed Countries entitled to the services of the ACWL

Angola

Bangladesh

Benin

Burkina Faso

Burundi

Cambodia

Central African Republic

Chad

Democratic Republic of the Congo

Djibouti

The Gambia

Guinea

Guinea-Bissau

Haiti

Lao People's Democratic Republic

Lesotho

Madagascar

Malawi

Mali

Mauritania

Mozambique

Myanmar

Nepal

Niger

Rwanda

Senegal

Sierra Leone

Solomon Islands

Togo

Uganda

United Republic of Tanzania

Vanuatu

Zambia

Table 2: LDC list that may use the ACWL

http://www.acwl.ch/e/ld_countries/ld_countries.html)

Developing countries are classified into three categories (A, B and C) based on their share of world trade with an correction reflecting their income. This classification determines their contribution to the Endowment Fund and the rate of fees payable for services rendered by the ACWL. Right now, 32 developing countries are members. Least developed countries do not need to pay for membership and are entitled to the services of the ACWL. There are 33 WTO members that can currently use the ACWL as a least developed country as can be seen in Table 2. This table has also been updated in April 2014 (see table 2). (ACWL-c, 2014)

These members and least developed countries together make up 65 developing/ least developed countries that are allowed to use the ACWL. That makes up 41% of all the WTO members that may use this Centre, while the WTO itself claims that over two-thirds of its members are developing countries (WTO-c, 2013). This means that a lot of developing countries are missing out on the ACWL because they cannot afford the membership, do not know the full potential it can have for them, do not need it or that they can fend for themselves (Abbott, 2007; Bown, 2005; Schaffer, 2003).

After this chapter, we know a bit more about how the WTO works and what it does for its members. But is its system enough, and why do developing countries keep recurring as being possibly left out? Existing theories about initiation and the independent variables of this dissertation will be looked at in further detail in the next chapter.

3. Existing theories on initiation : a literature study

This chapter exists to show that both of the independent variables chosen for this subject are important enough to be looked at. First, all the possible influences on initiation are looked at, while at the same time I explain why the two independent variables economic development classification and trade interdependence are chosen to explain initiation instead of the other possibilities. After justifying this choice in variables, it is paramount to look into recent literature for some background information and previous studies regarding these variables, in order to compose a scientifically correct hypothesis for each of them.

The literature study shall help define some major obstacles regarding the analysis of both variables in relation to initiation as well as nuance some of the conclusions of the analysis later on. The conceptualization and actual hypotheses will be constructed in chapter four.

3.1 What can influence initiation?

Before scrutinizing the literature surrounding the main independent variables of this dissertation, it is important to consider all the other possible influences on initiation. It is imperative to describe the variables surrounding initiation in order to nuance the conclusions made at the end of the thesis. It would, after all, be an inadequate analysis should these other feasible influences be omitted.

To make things easier later on, we choose to classify all the conceivable influences on the dependent variable into two clearer categories. At first sight, there are variables that can influence a country from within. Since these variables are country-specific as well as individual/internal, they will be called the internal variable category. This term can be used to categorize potential influences that come from a national level, and contains several different plausible influences on initiation. Secondly, there are potential influences that cannot be classified within the internal variable category. They influence WTO members from the outside, not just from within. This is the category that stems from the bigger picture: the external variable category. After creating these categories, it is time to look at the individual possibilities within them. The next paragraphs consider which variables present themselves intuitively when looking at possible influences on initiation of dispute settlement proceedings.

When looking at the internal variables it is possible to identify three large probable influences on a WTO members' initiation rate. The first influence that comes to mind immediately is national politics. Is this a leftist or rightist government? Is the country democratic in the true sense of the word? Does the country have a specific foreign or international policy? All of these questions can be categorized as national politics, and might have an influence on initiation (Busch, 2006; Putnam, 1988). The second internal factor is a form of common sense applied to initiation influence, namely the country's interest groups. Are there strong, influencing interest groups present in the country? Since strong interest groups can easily lobby and influence the national government, it is definitely possible that it can influence the initiation or non-initiation of a country (Oatley, 2006). Last but not least it is necessary to look at the economy of the WTO member. More specifically, if there are any important economic sectors present in the country. If a country is very dependent on a certain sector, logic dictates that it should be more likely that it defends this sector, especially in the international playing field. Therefore it is also important to look at the economy as a possible influence on initiation (Daly, 1997; Sullivan, 2003).

The external factors are a bit more precarious to determine. It is a lot less clear what an external factor might be. Nonetheless, it is possible to place two possible initiation influences within this category. The first variable is economic development classification or the type of country (developing or developed), (Davis, 2009; Schaffer, 2003). This is seen as an external factor because the fact that a country is developing or developed is not merely country-specific. This categorization is decided through comparison with other countries (Daly, 1997). It is conceivable that the developing-developed cleavage has an influence on initiating dispute proceedings (Bown, 2005; Davis, 2009; Horn, 1999; Schaffer, 2003).

The difference between developing and developed countries can largely be explained by the level of economic development. When thinking about economic development, it is pretty obvious that an economic gap exists between developing and developed countries (Daly, 1997). There are many authors in literature that believe the WTO DSM is biased towards developed countries for several reasons. The most recurring reasons are their lack of economic development, and therefore, lack of funds or human capital (Busch, 2006; Hoekman, 2007; Schaffer, 2003).

A second factor that can influence initiation on a larger scale is trade interdependence (Barbieri, 1996). As was mentioned in the introduction, trade interdependence is believed to influence conflicts and peace (Dougherty, 2001; Langlois, 2004; Mousseau, 2000). The link between trade interdependence and initiating a dispute in the World Trade Organization may possibly exist as well. It is easy to assume that a country with a specific interest in a sector or with a large dependency on trade will defend its position faster on an international playing field. Therefore, a country's trade interdependence can become an influence on whether or not a country should initiate (Barbieri, 1996; Mousseau, 2000; Yildirim, 2013).

The external variables seem to be focused more towards economic variables and will probably be easier to determine. Since they are larger scale variables that mostly compare other countries with one another, it is assumed that it is also easier to find a significant influence when scrutinizing these variables. This is why in this thesis, the main focus will be on the external variable group, and not on the internal variable group. The internal variables are very country specific and extremely difficult to classify as well. This makes it nearly impossible to find enough information on these topics, especially when looking for unbiased statistics that are not outdated. This is why, from now on, this dissertation will solely concern itself with economic development classification and trade interdependence as the independent variables.

3.2 Level of economic development and initiation

This part will discuss most of the common claims and research results in recent literature regarding the level of economic development. A lot of authors have written about the developing-developed cleavage within the WTO Dispute Settlement Proceedings. A number of important authors on the subject will be summarized. In some way all of these authors agree to a certain extent that developing countries are having troubles in the Dispute Settlement System. They do not agree, however, to the reasons behind this and the solutions to the problem. The authors will be ranked alphabetically.

Are developing countries deterred from using the WTO dispute settlement system? (Abbott, 2007)

The working paper written by Abbott does not conform my initial thoughts regarding the developing-developed cleavage. He first states that the facts and figures considering Dispute Settlement Proceedings seem to point into a possible problem with the system for developing countries. Many authors conclude through these numbers that there is indeed a problem. Abbott, however, reasons that there seems to be little to nothing in the WTO system itself that needs changing. As Abbott says in his conclusion: *“In many poorer members the administrative problems they face rather than the WTO system will be the determinant factor. Having said that, there are some signs that the system does work to provide a ‘level playing field’ and that the opportunities are readily available to all members.”* (Abbott, 2007)

Abbott believes that in most cases, rational decision making by the developing countries itself is at work. The costs outweigh the benefits, or developing countries fear repercussions for filing a complaint against a donor. The legal capacity constraints seen in Schaffer’s study (see Schaffer’s text review) are being handled by the Advisory Centre on WTO Law according to Abbott, and the WTO does not need to concern itself with these constraints.

At the end of his paper, Abbott claims the question is still not fully answered. There are positive and negative points that were discovered in this analysis. Abbott does believe, however, that over time the experience and value added to developing countries as well as the aid given to them by the WTO will improve the situation. Abbott’s view is important for nuancing the economic development variable. There is one area of Abbott’s research, however, that this paper has already brought to light as being a problem. The ACWL gives assistance to those enrolled as developing countries within the WTO only if they pay for their

membership (unless they are amongst the least developing countries). This developing country status is given by the other countries only if a country specifically asks for it. In order for Abbott's prediction to become reality, this particular part of the WTO might need to be adjusted (Abbott, 2007).

Participation in WTO Dispute Settlement (Bown, 2005)

In 2005, Chad Bown wrote a paper concerning Dispute Settlement participation. He attempts to investigate why some countries do not participate, and whether the incentives created by the new system discourages developing countries instead of encouraging them. Chad Bown believes that even though the basic rules and procedures of dispute settlement under the World Trade Organization (WTO) are the same for all members, there is a substantial concern within the academic community that the trading interests of certain types of members, such as small or developing economies, may be underrepresented in dispute settlement activity. According to Bown this bias can be caused by several reasons: "*A bias in participation activity may stem from the current system of self-representation requiring that countries have sufficient resources to both monitor and recognize relevant WTO violations, and to fund legal proceedings in cases in which their rights have been violated.*" (Bown, 2005)

If there is an institutional bias or if there are other influences that affect participation of the poorer, less developed countries, these countries could be missing out on DSM activities that could be crucial to their trading interest. Bown uses actual detailed trade data to figure out under which circumstances countries are more likely to participate in formal trade disputes. His research concludes that despite market access interests in a dispute, an exporting country is less likely to initiate a dispute if it does not have the power for trade retaliation or if it is not capable to absorb the substantial legal costs associated with initiation. It also matters if the country is particularly reliant on the respondent country, or if it is engaged with the respondent in a preferential trade agreement. According to Bown these characteristics are normally associated with developing countries. In other words, he finds an institutional bias.

Bown's research only contains data from 1995-2000, but it does come up with the conclusion that developing countries get less chances to initiate than developed countries. He explains that this has several reasons, one of them being lack of economic development and/or export at stake, another being that the WTO might have a free rider problem. Whatever the reasons and consequences, Chad Bown stresses that developing countries get less chances to initiate,

and that one of the reasons behind this is their economic development and an institutional bias (Bown, 2005).

Who Files? Developing Country Participation in GATT/WTO (Davis, 2009)

Christina Davis also takes a closer look at who files a dispute in the WTO Dispute Settlement Mechanism. More specifically, she checks out developing countries' initiations. Davis claims that developing countries cope with high startup costs, and are therefore less likely to initiate disputes initially. After having some experience with the legal system, as a complainant or as a defendant, breaks this barrier. As Davis puts it: *"The potential for international law to reduce power asymmetries depends on weaker countries learning to navigate the legal system. As weaker countries overcome these initial capacity constraints they will increasingly benefit from the international legal structures they have joined."* (Davis, 2009)

Davis believes that the current explanations for developing countries' lack of dispute initiation do not show the full extent of probable influences. Since most authors claim that trade interest, power and capacity emphasize the role of economic variables, Davis believes that though it can explain a lot of country cases, it forgets about the possible learning curves associated with learning how to navigate a legal system. Whether the developing countries come across a case so important to them that it nullifies their information costs or that they are summoned as defendant regarding a case does not matter. This experience raises the information a country has regarding the legal system, and will ensure that the threshold to initiate another dispute will remain perpetually lower.

The paper written by Christina Davis offers another side to the story. It nuances the influence economic factors have. They are important factors in trying to determine why countries initiate or why they do not initiate. But it is interesting to look at these factors as an initial barrier that can be breached once a country attains enough information (Davis, 2009).

Developing Countries and Enforcement of Trade Agreements: Why Dispute Settlement Is Not Enough (Hoekman, 2007)

Chad Bown and Bernard Hoekman declare that poor countries or developing countries rarely challenge or get challenged within the Dispute Settlement Mechanism, which reduces their benefits of participating in international trade agreements. The gentlemen agree that: *"A lot of research and analyses of developing countries' lack of engagement in WTO dispute settlement focuses on hurdles to participation as complainants or interested third parties in disputes*

related to their export market access interests. Within this area of research, there is a growing political-legal-economic literature analyzing the failure of poor member countries to engage actively in the World Trade Organization (WTO) (Hoekman, 2007)

Although they do agree on this part, they also point out that a key part of the Mechanism is not thoroughly looked at when it comes to participation: Developing countries as respondents. They focus on the fact that it is unlikely that developing countries are in full compliance with agreements, and yet so few of them are challenged. This means, in their eyes, that the WTO fails at enforcing their own provisions of trade agreements, which reduces the value of the developing countries as participants.

This reduced participation value due to lack of enforcement can be categorized as welfare economic losses. These losses stem from continued import protection within developing economies; diminished incentives for the country to take on additional WTO commitments such as reducing tariff bindings, and externality costs imposed on other developing countries.

The main concern of Bown and Hoekman is that even if a poor country decides to use the WTO dispute settlement mechanism fully, the current system makes enforcement unlikely. This in turn implies that developing countries are not realizing the full economic benefits of WTO membership. Bown and Hoekman see a bias between developing and developed countries in the whole system of the WTO. According to them, *“making the WTO DSU mechanism work for developing countries requires that foreign governments deliberately pursue enforcement actions even if they have no market access incentive to do so. The likelihood that countries can pursue such “tough love” in a credible manner is low, and the political feasibility of this possibility appears to be very limited.”* (Hoekman, 2007)

Is the use of the WTO Dispute Settlement System biased? (Horn, 1999)

Horn, in collaboration with Mavroidis and Nordström, also looked into the possible institutional bias within the Dispute Settlement System. They looked at the facts and figures regarding initiation, and immediately saw a pattern. Most poorer countries never initiated, and the main users of the WTO DSM were the larger trading nations. Instead of simply looking at the number of initiations a country makes, this paper wants to check the correlation initiation has with exports. As the authors state: *“The purpose of this paper is to initiate an examination of whether countries challenge trade measures to the extent one would expect on basis of their trading interests, and if not, what the reasons might be for the observed discrepancies.”*(Horn, 1999)

Horn, Mavroidis and Nordström believe that the chances for countries to encounter possible problems with their trade partners and having to take measures is proportional to the diversity of a country’s exports over products and partners. Larger and more diversified exporters would be more likely to initiate a dispute in the DSM. They attempt to create a predictive model that takes this into account, as well as litigation costs. They conclude that the predictive power is quite high. They therefore argue that the problem is not just an institutional bias, but more a matter of how big of a trading nations you are. The more you have at stake, the more likely you are to initiate (Horn, 1999).

This conclusion is extremely important for both of my independent variables. The authors believe that having a large amount of trade at stake is connected to being a developed or developing country, and that this is the main influence on initiation. Some questions are still unexplained, such as the disproportionate use of the system by several countries. This does leave the question: does power or legal capacity have a firm influence on this as well? Since these things are closely related to being a developed or developing nation, it still leaves space for the economic development variable.

Divergent Effects of Legalization in the GATT/WTO Dispute Settlement Procedures (Moonhawk, 2008)

Where Schaffer sees the flaw in the system mainly because of a developing countries’ lack in economic and legal development, Kim Moonhawk looks at it from a slightly different perspective. Moonhawk believes that the legalization of the system has had divergent effects. In his words: *“Whereas legalization decreases uncertainty and increases convergence of countries’ expectations on international outcomes, it imposes costs on countries by increasing*

the complexity and difficulty of procedures for them to utilize. For countries without administrative capacities to follow suit, the potential benefits are offset by their difficulty in following the procedures.” (Moonhawk, 2008)

By comparing GATT disputes to the WTO DSM, Moonhawk concludes that developed countries, and not the developing ones, have gained the most because of the legalization. This means that the whole idea to legalize the Settlement Procedure in order to create a neutral, equal system has turned out to be the exact opposite of what it was trying to achieve (Moonhawk, 2008).

It is important to keep this statement in mind. In order to conceptualize developing and developed countries, this dissertation looks at their level of economic development to define them. There is, however, also a legal and human capital side that can play a pertinent role, not just economic development. One can safely assume that the legal capacities as well as the human capital of a developing country is much lower than that of a developed country.

How to make the WTO dispute settlement system work for developing countries (Schaffer, 2003)

In his paper ‘How to make the WTO dispute settlement work for developing countries’, Gregory Schaffer describes the WTO DSM in the following way: *“The system remains far from a neutral technocratic process in its structure and operation. Large developed countries are much better-positioned to take advantage of the resource-demanding legalized system and have done so.”* (Schaffer, 2003) It is quite clear that Schaffer believes there is a clear bias visible in the Dispute Settlement Mechanism. He attempts to explain how the system works, why developing countries are at a disadvantage and how the WTO can possibly solve this.

He believes that there are three major problems for developing countries to overcome: A lack of legal expertise, a lack of financial resources and a fear of political and economic pressure. Not only do these three problems cause developing countries to give up on initiating, Schaffer also believes that developing countries have less incentives to do so.

The three major specified problems creating havoc on a developing country’s initiation can be solved if certain needs are met. There is the need for internal reform. Countries must develop cost-effective mechanisms in order to perceive possible threats to their trading posts. The second need is the need for cost-effective legal assistance. Developing countries need external cost-effective legal assistance to help identify, pursue and defend their WTO rights. This

however, can be facilitated by the Advisory Centre on WTO Law. Developing countries may use the Advisory Centre in different ways, depending on their level of development and the frequency with which they participate in WTO disputes. The last need according to this paper is the need for North-South NGO-Government alliances in order to alleviate the fear of economic and political pressure.

Once these problems are fixed, one last problem, namely the system the way it is now, should be slightly modified. Right now, Schaffer believes that the system's way of compensating or remedying violations is structurally biased in favour of countries with large markets, such as the United States and European Community.

It can be concluded that Gregory Schaffer believes that a bias between developing and developed countries exists due to several reasons. This bias negatively influences developing country's initiation and should be mended, not only at the WTO as a whole, but also from a developing country's perspective in order for the Dispute Settlement to work properly (Schaffer, 2003).

3.3 Trade interdependence and initiation

This part shall look into some texts that clarify the trade interdependence variable. This variable has not been used often in attempts to explain WTO initiation. Many authors mention exports and their influence on initiation, but they do not look at the full trade picture, and if the countries are dependent on their international trade. It is meaningful to look at the more general trade interdependence, because it can teach us more than simply looking at exports or imports alone.

Trade interdependence is mostly linked to conflict theory, as can be seen in the literature study of this variable (Barbieri, 1996; Mousseau, 2000). Yildirim's dissertation will link it to compliance with international law (Yildirim, 2013). It is, however, equally significant to look at the theories regarding trade interdependence and conflict theory, since it will explain the concept better and because it shows a different perspective that can be quite useful. It is intriguing to look into theories regarding trade interdependence and conflict theory, because these theories may align with the initiation theory due to its international scope. If authors believe that trade interdependence is important enough to influence conflicts on an international level, then surely there is a possibility that it can influence initiation at the WTO dispute settlement mechanism? (Barbieri, 1996)

This chapter first looks at several authors that theorize about trade interdependence and conflict theory. After that, the text that focuses more on the trade interdependence and initiation will be examined. This part of the literature study is significantly smaller than for the other independent variable. This has numerous reasons. Not only is the level of economic development a large field of study within WTO initiation, where various different possible explanations for a bias are found, discussed and put forward by numerous authors. It is also a much clearer concept than trade interdependence, with less possible ways to calculate it. The texts that are discussing trade interdependence here all look at this variable in the same way as this thesis will regarding its calculation. This measure was taken so that the literature study would not be unnecessarily confusing. There are several different views on the influence of trade interdependence in the literature study of this variable, but as was aforementioned, they are all based on the same formula.

Economic interdependence: A path to peace or a source of interstate conflict? (Barbieri, 1996)

Katherine Barbieri investigates the long-standing hypothesis that trade ties facilitate interstate peace in her essay. She does not merely assume that trade promotes peace, but rather stresses that the nature and the context of the economic linkages are important factors in determining whether trade ties lessen or increase the chances of interstate conflict. For many authors, foreign trade represents the best path towards peace and prosperity among nations. The trade-conflict debate has long focused on whether the benefits derived through trade outweigh the costs associated with economic dependence. Barbieri sees the answer to the question: does trade promote peace? as very important because of the implications: *“The question of the impact of trade on interstate relations is not only theoretically interesting, but has important policy implications. For centuries nations have clung to the hope that trade and interstate ties will cement the bonds of friendship that make the resort to arms unfathomable. Yet, little evidence has been provided to substantiate such claims.”*(Barbieri, 1996)

Barbieri does not only consider the liberal trade hypothesis, namely that trade promotes peace regardless of the nature and context of the economic linkages. She also investigates the proposition that the nature and context of the economic linkages affects the ability of trade to promote peace. This proposition assumes that only symmetric trade relations may foster peace, while asymmetrical dependences may cause conflictual interactions. She also examines the possibilities that trade increases the chance that conflict arises or that trade is completely irrelevant to conflict.

She conceptualizes the trade relations between countries by looking at trade interdependence. This is where this study becomes important for this dissertation. Interdependence generally implies relations of mutual need and, by extension, mutual vulnerability between actors, while dependence denotes asymmetrical relations. Barbieri's conceptualization of trade interdependence is extremely important for my dissertation. According to her, the primary difficulty in operationalizing interdependence arises from the absence of a clear consensus about what the phenomenon entails and how it should be measured.

Barbieri states that Hirsch identifies more than sixteen operationalizations of trade dependence in his review of two decades of dependency research (Hirsch, 1981). Similarly, Hughes demonstrates the impact that different conceptions and operationalizations of economic integration have on empirical findings (Hughes, 1971). As such, inconsistencies in empirical research on the trade-conflict relationship may be attributed in part to these differences in operationalization. The indicators Barbieri used to capture trade interdependence are based upon, but are not identical to, Hirschman's concentration of trade index (Hirschman, 1980). She calculates the share of trade each state maintains with each partner in order to assess the relative importance of any given relationship compared to others. Since this is what this thesis will base its conceptualization of trade interdependence on, this conceptualization will be looked at more closely in the next chapter.

Barbieri's study provides little empirical support for the proposition that trade provides a path to peace. Even after she controls for the influence of several independent extra variables, the evidence of this study suggests that in most instances trade fails to stop conflicts from happening. Instead, strong economic interdependence increases chances that countries engage in militarized dispute in certain cases. It does, however, appear to have little influence on the incidence of starting wars (Barbieri, 1996).

***Market Prosperity, Democratic Consolidation, and Democratic Peace
(Mousseau, 2000)***

Mousseau attempts to explain democratic peace and consolidation in a single model. This model predicts democratic values to arise in countries with a more developed market economy. The pacifying influence of democracy seems a lot stronger in developed countries. Within conflict theory Mousseau believes, unlike Barbieri, that a strong economically developed country has more democratic values, and that this increases chances of peace. *“If individuals in developed market economies tend to share the social and political values of exchange-based cooperation, individual choice and free will, negotiation and compromise, then individuals in developed market economies tend to share democratic values.”* (Mousseau, 2000)

Mousseau’s work uses trade interdependence as an independent variable in his works, which makes it worth it to investigate it further. Not only does it give a different perspective to conflict theory than Barbieri’s work, but it also incorporates trade interdependence as a control variable to check if it influences peace and democratic values (Barbieri, 1996; Mousseau, 2000).

Mousseau believes that democratic nations trade a lot and thus may be more interdependent than others. If trade does promote prosperity, then the impact of market prosperity on peace may be a consequence of trade interdependence. He also conceptualizes trade interdependency as the sum of international trade divided by GDP. This is the most current, easy and logic way of doing it. Barbieri and Yildirim use this conceptualization as well (Barbieri, 1996; Mousseau, 2000; Yildirim, 2013).

To test if democratic peace is a consequence of trade among developed nations, he uses the variable trade development: a product of trade interdependence and development. In the results of his empirical study, the coefficient for trade development is negative and significant. Levels of development in democracy are also negative and significant. This means that despite the potent effect trade development has, developed democracy is still an extremely important factor (Mousseau, 2000).

For this thesis, the fact that there is a significant effect due to trade development is very interesting. It cannot, however, be used to the fullest to base my hypothesis on, because trade interdependence is a factor within the variable Mousseau, not the variable as a whole. The fact

that it does influence peace and conflict as a part of a variable does prove once more that within an international environment, this variable can have a significant effect. This variable can prove to be an important part of the puzzle, especially in an international trade environment.

From Trade with Love: Compliance with International Law and the Impact of Trade (Yildirim, 2013)

In from trade with love, Yildirim tries to explain compliance with international law by looking at trade relations and dependence regarding developing countries. He looks at compliance as dependent variable, and the independent variable here is trade interdependence. Is trade interdependence an influencing variable on the compliance of developing countries? If so, then this proves promising for my dissertation. Should it prove to be significant in Yildirim's study, I would not be surprised that trade interdependence also has a role to play in initiation.

Yildirim explains trade interdependence as: *"The level of dependence of a state to the global economy and the flow of the commodities traded. It is measured by the level of multilateral export and import levels, relative to GDP (PPP)."* (Yildirim, 2013) In his work, Yildirim explains quite clearly that trade interdependence can be calculated in several ways, but that he chooses to use Barbieri's approach because of several reasons (Barbieri, 1996). First of all, this calculation doesn't differentiate between economic sectors in one country and secondly, this approach is very straightforward, with easy access to reliable data.

Looking at Yildirim's initial hypothesis: *"States that become more financially open, integrated, and economically interdependent increase their compliance with international law."* (Yildirim, 2013) The hypothesis put forward by him proposes a positive link between compliance and trade interdependence.

In his general analysis, however, Yildirim finds no significant correlation between trade interdependence and the compliance record. Although the aggregate results are seemingly in contrast with the study's hypothesis, the picture changes when he investigates further and only includes the "most active" developing states in the WTO system. In his work, he shows that there is a possibility that trade interdependence influences compliance when it looking at the bigger developing country players in the WTO. This is quite promising for the analysis of this dissertation, since his work does not only revolve around trade interdependence and provides us with a clear concept, it also investigates trade interdependence within the WTO

environment. Yildirim's work will be a great help to conceptualize the second independent variable in a clear way (Yildirim, 2013).

4. Research methods and design

In this chapter, both of the independent variables will be discussed in more detail. First we will conceptualize economic development classification, and afterwards trade interdependence. The dissertation needs full concepts that show us the complete definitions of the terms that are used, in order to write the hypotheses for both variables' influence on initiation.

4.1 Conceptualization economic development classification

After reviewing the texts within the literature study regarding developing versus developed countries in the WTO Dispute Settlement System, a pattern clearly becomes visible. Not all the authors agree on why developing countries seem to lag behind the developed countries when it comes to initiating a dispute in the Dispute Settlement Mechanism, but most of them seem to agree that this poses a problem for developing countries. Whether it is because of an institutional bias within the WTO itself, because of economic factors or because of a lack of initial information regarding the legal system, developing countries seem to have difficulties initiating. It is, however, important to take into account most of the nuances made by the authors aforementioned. Before conceptualizing and defining the first independent variable, all of the opinions of these authors are put together in a table in order to compare them in a more suitable way (Hoekman, 2007; Schaffer, 2003).

Author	Under-Representation developing countries?	Mostly for an Economic or Institutional reason?	Need for a WTO system change?	Specific nuance made by author regarding subject?
Abbott	Yes	Economic	No	Rational decision making not to initiate
Bown	Yes	Institutional	Yes	Detailed case analysis of 1995-2000 data
Bown & Hoekman	Yes	Both	Yes, but improbable	Developing countries as respondents
Davis	Yes	Institutional	No	Focus on high startup costs, information bias
Horn	Yes	Economic	No	Economic factors (export) as predictors
Moonhawk	Yes	Institutional	Yes	Legal and human capital constraints
Schaffer	Yes	Both	Yes	ACWL for developing countries

Table 3: Comparison of authors for developing versus developed country variable, data from sources mentioned in Chapter 3

Looking at table one, it is pretty clear that all of these authors believe developing countries are in fact underrepresented in the WTO Dispute Settlement System, even though they do not agree with one another on why this is the case. Some authors believe there is an institutional bias towards developing countries due to the WTO DS system. Others believe that developing countries do not receive the same economic incentives such as export stakes in order to initiate as much as developed countries. However, there are also some authors that believe this is due to a balanced mix of these two reasons (Davis, 2009; Moonhawk, 2008; Schaffer, 2003).

The representation of developing versus developed countries in recent literature surrounding the WTO Dispute Settlement Mechanism shows why the economic development classification variable is so important. This is why it is my first independent variable in the search for influencing factors on initiation. Before construing the correct hypothesis, it is imperative to define the concept of a developing country versus a developed country, and explain where and why my focus is on one part of the global definition and not on another.

When thinking about economic development, it is obvious that an economic gap exists between developing and developed countries (Daly, 1997). One of the definitions used to define a developing country is that “A developing country is a nation with a lower living standard, underdeveloped industrial base, and low Human Development Index (HDI) relative

to other countries” (Sullivan, 2003). It is therefore assumed that developing countries have a lower level of economic development and the choice is made to define a developing country as economically less developed than developed countries. This author chooses not to focus upon other variables within the definition “developing country”, such as human capital or administrative capacities, for several reasons. Firstly, a developing country variable is nearly impossible to operationalize if you have to look at legal capacity, administrative capacity and human capital as well as level of economic development (Davis, 2009; Moonhawk, 2008; Schaffer, 2003). Not only would this complicate the variable, but it is not completely necessary in this variable’s case. Most of the other defining features of developing countries in the institutional function of the WTO can be at least partially explained by economic factors. In some way, it is possible to trace back the human capital or capacity problems by explaining them as consequences of a lower economic development. We therefore choose to operationalize developing versus developed countries as being an economic development classification.

Another reason for choosing the economic aspect for development is that it is easier to classify countries into type categories by GDP or income classes (WorldBank, 2008). That brings the dissertation to the classification/categorization issue. This variable should be kept as objective as possible, and that is why the WTO classification for developing countries is not the number one choice here. Instead, the UN statistical annex database is used (UN, 2013). This is the better choice for two reasons. The first reason is that it is more objective. As Schaffer said in his paper, developing country status within the WTO is something that countries have to apply for, and this has to be ratified by other members. This is not a status based on economic facts (Schaffer, 2003; WTO-h, 2014). The second reason is so that the test also correctly classifies developing countries that could have a need for the ACWL. This way, it can prove to be a rational explanation as to why some countries don’t initiate. Some WTO members could have lacking capacities, and no developing country status, so that they cannot fully use the ACWL the way they should be able to (Davis, 2009; Moonhawk, 2008).

All the WTO member countries will be classified in one of four groups. This classification is based on UN data, which bases itself upon economic factors such as income and GDP. The four groups are: developed countries, emerging countries, developing countries and least developed countries (UN, 2013). This classification will grant the chance to look into some specific facts regarding these groups, in order to get a clearer picture.

After clarifying the term economic development classification as well as looking more clearly at the conceptualization, we can now construe a correct hypothesis regarding the influence of the economic development classification on initiation in the WTO Dispute Settlement Mechanism: *H1: Developed countries are more likely to initiate WTO Disputes than developing countries because of their level of economic development.*

4.2 Conceptualization of trade interdependence

The second variable, trade interdependence, also needs a clear conceptualization before phrasing the second hypothesis with regards to this variable. The conceptualization of trade interdependence will be different from the conceptualization of the level of economic development because of several reasons. First of all, the literature reviewed in the previous chapter regarding trade interdependence was specifically chosen because it more or less used the same formula for the calculation of trade interdependence. This was done for the consistency and logic of the dissertation. Secondly, the link between WTO initiation and trade interdependence is a lot less clear. As was mentioned before, many authors mention exports when it comes to influence on WTO initiation, but they do not look at trade interdependence. This narrows the perspectives in which the variable can be looked at. In order to get a clear image of the authors and their ideas, the authors' ideas will be briefly summarized one more time before conceptualizing the second independent variable of this dissertation.

These texts focus on either conflict theory or compliance theory. Conflict theory looks at trade interdependence and its influence on the possibility of armed conflict, while compliance theory looks at trade interdependence and its influence on complying with international law. These are both important because of their international scope. The results in these studies can be preludes to what this study might encounter. As was mentioned before, all three texts use the same formula, which is Barbieri's way of calculating trade interdependence. All three studies also expect different results because they follow different theories (Barbieri, 1996; Mousseau, 2000; Yildirim, 2013).

Barbieri looks at 4 hypotheses, but the one she believes to be correct is that the link between trade interdependence and peace depends on the context and the type of the economic linkages. She finds this hypothesis to be correct in her analysis (Barbieri, 1996). Mousseau starts from a very positive view, that democratic values arise from higher market stability and development. He expects this, however, to be influenced by trade interdependence. His results do not fully agree with him. Instead, he finds negative linkages that he did not expect to be

there. He also mentioned that this would require further studying (Mousseau, 2000). Lastly, Yildirim's subject of analysis lies closest to my dissertation. He believes that compliance to international law will be influenced by trade interdependence. This hypothesis, however, was not accepted in his full case study. Only when looking at the large developing countries did the theory stand (Yildirim, 2013).

Trade interdependence will be defined in the words of Yildirim: "*The level of dependence of a state to the global economy and the flow of the commodities traded. It is measured by the level of multilateral export and import levels, relative to GDP (PPP).*" (Yildirim, 2013) So in the dissertation, we specifically choose to use the same calculation as all of these authors use for trade interdependence:

$$\textit{Trade interdependence} = \frac{\textit{(Total Imports + Total Exports)}}{\textit{Gross Domestic Product}}$$

As was mentioned before by Yildirim, this calculation is not only easier to get data for. It is also more logical, because it does not use economic sectors in its calculation, but looks at the economy of a country as a whole. Since countries are looked at as a whole in the WTO Dispute Settlement Mechanism, it seems fitting to choose this formula over more complicated ones. To conceptualize the formula further, data for all the countries' exports, imports and GDP in US dollars will be collected to analyze this variable (Barbieri, 1996; Yildirim, 2013).

Now that the formula that is used to calculate trade interdependence is clear, certain key aspects surrounding this variable and its hypothesis should be stressed. Since this variable has few clear cases in literature that fully link it to Dispute initiation in the World Trade Organization, it seems difficult to hypothesize its effect at first. We attempt to do this by using Mousseau, Yildirim and Bown as references.

First of all, the text of Bown shows us some general references to export and trade. Countries with less trade at stake should logically have less interest in the Dispute Settlement. Most of the time, countries that trade less are developing countries. Therefore, Bown assumes that countries with lower exports are mostly developing countries, and that they will initiate less in the Dispute Settlement (Bown, 2005). This statement raises an important question. Since trade interdependence is calculated with export in its formula, are the independent variables used in this dissertation correlated? We would like to first point out that imports and GDP are also used in this formula, and that this makes for quite a different image. When only looking at

exports, it is natural that developed countries with greater GDP have greater exports. But when you look at trade interdependence as it is written in the used formula, the denominator in the fraction is GDP, which suggests that it at least partially corrects this bias (Barbieri, 1996). Therefore it should not be fully linked to the developing-developed cleavage. It will rather look at how much your economy depends on international trade as a whole. Secondly, in the actual analysis there will be a correlation test to see if this correlation does or does not exist (Horn, 1999).

In order to find a decent hypothesis, we will start by using the logic that Mousseau uses in his paper. To summarize, the logic of Mousseau starts at the bottom of the chain. A highly developed economic market uses contracts to hire people. Contracts are binding because people believe in certain values and morals surrounding the creation of binding contracts. These values are shared by most of the people living in the countries with these economic market. And *“If individuals in developed market economies tend to share the social and political values of exchange-based cooperation, individual choice and free will, negotiation and compromise, then individuals in developed market economies tend to share democratic values.”* Mousseau uses this to predict and hypothesize the results of his analysis. I believe I can do the same. Namely, by combining Mousseau with Bown regarding Yildirim’s field of study (Mousseau, 2000).

The theory used in this dissertation consists of the following chain: If countries have a higher trade interdependence, they are more dependent on international trade than on national trade in their economic system (Mousseau, 2000). This leads to believe that they should have “more at stake” on the international playing field, such as Bown said regarding exports (Bown, 2005). If this can apply to exports, it could at least partially apply to trade interdependence. When countries with high trade interdependence do have more at stake (import or export wise), they should deem international laws regarding trade extremely important. Countries should then find it important that these laws are correctly executed so that they do not harm their trade interests. This would trigger them to keep an eye out for possible violations, and therefore, be more prone to find them as well as more likely to initiate a dispute in the WTO Dispute Settlement Mechanism in order to right them (Horn, 1999; Yildirim, 2013).

There are several nuances that should be made regarding this theory. There is the possibility that this variable is influenced by the level of economic development. Not only is it necessary in this theory for countries to have equal access to human and monetary capital in order to

keep an eye out on international law (Davis, 2009; Moonhawk, 2008), but it is also quite possible that developed countries are more dependent on international trade. They have been around in international trade longer, more frequently and in a more stable way than developing countries have been (Horn, 1999). It is therefore imperative to check for correlation in my data analysis. To return to the point made about human capital: it is impossible for all 159 countries in my analysis to have equal access to social or monetary capital. It is also, however, extremely difficult to correct for this error unless I attempt to weigh how much human capital as well as monetary capital every country has and correct my data to adjust to these differences (Schaffer, 2003; WorldBank, 2008). I believe this task is immense, and that it is not only extremely difficult to do for 159 countries due to scale as well as lack of data. I therefore do not do this in my analysis. Despite these possible flaws in my theory, I do believe that this theory makes sense and follows the logic of different authors. It will form the baseline of the second hypothesis.

What results are to be expected from this analysis? Seeing as countries with higher trade interdependence should have more at stake internationally than those with lower trade interdependence, we do expect that this variable influences countries to initiate in a positive way. The higher the trade interdependence, the more chances are a country will initiate. *H2: WTO Members that have a high trade interdependence are more likely to initiate a dispute in the WTO Dispute Settlement Mechanism than members with less trade interdependence.*

5. Data, analysis and results

This chapter focuses on the empirical analysis of the dissertation. The first subchapter will go through all the data that was used in this analysis and explain its origins as well as why I chose to use this data instead of other possibilities. Most of these choices have already been mentioned in the previous chapter, but to be complete, they will be discussed here in more detail. The second subchapter shall explain which program was used to analyze the data, as well as which techniques were used and why. Thirdly, the actual analysis and the results will be interpreted and explained. This is done to make sure that this data analysis is clear, as well as provide other researchers with a decent background so they can attempt to reproduce these results.

5.1 The Data used

In order to test these hypotheses, data has been collected from various sources. The data contains all the initiated disputes in recent WTO DSM history (WTO-d, 1995-2013). This means all of the cases that have made it through to the full Dispute Settlement Mechanism since 1995 are in this dataset. These cases are classified per country that initiated them in order to compare these countries with one another in the analysis. A list of all the WTO countries was used to do this, as well as the DSM site (WTO-e, 2013).

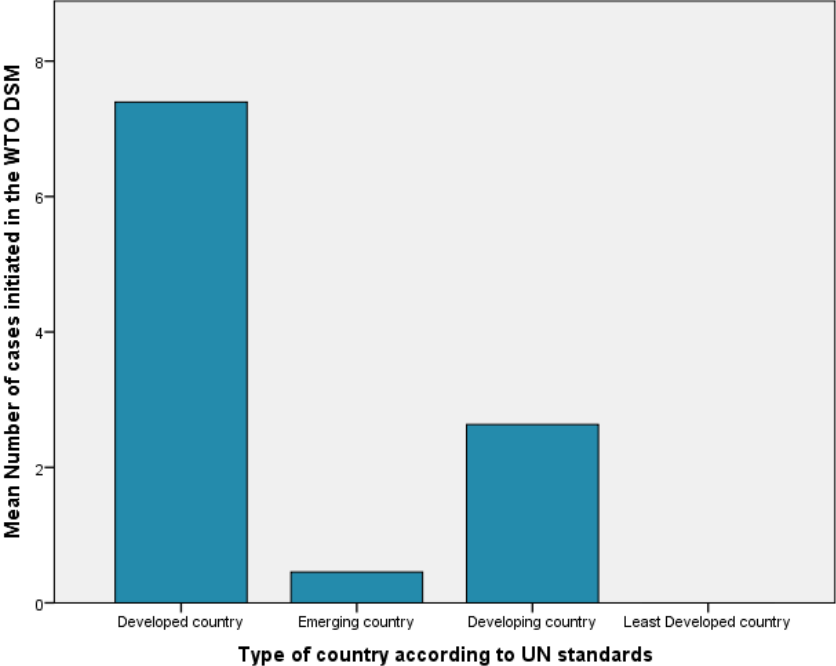
Just like mentioned in the conceptualization chapter, the countries are categorized in 4 UN categories of development within the spreadsheet for the first hypothesis. These categories are Developed, Emerging, Developing and Least Developed countries. These 4 categories will be reorganized into 2 categories for the sake of the primary hypothesis (UN, 2013). Developed and emerging countries are naturally classified as developed countries. Developing and least developed countries are classified as being the developing countries. This is done so that the hypothesis can be tested on a developing-developed cleavage, since this is what the hypothesis is based upon.

For the second hypothesis, it was imperative to collect total export (CIA-b, 2012), import (CIA-a, 2012) and GDP variables (WorldBank, 2008) from several reliable sources, which are used to calculate the trade interdependency. In order to calculate the trade interdependency the formula that Barbieri used in her work seemed the better choice, as was mentioned before in the conceptualization chapter (Barbieri, 1996).

Since some countries joined the WTO at a later date than others, there were doubts to change the initiation variable from just “number of initiations during membership” to “average number of initiated cases per year”. This would take away any possible biases regarding timeframes. After attempting to analyze this several times, however, the author concluded that this change in data would erase more than 40 of the 159 country case files from the Poisson regression. This would negatively influence my analysis and conclusions. In the end, it seemed more necessary to keep the total number of initiations.

5.2 SPSS techniques used

The first thing to do in order to determine which analysis should be used on the available data is to run some general tests to check for skewedness in the dataset, as well as plot some basic graphs. A histogram plotting the type of country against the mean number of cases initiated taught us that there might be a skewedness problem in the data.



Graph 1: Histogram of type of country and number of initiated cases

Counting and plotting showed that the dataset had 49 developed countries that filed 286 disputes, an average of 5.84 disputes per country. The 110 developing countries however, only initiated 216 disputes, or 1.03 disputes per country. Plotting this on a histogram visually shows that the developed countries take the lead when it comes to initiating, with the least developed countries literally nowhere to be found, 0 dispute initiations.

In order to see the strength of the relation between the dependent and independent variables, the first regression that comes to mind is a linear regression analysis. But, as was mentioned before, the histogram showing initiation in the different categories pointed out that the dataset might be skewed. After running a Kolmogorov-Smirnov test and plotting a boxplot, it showed that the non-categorical variables were not normally distributed and the distribution of the cases itself were very skewed. (UCLA-d, 2014)

Test of normality: Kolmogorov-Smirnov	
	Sig.
Number of cases initiated in the WTO DSM	0.000
Trade interdependence	0.000

Table 4: Test of normality from the original Poisson-regression dataset

Since linear regression is not possible due to the skewedness of the data and the dataset is also dealing with count data, the chosen analysis for this dissertation is a Poisson regression analysis. The next chapter will display the results for this analysis (UCLA-a, 2014).

5.3 Analysis and results

The first thing that needs to be investigated in the results of this Regression analysis is the Goodness of fit deviance. This checks whether or not the model has a high predictive value and if it is the best model available for this dataset. In this Poisson regression, the goodness of fit deviance has relatively high numbers. This could mean that the Poisson regression is not the best model possible for the dataset. The numbers read 8.871 and 49.176, which is too high (UCLA-c, 2014). That could be a problem because it can generally alter the predictability of the regression analysis due to high deviance. Although this is the case, the model itself is still significant and with the skewedness of the data in general, the author believes that this model will be a decent fit nonetheless.

After checking the goodness of fit deviance, it is time to move on to the omnibus test. This is the test that shows whether or not the Regression Analysis model is significant. The omnibus test for the Poisson regression analysis reveals that the general model is significant, which means that the results it generates can be interpreted and conclusions can be made off of this model (UCLA-a, 2014).

Omnibus Test^a

Likelihood Ratio Chi-Square	Df	Sig.
759.915	3	0.000

Table 5: Omnibus test
 Dependent Variable: Number of cases initiated in the WTO DSM
 Model: (Intercept), UN_type2, Trade_Interdependence, UN_type2 *
 Trade_Interdependence

After looking at both goodness of fit deviance and the omnibus test, it is time to look at the parameter estimates (see table 6 below). The parameter estimates look at the independent variables and its influence on the dependent variable. It measures whether or not the influence each independent variable has on the dependent variable is significant and how positively or negatively linked this influence is exactly (UCLA-a, 2014). For this Poisson regression model both of the independent variables do significantly influence the dependent variable. Dispute initiation is significantly influenced by level of economic development, as well as by trade interdependence. This can be read in the Sig. column of the table. The Exp(B) column tells us how much it is influenced by the independent variable(s) and it what way (UCLA-b, 2014).

Parameter Estimates			
Parameter	Std. Error	Sig.	Exp(B)
[UN_type2=1]	0.2246	0.000	60.125
Trade_Interdependence	0.2227	0.000	0.44
[UN_type2=1] * Trade_Interdependence	0.492	0.000	0.001

Table 6: Parameter Estimates from the original dataset
 Dependent Variable: Number of cases initiated in the WTO DSM
 Model: (Intercept), UN_type2, Trade_Interdependence, UN_type2 * Trade_Interdependence
 a. Set to zero because this parameter is redundant.
 b. Fixed at the displayed value.

First, an explanation of the Exp(B) value is in order before the results can be interpreted. When the Exp(B) value is between zero and one, there is an inverse association between this parameter and the outcome variable. Anything above one would indicate a positive relationship between the outcome variable and the parameter (UCLA-b, 2014). As can be read in the parameter estimates table, the first parameter is UN_type2 = 1, which is the category of developed countries. The Exp(B) for when a country is a developed country is 60.125 As was said before, if the value lies above 1, there is a positive effect. Developed countries here have 60.125 as Exp(B). This means that a developed country is very likely to initiate a dispute. This is for developed countries. What about developing countries? This is, of course, the inverse effect. The Poisson regression analysis leaves out this parameter by setting it to 0. It does this automatically because SPSS believes that checking for it is redundant (UCLA-c, 2014).

This Exp(B) of 60.125 shows that developed countries are more likely to initiate a dispute in the WTO dispute settlement mechanism. The first suggested hypothesis, H1, was “*Developed countries are more likely to initiate WTO Disputes than developing countries because of their level of economic development.*” After looking at these results, I can conclude that H1 is accepted. The assumption made in the hypothesis is correct.

Moving on to the second independent variable, trade interdependence. The Exp(B) for Trade interdependence is 0.440, meaning that there is an inverse association with the dependent variable initiation. According to the data, this means that a country initiates less cases when it has a higher trade interdependence. This does not coincide with what was thought initially about the influence that trade interdependence had on Dispute initiation. This is also not what other authors within the field would expect. Just like the initial hypothesis put forward by Yildirim, which proposes a positive link between compliance and trade interdependence, we believed trade interdependence would have a positive effect on initiation (Yildirim, 2013). The data, however, tells a different story. According to Exp(B) of 0.440, H2, *WTO Members that have a high trade interdependence are more likely to initiate a dispute in the WTO Dispute Settlement Mechanism than members with less trade interdependence*, has to be rejected.

The last parameter in the parameter estimates table displays the interaction between initiation and both parameters at once. When both parameters at once are in effect, it also has a significant effect on initiation. This effect is actually extremely interesting and helpful for the developing countries. Before going over this effect though, I would like to emphasize that the standard error on this variable is higher than on the other parameter estimates. This effect is therefore significant, but a bit less accurate when you translate it to the whole dataset (UCLA-b, 2014).

The effect of variable three translates as follows: For developed countries, a bigger trade interdependence indicates a much lower chance of them initiating a dispute. In other words, when a developed country is highly dependent upon trade with other nations, it is a lot less likely that this country would initiate a dispute. This change in influence can be explained by the possibility that developed countries are more dependent on international trade. As mentioned before in chapter four, developed countries have been around in international trade longer, more frequently and in a more stable way than developing countries have been (Horn, 1999; Schaffer, 2003). It does seem that the link established here between level of economic development and trade interdependence isn't true for all of the cases. This is shown by the

standard error on the third parameter, which is higher than on the other two parameter estimates. That means the two independent variables still nuance each other's effects, but not in the exorbitant way the $\text{Exp}(B)$ of variable three leads us to believe. Even though the outcome of the third parameter should be nuanced, the results of this variable nonetheless do show that the effect of the level of economic development variable is affected by the trade interdependence variable. In the end, this third parameter leads to the conclusion that the outcome of both hypotheses must be toned down in order to capture the full effect of both independent variables.

6. Conclusion

The Poisson regression initially accepts hypothesis one and rejects hypothesis two. Even though there is a lot of deviation on this model, it is still seen as significant. The next few paragraphs attempt to translate these results into possible conclusions and considerations regarding the WTO Dispute Settlement Mechanism and the WTO classification of developing countries. All in all, first looking at just Hypothesis 1, the analysis points out that the WTO might need to consider revising the Dispute Settlement Mechanism to give developing countries more leeway. Another, more probable solution, would be to revise their system of development classification so that the developing countries that need it, but cannot get to it yet, have better access to the provisions made for them. Several authors such as Bown, Moonhawk and Schaffer do believe in that the WTO should consider doing this (Bown, 2005; Moonhawk, 2008; Schaffer, 2003).

If you look at the interaction between both independent variables as well as the dependent variable, the considerations made in the paragraph above need to be toned down. The nuance that the interaction variable gives us is that even if a developed country should be initiating a lot more than developing countries, this effect is lessened due to trade interdependence. Most of the developed countries, as can be seen in the data, have a somewhat higher trade interdependence than developing nations, although there are exceptions. It can therefore be assumed that even though developed countries are much more likely to initiate a dispute according to the first parameter, their trade interdependence negates this effect significantly and gives the developing countries some breathing room. Even though it gives developing countries some breathing room, the effect it has on developing countries is still significant, since the interaction variable has a higher standard deviation. After this general conclusion, it is needed to look at the hypotheses separately one more time.

The developing-developed country bias within the WTO system does seem to be present (Bown, 2005; Davis, 2009; Moonhawk, 2008). The developing countries do seem to lag behind a bit, especially if you just look at their UN categorization. Some authors blame this lagging behind on an institutional bias within the WTO. It is extremely important to note that the developing-developed classification system of the WTO itself was not used in this dissertation. This WTO classification system has certain consequences for developing countries within the WTO. Some of the developing countries are not seen as developing or even as least developed within the WTO classification, and therefore do not have access to the special provisions made for them (Schaffer, 2003).

Whether or not this is what causes developing countries to initiate less is not completely certain, though. Throughout many author's work, as well as mine, it seems quite clear that the classification of the WTO regarding developing countries needs to be adjusted to reality. The WTO gets a lot of criticism for using this system, and after seeing the impact hypothesis one can have on initiation by itself, it can be possible that this influences developing countries. That would mean it should be looked at in more detail. Yet, whether or not this classification of the WTO or the Dispute settlement as a whole is at fault is nearly impossible to fully conclude. There are many more possible explanations that cannot be forgotten. Before ending this dissertation, I believe it is vital to quote some of the authors of the literature study once more to show how many possible explanations are still out there:

“In many poorer members the administrative problems they face rather than the WTO system will be the determinant factor. There are some signs that the system works to provide a ‘level playing field’ and that the opportunities are readily available to all members.” (Abbott, 2007)

“A bias in participation activity may stem from the current system of self-representation requiring that countries have sufficient resources to both monitor and recognize relevant WTO violations, and to fund legal proceedings in cases in which their rights have been violated.” (Bown, 2005)

“The potential for international law to reduce power asymmetries depends on weaker countries learning to navigate the legal system. As weaker countries overcome these initial capacity constraints they will increasingly benefit from the international legal structures they have joined.” (Davis, 2009)

“Whereas legalization decreases uncertainty and increases convergence of countries' expectations on international outcomes, it imposes costs on countries by increasing the complexity and difficulty of procedures for them to utilize. For countries without administrative capacities to follow suit, the potential benefits are offset by their difficulty in following the procedures.” (Moonhawk, 2008)

Regarding the second hypothesis it is still important to attempt to rationalize its rejection. As was discussed earlier during the conceptualization of trade interdependence, this rejection could be caused by the absence of human capital in this theory. It would be an immense task to weigh trade interdependence and/or initiation in accordance with the effects of human or of monetary capital and it was deemed nearly impossible to calculate for this dissertation. It is therefore quite possible that this influences the outcome of this regression (Davis, 2009; Moonhawk, 2008). There is also the distinct probability that the developing-developed cleavage cannot be fully cut off from the trade interdependence variable. Whether or not human capital is the important case variable or that our first independent variable is more at play is difficult to say here. Once more, quoting some of the authors used for this dissertation seems to be a fitting thing to do in this conclusion.

The ability of trade to promote peace is contingent upon the nature and context of economic linkages. In particular, symmetrical trading relations may foster peace, while asymmetrical dependence creates tensions that may eventually manifest themselves in conflictual interactions.” (Barbieri, 1996)

“Expansion of economic activity has the potential to produce a more prosperous environment for the state involved. Very few would contradict that opening access to markets, increasing exports and imports and integrating with the global economy does not have at least the potential to be beneficial for the respective home economy.” (Yildirim, 2013)

Lastly, the effect between the two independent variables is a very interesting turn of events in this dissertation. It was very puzzling that they had such an impact on each other's influence to say the least, and this should be looked at in a more detailed manner since it was impossible to do in this thesis. It could be a good idea for further studies to attempt to find this exact link between trade interdependence and level of economic development, or to test these cases with the four UN categories instead of using merely two categories. Several plausible research paths are still unexplored in this dissertation. I hope that it provides enough answers as well as questions to be looked at in further detail.

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8. Appendix

A. Dataset used (part 1)

<i>WTO countries</i>	<i>Year Joined</i>	<i>Type of Country (UN)</i>	<i># cases initiated</i>
Albania	2000	emerging country	0
Angola	1996	developing country	0
Antigua and Barbuda	1995	developing country	1
Argentina	1995	developing country	20
Armenia	2003	emerging country	0
Australia	1995	developed country	7
Austria	1995	developed country	0
Bahrain, Kingdom of	1995	developing country	0
Bangladesh	1995	developing country	1
Barbados	1995	developing country	0
Belgium	1995	developed country	0
Belize	1995	developing country	0
Benin	1996	developing country	0
Bolivia, Plurinational State of	1995	developing country	0
Botswana	1995	developing country	0
Brazil	1995	developing country	26
Brunei Darussalam	1995	developing country	0
Bulgaria	1996	developed country	0
Burkina Faso	1995	developing country	0
Burundi	1995	developing country	0
Cabo Verde	2008	developing country	0
Cambodia	2004	least developed country	0
Cameroon	1995	developing country	0
Canada	1995	developed country	33
Central African Republic	1995	developing country	0
Chad	1996	least developed country	0
Chile	1995	developing country	10
China	2001	developing country	12
Colombia	1995	developing country	5
Congo	1997	developing country	0
Costa Rica	1995	developing country	5
Côte d'Ivoire	1995	developing country	0
Croatia	2000	emerging country	0
Cuba	1995	developing country	1
Cyprus	1995	developed country	0
Czech Republic	1995	developed country	1
Democratic Republic of the Congo	1997	least developed country	0
Denmark	1995	developed country	1
Djibouti	1995	least developed country	0
Dominica	1995	developing country	0
Dominican Republic	1995	developing country	1

Ecuador	1996	developing country	3
Egypt	1995	developing country	0
El Salvador	1995	developing country	1
Estonia	1999	developed country	0
European Union	1995	developed country	90
Fiji	1996	developing country	0
Finland	1995	developed country	0
France	1995	developed country	0
Gabon	1995	developing country	0
The Gambia	1996	least developed country	0
Georgia	2000	emerging country	0
Germany	1995	developed country	0
Ghana	1995	developing country	0
Greece	1995	developed country	0
Grenada	1996	developing country	0
Guatemala	1995	developing country	9
Guinea	1995	least developed country	0
Guinea-Bissau	1995	least developed country	0
Guyana	1995	developing country	0
Haiti	1996	least developed country	0
Honduras	1995	developing country	8
Hong Kong, China	1995	developing country	1
Hungary	1995	developed country	5
Iceland	1995	developed country	0
India	1995	developing country	21
Indonesia	1995	developing country	8
Ireland	1995	developed country	0
Israel	1995	developing country	0
Italy	1995	developed country	0
Jamaica	1995	developing country	0
Japan	1995	developed country	19
Jordan	2000	developing country	0
Kenya	1995	developing country	0
Korea, Republic of	1995	developing country	16
Kuwait, the State of	1995	developing country	0
Kyrgyz Republic	1998	emerging country	0
Lao People's Democratic Republic	2013	least developed country	0
Latvia	1999	developed country	0
Lesotho	1995	least developed country	0
Liechtenstein	1995	developed country	0
Lithuania	2001	developed country	0
Luxembourg	1995	developed country	0
Macao, China	1995	developing country	0
Madagascar	1995	least developed country	0
Malawi	1995	least developed country	0

Malaysia	1995	developing country	1
Maldives	1995	developing country	0
Mali	1995	least developed country	0
Malta	1995	developed country	0
Mauritania	1995	least developed country	0
Mauritius	1995	developing country	0
Mexico	1995	developing country	23
Moldova, Republic of	2001	emerging country	1
Mongolia	1997	developing country	0
Montenegro	2012	emerging country	0
Morocco	1995	developing country	0
Mozambique	1995	least developed country	0
Myanmar	1995	least developed country	0
Namibia	1995	developing country	0
Nepal	2004	least developed country	0
Netherlands	1995	developed country	0
New Zealand	1995	developed country	8
Nicaragua	1995	developing country	1
Niger	1996	least developed country	0
Nigeria	1995	developing country	0
Norway	1995	developed country	4
Oman	2000	developing country	0
Pakistan	1995	developing country	3
Panama	1997	developing country	7
Papua New Guinea	1996	developing country	0
Paraguay	1995	developing country	0
Peru	1995	developing country	3
Philippines	1995	developing country	5
Poland	1995	developed country	3
Portugal	1995	developed country	0
Qatar	1996	developing country	0
Romania	1995	developed country	0
Russian Federation	2012	emerging country	1
Rwanda	1996	least developed country	0
Saint Kitts and Nevis	1996	developing country	0
Saint Lucia	1995	developing country	0
Saint Vincent & the Grenadines	1995	developing country	0
Samoa	2012	least developed country	0
Saudi Arabia, Kingdom of	2005	developing country	0
Senegal	1995	least developed country	0
Sierra Leone	1995	least developed country	0
Singapore	1995	developing country	1
Slovak Republic	1995	developed country	0
Slovenia	1995	developed country	0
Solomon Islands	1996	least developed country	0

South Africa	1995	developing country	0
Spain	1995	developed country	0
Sri Lanka	1995	developing country	1
Suriname	1995	developing country	0
Swaziland	1995	developing country	0
Sweden	1995	developed country	0
Switzerland	1995	developed country	4
Chinese Taipei	2002	developing country	3
Tajikistan	2013	emerging country	0
Tanzania	1995	least developed country	0
Thailand	1995	developing country	13
The former Yugoslav Republic of Macedonia	2003	emerging country	0
Togo	1995	least developed country	0
Tonga	2007	developing country	0
Trinidad and Tobago	1995	developing country	0
Tunisia	1995	developing country	0
Turkey	1995	developing country	2
Uganda	1995	least developed country	0
Ukraine	2008	emerging country	3
United Arab Emirates	1996	developing country	0
United Kingdom	1995	developed country	0
United States of America	1995	developed country	106
Uruguay	1995	developing country	1
Vanuatu	2012	least developed country	0
Venezuela, Bolivarian Republic of	1995	developing country	1
Viet Nam	2007	developing country	2
Zambia	1995	least developed country	0
Zimbabwe	1995	developing country	0

B. Dataset used (part 2)

This dataset starts on the next page

<i>WTO countries</i>	<i>GDP (in dollars)</i>	<i>Total Imports</i>	<i>Total Exports</i>	<i>Trade Interd.</i>
Albania	12650000000.00	4115000000.00	1226000000.00	0.422213438735178
Angola	114100000000.00	26090000000.00	70840000000.00	0.849517966695881
Antigua and Barbuda	1134000000.00	340800000.00	55000000.00	0.349029982363316
Argentina	475500000000.00	71300000000.00	85080000000.00	0.328874868559411
Armenia	9951000000.00	3459000000.00	1603000000.00	0.508692593709175
Australia	1532000000000.00	245800000000.00	251700000000.00	0.324738903394256
Austria	394700000000.00	167900000000.00	165600000000.00	0.844945528249303
Bahrain, Kingdom of	29040000000.00	14410000000.00	20690000000.00	1.208677685950410
Bangladesh	116400000000.00	32940000000.00	26910000000.00	0.514175257731959
Barbados	4225000000.00	1674000000.00	1051000000.00	0.644970414201183
Belgium	483300000000.00	310200000000.00	295300000000.00	1.252845023794740
Belize	1493000000.00	864000000.00	633000000.00	1.002679169457470
Benin	7557000000.00	1835000000.00	1108000000.00	0.389440254069075
Bolivia, Plurinational State of	27040000000.00	8224000000.00	12560000000.00	0.768639053254438
Botswana	14500000000.00	7389000000.00	7569000000.00	1.031586206896550
Brazil	2253000000000.00	241400000000.00	244800000000.00	0.215801154016866
Brunei Darussalam	16950000000.00	3020000000.00	12750000000.00	0.930383480825959
Bulgaria	50970000000.00	32880000000.00	27900000000.00	1.192466156562680
Burkina Faso	10440000000.00	2941000000.00	2844000000.00	0.554118773946360
Burundi	2472000000.00	867200000.00	122800000.00	0.400485436893204
Cabo Verde	1827000000.00	796300000.00	159900000.00	0.523371647509579
Cambodia	14040000000.00	8895000000.00	6781000000.00	1.116524216524220
Cameroon	25320000000.00	6795000000.00	6002000000.00	0.505410742496051
Canada	1821000000000.00	471000000000.00	458700000000.00	0.510543657331137
Central African Republic	2184000000.00	218600000.00	138900000.00	0.163690476190476
Chad	12890000000.00	2701000000.00	3865000000.00	0.509387121799845
Chile	269900000000.00	75700000000.00	77940000000.00	0.569247869581326
China	8227000000000.00	1772000000000.00	2210000000000.00	0.484016044730765
Colombia	369600000000.00	53500000000.00	58700000000.00	0.303571428571429
Congo	13680000000.00	4297000000.00	9912000000.00	1.038669590643270
Costa Rica	45100000000.00	17560000000.00	11660000000.00	0.647893569844789
Côte d'Ivoire	24680000000.00	9859000000.00	12960000000.00	0.924594813614263
Croatia	59230000000.00	20920000000.00	12370000000.00	0.562046260341043
Cuba	68230000000.00	13600000000.00	2945813414.00	0.242500563007475
Cyprus	22770000000.00	4747000000.00	2420000000.00	0.314756258234519
Czech Republic	196400000000.00	128000000000.00	136900000000.00	1.348778004073320
Democratic Republic of the Congo	17200000000.00	8924000000.00	9936000000.00	1.096511627906980
Denmark	314900000000.00	98450000000.00	106000000000.00	0.649253731343284
Djibouti	847900000.00	593300000.00	90800000.00	0.806816841608680
Dominica	479700000.00	219600000.00	40400000.00	0.542005420054200
Dominican Republic	59050000000.00	16800000000.00	9825000000.00	0.450889077053345
Ecuador	84040000000.00	26220000000.00	25480000000.00	0.615183246073298
Egypt	262800000000.00	59220000000.00	24810000000.00	0.319748858447489

El Salvador	23860000000.00	10030000000.00	5804000000.00	0.663621123218776
Estonia	22390000000.00	16380000000.00	15110000000.00	1.406431442608310
European Union	16690000000000.00	2312000000000.00	2173000000000.00	0.268723786698622
Fiji	3908000000.00	2054000000.00	1026000000.00	0.788126919140225
Finland	24750000000.00	70670000000.00	75700000000.00	0.591393939393939
France	2613000000000.00	640100000000.00	570100000000.00	0.463145809414466
Gabon	18380000000.00	3934000000.00	9777000000.00	0.745973884657236
The Gambia	917300000.00	359700000.00	113200000.00	0.515534721465170
Georgia	15750000000.00	7064000000.00	2618000000.00	0.614730158730159
Germany	3428000000000.00	1233000000000.00	1493000000000.00	0.795215869311552
Ghana	40710000000.00	18490000000.00	13370000000.00	0.782608695652174
Greece	249100000000.00	505800000000.00	303900000000.00	0.325050180650341
Grenada	766500000.00	297000000.00	40500000.00	0.440313111545988
Guatemala	50230000000.00	16700000000.00	10290000000.00	0.537328289866614
Guinea	5632000000.00	2384000000.00	1310000000.00	0.655894886363636
Guinea-Bissau	822300000.00	206400000.00	147600000.00	0.430499817584823
Guyana	2851000000.00	2039000000.00	1337000000.00	1.184145913714490
Haiti	7843000000.00	2697000000.00	876800000.00	0.455667474180798
Honduras	18430000000.00	11340000000.00	7881000000.00	1.042919153553990
Hong Kong, China	2633000000000.00	514500000000.00	486100000000.00	3.800227876946450
Hungary	124600000000.00	89520000000.00	92980000000.00	1.464686998394860
Iceland	13580000000.00	4526000000.00	5200000000.00	0.716200294550810
India	1842000000000.00	515100000000.00	317800000000.00	0.452171552660152
Indonesia	878000000000.00	178600000000.00	178900000000.00	0.407175398633257
Ireland	210800000000.00	61510000000.00	113600000000.00	0.830692599620493
Israel	258200000000.00	67030000000.00	60670000000.00	0.494577846630519
Italy	2015000000000.00	435800000000.00	474000000000.00	0.451513647642680
Jamaica	14760000000.00	5559000000.00	1775000000.00	0.496883468834688
Japan	5960000000000.00	766600000000.00	697000000000.00	0.245570469798658
Jordan	31020000000.00	18610000000.00	7914000000.00	0.855061250805932
Kenya	40700000000.00	15860000000.00	5170000000.00	0.516707616707617
Korea, Republic of	1130000000000.00	516600000000.00	557300000000.00	0.950353982300885
Kuwait, the State of	160900000000.00	24420000000.00	112000000000.00	0.847855811062772
Kyrgyz Republic	6475000000.00	5082000000.00	1881000000.00	1.075366795366800
Lao People's Democratic Republic	9418000000.00	3238000000.00	2313000000.00	0.589403270333404
Latvia	28370000000.00	15560000000.00	12670000000.00	0.995065209728587
Lesotho	2448000000.00	2148000000.00	941200000.00	1.261928104575160
Liechtenstein	4826000000.00	2218000000.00	3760000000.00	1.238707003729800
Lithuania	42340000000.00	32520000000.00	30400000000.00	1.486065186584790
Luxembourg	55180000000.00	23120000000.00	15800000000.00	0.705328017397608
Macao, China	43580000000.00	8866000000.00	1020000000.00	0.226847177604406
Madagascar	9975000000.00	2794000000.00	644400000.00	0.344701754385965
Malawi	4264000000.00	2430000000.00	1427000000.00	0.904549718574109
Malaysia	305000000000.00	192900000000.00	230700000000.00	1.388852459016390
Maldives	2222000000.00	1406000000.00	283000000.00	0.760126012601260

Mali	10310000000.00	2895000000.00	2577000000.00	0.530746847720660
Malta	8722000000.00	5232000000.00	4127000000.00	1.073033707865170
Mauritania	4199000000.00	3355000000.00	2728000000.00	1.448678256727790
Mauritius	10490000000.00	4953000000.00	2788000000.00	0.737940896091516
Mexico	1178000000000.00	370700000000.00	370900000000.00	0.629541595925297
Moldova, Republic of	7253000000.00	5420000000.00	2310000000.00	1.065765889976560
Mongolia	10270000000.00	5696000000.00	4294000000.00	0.972736124634859
Montenegro	4373000000.00	2340000000.00	489200000.00	0.646970043448434
Morocco	95980000000.00	38660000000.00	16780000000.00	0.577620337570327
Mozambique	14240000000.00	7068000000.00	3920000000.00	0.771629213483146
Myanmar	54416000000.00	8297490000.00	8878490000.00	0.315642090561600
Namibia	13070000000.00	7084000000.00	5124000000.00	0.934047436878347
Nepal	18960000000.00	7098000000.00	1060000000.00	0.430274261603376
Netherlands	770600000000.00	477800000000.00	551000000000.00	1.335063586815470
New Zealand	167300000000.00	37350000000.00	37840000000.00	0.449432157800359
Nicaragua	10510000000.00	6608000000.00	4278000000.00	1.035775451950520
Niger	6773000000.00	2314000000.00	1539000000.00	0.568876421083715
Nigeria	262600000000.00	55980000000.00	93550000000.00	0.569421172886519
Norway	499700000000.00	90140000000.00	154200000000.00	0.488973384030418
Oman	69970000000.00	30750000000.00	56220000000.00	1.242961269115340
Pakistan	225100000000.00	39270000000.00	25050000000.00	0.285739671257219
Panama	36250000000.00	26610000000.00	18870000000.00	1.254620689655170
Papua New Guinea	15650000000.00	4587000000.00	5392000000.00	0.637635782747604
Paraguay	25500000000.00	12370000000.00	14700000000.00	1.061568627450980
Peru	203800000000.00	42130000000.00	41480000000.00	0.410255152109912
Philippines	250200000000.00	63910000000.00	47450000000.00	0.445083932853717
Poland	489800000000.00	207400000000.00	202300000000.00	0.836463862801143
Portugal	212300000000.00	59000000000.00	61000000000.00	0.565237870937353
Qatar	171500000000.00	39580000000.00	12700000000.00	0.304839650145773
Romania	192700000000.00	69180000000.00	61240000000.00	0.676803321224702
Russian Federation	2015000000000.00	341000000000.00	515000000000.00	0.424813895781638
Rwanda	7103000000.00	1937000000.00	538300000.00	0.348486554976770
Saint Kitts and Nevis	767000000.00	355400000.00	57300000.00	0.538070404172099
Saint Lucia	1239000000.00	592700000.00	206800000.00	0.645278450363196
Saint Vincent & the Grenadines	712600000.00	301500000.00	45700000.00	0.487229862475442
Samoa	683700000.00	318700000.00	11400000.00	0.482814099751353
Saudi Arabia, Kingdom of	711000000000.00	147000000000.00	376300000000.00	0.736005625879044
Senegal	14050000000.00	5610000000.00	2691000000.00	0.590818505338078
Sierra Leone	3796000000.00	1637000000.00	1563000000.00	0.842992623814542
Singapore	274700000000.00	380300000000.00	442900000000.00	2.996723698580270
Slovak Republic	91150000000.00	77960000000.00	82700000000.00	1.762589138782230
Slovenia	45280000000.00	28020000000.00	28290000000.00	1.243595406360420
Solomon Islands	1008000000.00	446000000.00	493100000.00	0.931646825396825
South Africa	384300000000.00	99550000000.00	91050000000.00	0.495966692688004
Spain	1323000000000.00	431000000000.00	458000000000.00	0.671957671957672

Sri Lanka	5942000000.00	1570000000.00	934700000.00	0.421524739145069
Suriname	5012000000.00	1778000000.00	2512000000.00	0.855945730247406
Swaziland	3744000000.00	1545000000.00	1603000000.00	0.840811965811966
Sweden	523800000000.00	158000000000.00	181500000000.00	0.648148148148148
Switzerland	631200000000.00	275700000000.00	312300000000.00	0.931558935361217
Chinese Taipei	474000000000.00	268800000000.00	299800000000.00	1.199578059071730
Tajikistan	6972000000.00	4565000000.00	825600000.00	0.773178427997705
Tanzania	282400000000.00	111600000000.00	59200000000.00	0.604815864022663
Thailand	366000000000.00	223000000000.00	229100000000.00	1.235245901639340
The former Yugoslav Republic of Macedonia	9613000000.00	6419000000.00	4095000000.00	1.093727244356600
Togo	3814000000.00	1677000000.00	982200000.00	0.697220765600419
Tonga	471600000.00	122500000.00	9100000.00	0.279050042408821
Trinidad and Tobago	23320000000.00	9638000000.00	12860000000.00	0.964751286449400
Tunisia	456600000000.00	249500000000.00	174600000000.00	0.928821725799387
Turkey	789300000000.00	242900000000.00	167600000000.00	0.520081084505258
Uganda	198800000000.00	60400000000.00	31560000000.00	0.462575452716298
Ukraine	176300000000.00	87210000000.00	71140000000.00	0.898184912081679
United Arab Emirates	348600000000.00	249600000000.00	368900000000.00	1.774239816408490
United Kingdom	2472000000000.00	646000000000.00	475700000000.00	0.453762135922330
United States of America	16240000000000.00	2273000000000.00	1575000000000.00	0.236945812807882
Uruguay	49920000000.00	12500000000.00	10500000000.00	0.460737179487179
Vanuatu	787100000.00	319400000.00	43100000.00	0.460551391182823
Venezuela, Bolivarian Republic of	381300000000.00	59320000000.00	91780000000.00	0.396275898242853
Viet Nam	155800000000.00	121400000000.00	128900000000.00	1.606546854942230
Zambia	20680000000.00	8216000000.00	8547000000.00	0.810589941972921
Zimbabwe	9802000000.00	4571000000.00	3144000000.00	0.787084268516629

C. Syntax of SPSS

DATASET ACTIVATE DataSet1.

* Chart Builder.

GGRAPH

/GRAPHDATASET NAME="graphdataset" VARIABLES=UN_type2

SUM(initiated)[name="SUM_initiated"]

MISSING=LISTWISE REPORTMISSING=NO

/GRAPHSPEC SOURCE=INLINE.

BEGIN GPL

SOURCE: s=userSource(id("graphdataset"))

DATA: UN_type2=col(source(s), name("UN_type2"), unit.category())

DATA: SUM_initiated=col(source(s), name("SUM_initiated"))

COORD: polar.theta(startAngle(0))

GUIDE: axis(dim(1), null())

```

GUIDE: legend(aesthetic(aesthetic.color.interior), label("UN in smaller categories"))
SCALE: linear(dim(1), dataMinimum(), dataMaximum())
ELEMENT: interval.stack(position(summary.percent(SUM_initiated))),
color.interior(UN_type2))
END GPL.

```

* Chart Builder.

```

GGRAPH
/GRAPHDATASET NAME="graphdataset" VARIABLES=UN_Type
SUM(initiated)[name="SUM_initiated"]
MISSING=LISTWISE REPORTMISSING=NO
/GRAPHSPEC SOURCE=INLINE.
BEGIN GPL
SOURCE: s=userSource(id("graphdataset"))
DATA: UN_Type=col(source(s), name("UN_Type"), unit.category())
DATA: SUM_initiated=col(source(s), name("SUM_initiated"))
COORD: polar.theta(startAngle(0))
GUIDE: axis(dim(1), null())
GUIDE: legend(aesthetic(aesthetic.color.interior), label("Type of country according to UN
", "standards"))
SCALE: linear(dim(1), dataMinimum(), dataMaximum())
SCALE: cat(aesthetic(aesthetic.color.interior), include("1", "2", "3", "4"))
ELEMENT: interval.stack(position(summary.percent(SUM_initiated))),
color.interior(UN_Type))
END GPL.

```

```

REGRESSION
/DESCRIPTIVES MEAN STDDEV CORR SIG N
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA COLLIN TOL
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT initiated
/METHOD=ENTER UN_type2 Trade_Interdependence.
NPAR TESTS
/K-S(NORMAL)=initiated UN_Type Trade_Interdependence
/MISSING ANALYSIS.

```

```

EXAMINE VARIABLES=UN_Type initiated Trade_Interdependence
/PLOT HISTOGRAM NPLOT
/STATISTICS DESCRIPTIVES
/CINTERVAL 95
/MISSING LISTWISE
/NOTOTAL.

```

```
REGRESSION
/DESCRIPTIVES MEAN STDDEV CORR SIG N
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA COLLIN TOL
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT initiated
/METHOD=ENTER UN_type2 Trade_Interdependence.
```

* Generalized Linear Models.

```
GENLIN initiated BY UN_type2 (ORDER=ASCENDING) WITH Trade_Interdependence
/MODEL UN_type2 Trade_Interdependence UN_type2*Trade_Interdependence
INTERCEPT=YES
DISTRIBUTION=POISSON LINK=LOG
/CRITERIA METHOD=FISHER(1) SCALE=1 COVB=MODEL MAXITERATIONS=100
MAXSTEPHALVING=5
  PCONVERGE=1E-006(ABSOLUTE) SINGULAR=1E-012 ANALYSISTYPE=3(WALD)
CILEVEL=95 CITYPE=WALD
  LIKELIHOOD=FULL
/MISSING CLASSMISSING=EXCLUDE
/PRINT CPS DESCRIPTIVES MODELINFO FIT SUMMARY SOLUTION
(EXPONENTIATED)
/SAVE MEANPRED STDDEVIANCERESID.
```