

INTERNATIONAL TRADE AND DEVELOPMENT OF NEGOTIATION DECISION SUPPORT SYSTEM

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Abstract: Creativity and innovation in any organization are vital to its successful performance. The authors review the rapidly growing body of research in this area with attention to the period 2002 to 2013, inclusive. Conceiving of both creativity and innovation as being integral parts of essentially the same process, we propose a new, integrative definition. We note that research into creativity has typically examined the stage of idea generation, whereas innovation studies have commonly also included the latter phase of idea implementation. The authors discuss several seminal theories of creativity and innovation and then apply a comprehensive levels of analysis framework to review extant research into individual, team, organizational, and multilevel innovation. Key measurement characteristics of the reviewed studies are then noted. In conclusion, we propose a guiding framework for future research comprising 11 major themes and 60 specific questions for future studies.

Keywords: innovation, innovation management, creativity.

1. INTRODUCTION

Over decades international trade has grown rapidly due to the increase in human population, improvement in transportation and technology, which was further supported by the establishment of the World Trade Organization (WTO) and the International Monetary Fund (IMF) after World War II. Since, then numerous regional Free Trade Areas (FTAs) like the NAFTA, ASEAN Mercosur, APEC and EU have developed in contrast to WTO's ideology of multilateral trade. So, can we ask if multilateralism can exist?

Initially, the concepts of gains through trade, especially international or multilateral trade, were provided by Adam Smith (1909) and David Ricardo (1963) in the theories of competitive and comparative advantage respectively. Further, Heckscher (1949) – Ohlin (1933) theory of resource abundance identified the sources of comparative advantage for a country. Similar theories from Leontief (1968), Linder (1961), Vernon (1966), Krugman (1981), Lancaster (1980) and Porter (1990) have provided further insight into explanations for international trade between countries. In the next part, this paper will discuss reasons that will hinder the development of multilateralism. Then, in part three, a conclusion is provided by summarizing the discussion.

2. MULTILATERALISM: WHY CAN'T IT HAPPEN?

Regional free trade agreements have grown rapidly according to the GATT/WTO, with the GATT/WTO being notified of 255 regional trade agreements between 1947 and 2004 (WTO 2004). Further, evidence from the WTO trade statistics (WTO 2005) show that a large part of the international trade (merchandise & commercial services) undertaken through this period (1944 – 2005) was mainly intra-regional, with the following percentages of intra-regional trade taking place within these regions: EU (73.8%), NAFTA (56%) and ASEAN (50.3%). Moreover, intra-regional trade has grown from 40.6% in 1958 to 50.4% in 1993 as a proportion of world trade (mainly due to the growth of the EU as per the WTO). Further, figures show that multilateral trade has grown at a steady pace, though at half the rate of intra-regional trade

during this time. Further, a report from the WTO in 1995 emphasized that intra-regional trade is not alienating the trade blocs from trading with each other, thus intra-regional trade is not a threat to multilateral trade in the future (WTO 1995). Then, why can't multilateralism spread, if it is that good as Adam Smith & David Ricardo state?

Ethier (1998), Mansfield and Reinhardt (2003) and Hudgins (1995) explain that far from threatening multilateralism, regional trade blocs may in fact be a direct consequence of the past success of multilateralism and the added guarantee for its future survival. In addition, Sampson & Woolcock (2003) say that regional agreements don't block multilateralism. Even though each regional agreement may have very different policy objectives, where the objectives define each agreement, nonetheless they still align with the multilateral rules provided by the WTO. Further, Sampson & Woolcock couldn't find one model that could explain regionalism, but they believe that regional agreements have provided a path for deeper integration in specific areas of trade and have improved the transparency facilitating trade as compared to the more generic WTO rules. So, they believe that regional trade agreements are facilitating trade underpinned by the WTO multilateral trade rules, which will eventuate into multilateralism.

Wei and Frankel (2004), Garnaut (1994) and Bergsten (1997) discuss the theory of open regionalism to explain how regionalism & multilateralism can co-exist. This theory explains that regional trading blocs don't have to lower their own trade barriers completely in a single instance, due to the resultant political impact. However, they believe that each trade bloc could lower its trade barriers slowly to countries outside the trade bloc, then even marginal reductions will show improvements in trade efficiency and successive lowering of barriers could lead to multilateralism. Thus, regionalism in itself has welfare reducing effects of trade diversion, even then regionalism can work towards multilateralism. Here, Menon (2005) gives an example of the ASEAN region under AFTA (Asian Free Trade Agreement), which is following open regionalism by lowering trade barriers and providing equal treatment to AFTA non-member countries, thus increasing the gains in trade through open regionalism. Menon (2005) also provides a graph (Figure 1) comparing the gains tariff reductions through trade liberalization under the open regionalism of the AFTA and through the WTO multilateral process. We can clearly see that the AFTA (without the open regionalism policy) provides tariff reductions quicker than the WTO system, while maximizing them by the integrated use of the AFTA's open regionalism policy of multilateral free trade.

Further, Andriamananjara (2003) looks at the problem from another angle and states that if RTAs are better integrated with each other, then these regional blocs could basically merge into one RTA or multilateral trading system in the future. Likewise, Aghion et. al. (2004) also evaluated this issue of regionalism affecting multilateral trade and they found that it doesn't block the flow to multilateral integration. Though, he feels that multilateral trade could have even occurred without the establishment of regional trade blocs and that would have had no less impact on multilateralism. Nevertheless, he does say that the main blockage for multilateralism is understandably the demolition of trade barriers, which will remain in place till politico-economic motives for trade protection are sufficiently large for any country.

In addition, Head and Ries (2004) find from their analysis of Canadian RTAs that due to its quasi open regionalism stance, RTAs are in fact a trade creating rather than trade diverting activity. While, Canada is trying to advance trade liberalization primarily through multilateralism it is supplementing that with bilateral and regional agreements, in the same way as the US. In congruence, a study conducted by the Australian Department of Foreign Affairs and Trade (2000) found that there was no difference in trade for Australia pre and post NAFTA membership. Similarly, Foroutan (1998) states that he couldn't find any evidence from his analysis of North-South (Developed-Developing countries) & South-South (Developing Developing countries) RTAs that being part of an RTA necessarily lead to any more liberal an import regime than not being part of an RTA.

Next, Riezman (1999) modelled the effect of regionalism (with bilateral agreements & customs unions) on multilateral trade patterns. He found that the development of bilateral agreements or customs unions do not hinder trade where there is a large & a small bloc because the smaller bloc increases competition for the goods & services produced by the countries in the larger bloc. However, his analysis did prove that the existence of two large blocs could reduce trade between blocs as each group maybe self-sufficing and trade & competition between these two large blocs will wither away. Which would mean that smaller trade blocs like Mercosur are challenging the goods & services produced by the NAFTA, the EU & ASEAN countries, while trade between the NAFTA, the EU & ASEAN is limited? This seems reasonably true with the trade patterns that exist, as the WTO trade statistics in 2004 (WTO 2005) shows that the NAFTA traded nearly as much

with the EU (16.3%) as it did with ASEAN (18.8%) and the EU traded nearly equally with NAFTA (9.1%) as it traded with ASEAN (7.6%). Though, smaller countries/blocs like the Commonwealth of Independent States (CIS) and Mercosur traded with NAFTA, the EU & the ASEAN region relatively more. Where, CIS accounted for 48.5% of its trade with the EU, the Middle East undertook 49.5% of its trade with ASEAN and Africa did 42.7% of its trade with the EU.

While, Mercosur conducted 33.7%, 23.2% & 14.4% of its trade with NAFTA, the EU & the ASEAN regions respectively. Therefore, as Riezman states, a collection of a few larger regional trading blocs may be trading diverting, though the network of smaller blocs competing with their larger counterparts seems to create greater opportunities for multilateralism. On the same note, Deal (2004) fears that it's fine for the regional blocs to develop, however if they went unchecked for too long then this framework of regional blocs also may have the possibility of causing a fragmented world trade system, resulting in competitive discrimination and protectionism between trading blocs.

Though, Ornelas (2005) finds through his analysis that even in a completely co-operative world multilateral free trade couldn't exist due to politico-economic issues. These politico-economic issues develop from the multiple objectives that a government or country, for example, unemployment, housing, size of industry, economy, social welfare, culture, health, environmental protection etc. that need to be taken into consideration. Moreover, this now becomes a question with multiple objectives that governments need to manage to improve the welfare of their country. Therefore, while Adam Smith & David Ricardo reviewed one factor (i.e. the economy of a country), in reality the multiple factors (multiple objectives) that need to be fulfilled, can compromise the maximization of the economic factor.

Therefore, due to the complexity in the everyday world that includes economic, social, cultural, environmental, health and well-being, society and many other factors in this equation, which are different for every country, it will result in the reduction or non-maximization of the economic factor. Resultantly, a clear possibility that multilateralism can't exist as it is clearly the maximization of a country's economy disregarding all other factors associated to it (listed before).

Further, Henning (2005) acknowledges that the growing presence of regionalism is probably the single most important feature distinguishing the world political economic viewpoints of different countries at present, due to the pull between regionalism and multilateralism, with the EU, the US & Asia forming their own trading blocs, while acknowledging that each of them are also working towards a multilateral trading system. Moreover, Winters (1996), Bhagwati (1996) and Jayasinghe & Sarker (2004) clearly note that the main stumbling blocks for multilateralism will be the sector-specific lobbies (e.g. US agriculture or steel producers), simply because regional agreements provide leeway for certain industries that are politico-economic sensitive to a country, by excluding them from the agreement altogether and setting up freer trade between countries within the RTA, unlike under a multilateral trading system.

In contrast, the multilateralism rules provided by the WTO don't give preferential treatment to specific sectors. On the contrary, the US department of Agriculture (USDA), while being faced by a strong lobby group of the US Agriculture sector, emphasizes that it is supporting both the multilateral agreements with the Doha Round and the regional agreements by the formation of the FTAA (Free Trade Area for the Americas). As per the USDA (2003), both the regional trade agreements and the multilateral trading system can exist together, and the regional agreements like the FTAA will open the world towards multilateralism in the future (Burfisher & Jones 1998).

However, Dell'Auilla et. al. (1999) found that trade in raw Agri-food products is much more regionalized now than it was in the 1960s, depending mainly on the domestic and trade policies of each country, whereas trade in processed Agri-food products is more multilateral. Therefore, the Agri-food products sector is still a strong lobby group in many developed countries, especially in the US & the EU, looking for trade protection (Diao, Roe & Somwaru 1999). Further, lately the US and other developed countries are also increasing protectionist barriers to improve employment and social wellbeing by retaining jobs in their country.

As a result, there is a significant theme that states that multilateralism can't exist due to politico-economic factors that are generated by multiple objectives rather than a single objective that is to maximize economic output. Therefore, the multi objective decision has multiple factors (like cultural, environmental etc.), other than only economic that compromise the maximization of economic activity. Resultantly, restricting the world economic system to realistically never be able to become a multilateral trading system due to these everyday complexities.

3. NEGOTIATION DECISION SUPPORT SYSTEMS FOR INTERNATIONAL TRADE

While, the world negotiates between the forces of multilateralism and regionalism. There is a significant opportunity to undertake trade negotiations. As some negotiations are increasing difficult, for example, the exit of Britain from the European Union and the subsequent trade negotiations between Britain and the EU. In such circumstances, it is useful to utilise systems that can improve the negotiation process.

Negotiation is a two-way compromise between parties that assists them to undertake a mutual and beneficial agreement to each party. Negotiations are a critical part of human activity and it is undertaken in every walk of life. Trade agreements in general are quite complex and it can become difficult for parties to agree on every aspect of the negotiation. Negotiation theory has four main branches that relates to game theory, negotiation analysis, cognitive/psychological negotiation theory and integrated negotiation theory (that combines game theory with psychological negotiation theory). Negotiation Decision Support Systems utilise this underlying theory to support decision making. Raffa (2005) identifies negotiation theory based on the three frameworks:

A. **Normative decision making:** explains how decisions can be made in an ideal environment. Examples of NDSS based on a normative framework are Smart Settle (Thissen et al. 2000) and INSPIRE (Kersten 1997);

B. **Descriptive decision making:** based on how decision makers behave, and this framework utilises psychological negotiation theory. Examples of NDSS based on the descriptive framework is Win Squared (2001); and

C. **Prescriptive decision making:** explains the process where decision markers see as to how a decision can be improved.

Bellucci and Zeleznikow (1996) and Bellucci (2004) state that the normative and descriptive methods are backward looking, while the prescriptive framework is forward looking. Game theory and negotiation analysis fall in the realm of normative theories. They explain how a decision maker would make a decision in an ideal environment. Psychological negotiation theory is in the descriptive decision-making realm that explains how decision makers behave. Integrated negotiation theory that is a combination of both game theory and psychological negotiation theory, looks to be prescriptive in nature, allowing the decision maker to understand the existing scenario and allow them to improve their decision from that point onwards.

Game theory was initially introduced by Von Neumann and Morgenstern (1944) and then subsequently improved by other researchers. Game theory has three main forms: zero-sum game theory introduced by Von Neumann and Morgenstern (1944), non-cooperative game theory provided by Nash (1951) that extends the zero-sum game theory to show that games may not be a zero-sum, and co-operative game theory developed by Shapley (1953). Further, game theoretic negotiation theory research has also been provided by Arrow and Debreu (1954), Chatterjee and Samuelson (1983), Cromton (1992), Debreu (1959), Holmstrom and Myerson (1983), Satterwaite and Williams (1989) and Gresik (1995). Crawford (1982, p.607) explains how improving efficiency in bargaining outcome will improve welfare gains.

Raiffa (1982), Raiffa, Metcalfe and Richardson (2005), Bazerman et al (1992), Thompson and Fox (2000), Hastie and Dawes (2001), Kahnman and Tversky (1979), Trepel, Fox and Poldrack (2005) have made significant head way in providing support from a negotiation analysis theory perspective. For example, Bazerman (2005) explains how negotiators make inconsistent, inefficient and utilise irrelevant information for negotiating.

Bercovitch and Houston (2000), Kramer, Pommerenke and Newton (1993), Hoggs and Abrams (1988), Tajfel and Turner (1987), Dawes and Thaler (1988), Korobkin and Guthrie (2004) add to the discussion explaining how cognitive and behavioural negotiation theory has substantial insight into negotiation practice. An example provided by Korobkin and Guthrie (2004) is that negotiators use judgement and choices, when they can utilise other factors like anchoring, framing, availability and contrast effects to negotiate.

4. INTEGRATED NEGOTIATION THEORY, NEGOTIATION DECISION SUPPORT SYSTEMS AND TRADE

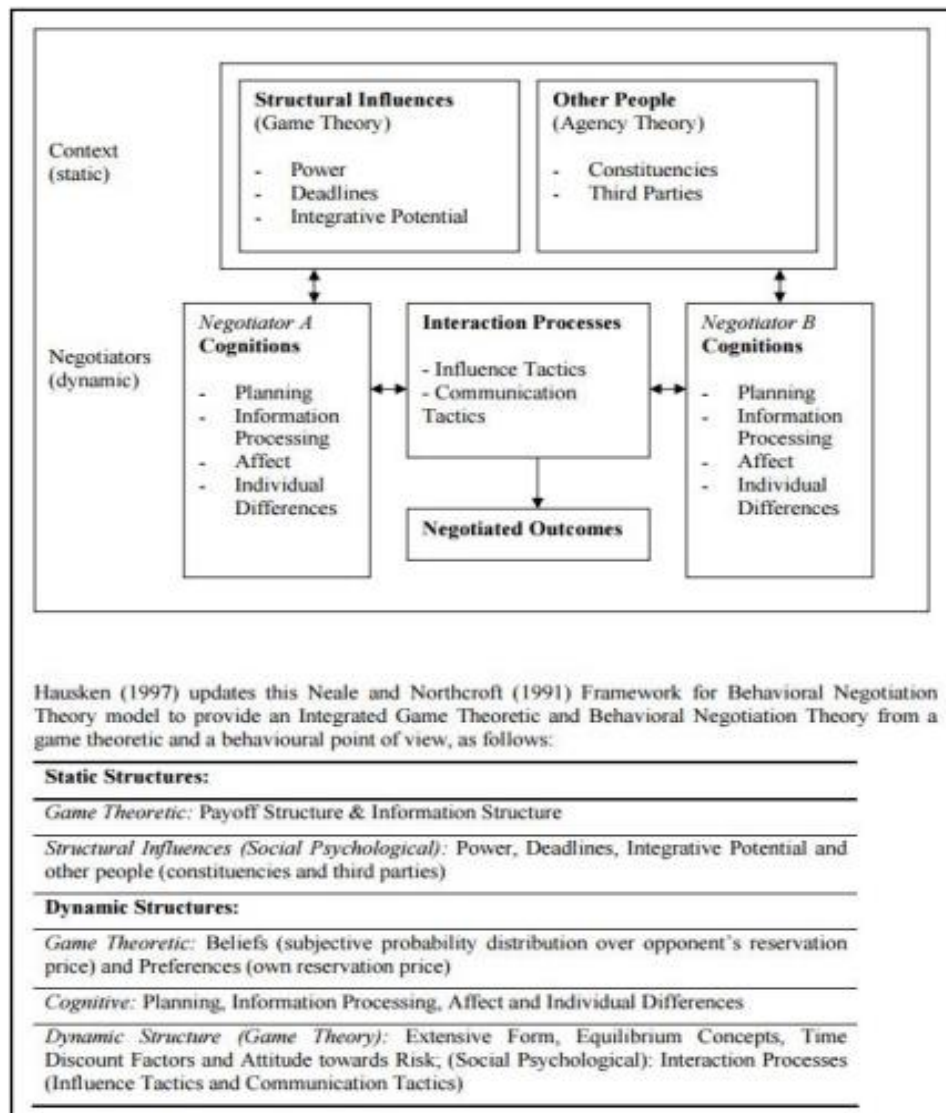


Figure 1: Framework for behavioral Negotiation Theory (Neale and Northcroft 1991)

Game theory and psychological negotiation theory has been important to the development of integrated negotiation theory. Both these theories provide a basis for a more prescriptive forward-looking theory. Numerous researchers (Bazerman, Magolozzi and Neale 1985; Kim, Bazerman and Neale 1990; Wiengart, Thompson, Bazerman and Carroll 1990; Sondak and Bazerman 1991; Bazerman 2005; Von Neumann and Morgenstern 1944; Nash 1951; Shapley 1953; Shelling 1960; Harsanyi 1967 and others) have provided the basis for this research over the past 70 years. Neale and Northcroft (1991) theory show how a behavioural negotiation theory model can be developed (see figure 1 below). This diagram shows how there are structural influences like power, deadline and integrative potential (there are also static and dynamic structural structures) as well as agency theory constructs like constituencies and third parties that impact the negotiation. On the other hand, cognitive factor like planning, information processing, affect and individual differences between parties and interaction processes like influence and communication tactics impact the outcome of the negotiation.

Hausken (1997) extends the Neale and Northcroft (1991) theory to consider aspects of game theory as well as psychological negotiation theory. The model provided below in figure 2 explains Hausken's (1997) theory from a psychological perspective, where cognition and interaction processes are more prominent that game theoretic factors like beliefs and player preferences. Static and dynamic structural influences remain present in both the game theoretic and psychological models provided by Hausken (1997).

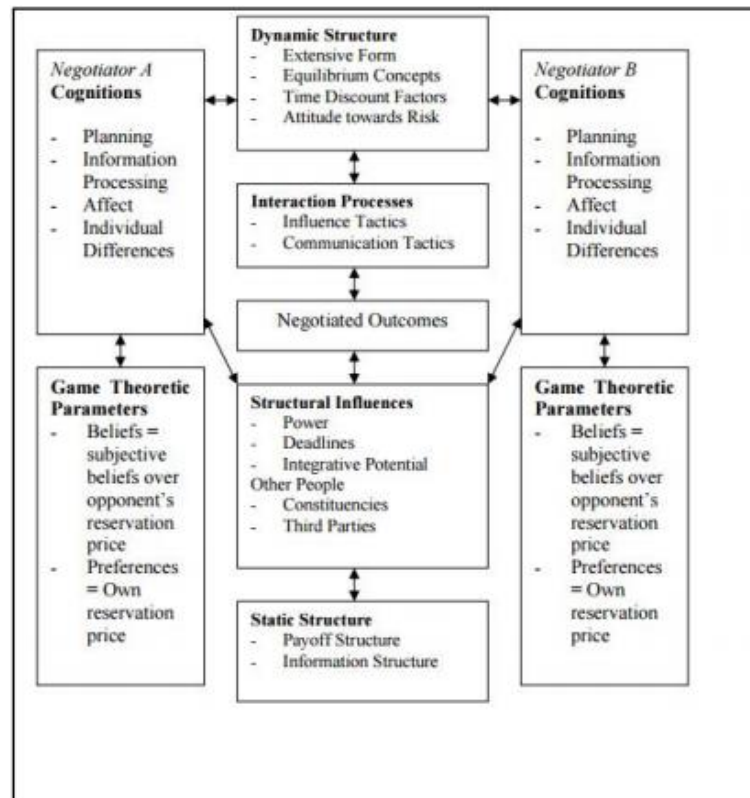


Figure 2: Integrated Behavioral and Strategic Framework for Negotiation Theory from a behavioral viewpoint (Hausken 1997)

We can also look at the Hausken (1997) model from a game theoretic perspective as shown in figure 3 below. This model can be contrasted to the Neale and Northcroft (1991) model where both beliefs and preferences are not considered. The Neale and Northcroft (1991) model also do not incorporate the dynamic structural factors of a negotiation. This model can however be extended further by considering psychological risk factors considered by Khaneman and Tversky (1979), which are framing effects, non-linear preferences, source dependency, risk seeking and loss aversion behaviours. These risk factors can modify the discussion as they result in biases in the negotiation and can significantly impact the negotiated outcome. This risk-based model can be seen in figure 4.

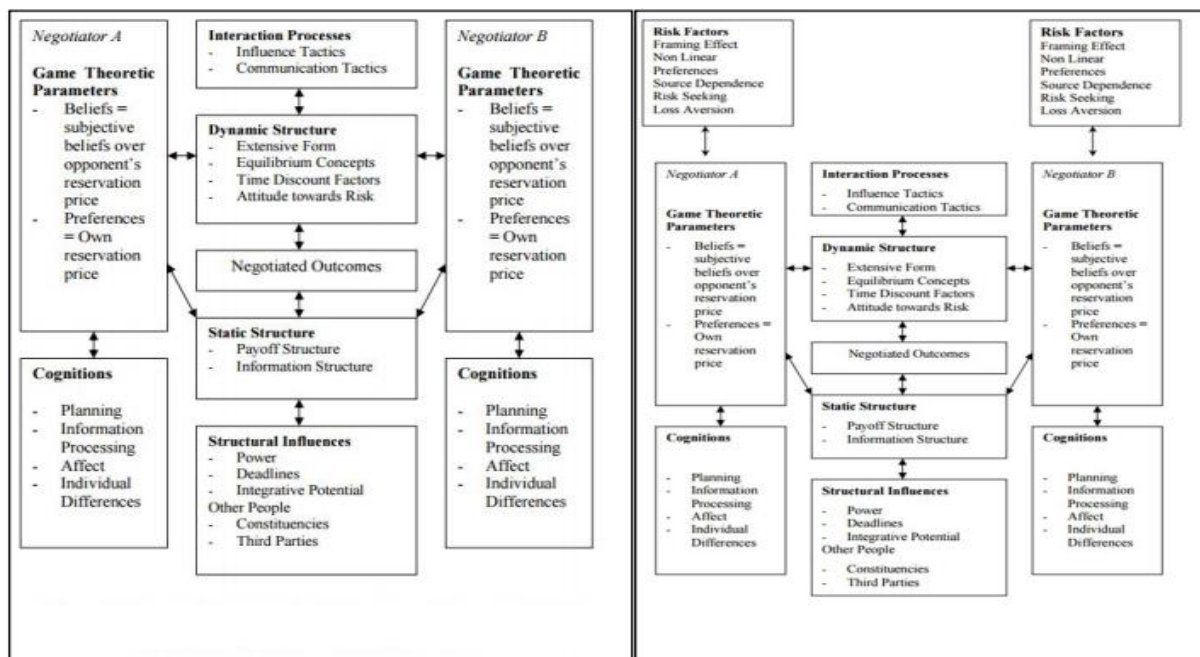


Figure 3 & 4: Integrated Behavioral and strategic Framework for Negotiation Theory from a Game Theoretic Viewpoint & Including factors (Hausken 1997)

An integrated negotiation theory model that incorporates risk factors will be more effective in supporting negotiators in bilateral trade agreements. Such a model will assist in considering both the game theoretic, psychological and risk factors, which are critical to be considered in bilateral trade negotiations.

5. EXISTING NEGOTIATION DECISION SUPPORT SYSTEMS IN INTERNATIONAL TRADE

Negotiation Decision Support Systems (NDSS) have been utilised in numerous other areas like family law. However, there have not been many papers that talk about the application of NDSS to international trade. Potentially, the reason for this lack of application may be that in the past multilateral negotiations have been a lot more complicated than bilateral trade agreements. However, as international trade moves from multilateral trade to regional and bilateral agreements, it may be easier to utilise NDSS models as the negotiation have fewer parties and potentially less complex than under a multilateral system. NDSS models while useful are not still ready to deal with multiple parties and have often focused on two party negotiations. Due to this lack of complexity in NDSS models, it has been hard for such systems to be applied to multilateral trade agreements. Other issues related to using NDSS for international trade, for example can be language difficulties as stated by Lim and Yang (2008). Casanovas and Zeleznikow (2014) have also talked about using NDSS for legal negotiations, they define a concept called Regulatory systems that constitute a set of coordinated complex behaviour (individual and collective) which can be grasped through rules, values and principles that constitute the social framework of the law. Relational law, relational justice and the design of regulatory models can be linked to emergent agreement technologies and new versions of Online Dispute Resolution (ODR) and Negotiation Support Systems (NSS). However, there has been limited implementation of NDSS models for the analysis of international trade negotiations. But, there are possibilities for developing such systems in the future.

6. CONCLUSION

In conclusion, multilateralism can't exist due to politico-economic factors that are generated by multiple objectives rather than a single objective that is to maximize economic output. Therefore, the multi-objective decision has multiple factors (like cultural, environmental etc.), other than only economic that compromise the maximization of economic activity. Economic and political forces potentially reduce the likelihood of multilateral trade being the main proponent, while regional and bilateral trade agreements will become more prevalent. As regional and bilateral trade agreements are less complex than multilateral trade agreements, it is more likely that Negotiation Decision Support Systems (NDSS) can be applied to such agreements. NDSS models have previously been focused on two party negotiations, so it is more likely that they will be useful in regional and bilateral trade agreements that have lower complexity. Multilateral negotiations are complicated and NDSS models have still not advanced to consider multiple parties that are negotiating multiple issues. The integrated risk-based negotiation model in this paper may be able to support some of the less complex trade agreements. There has been limited development of NDSS models for implementation to international trade negotiations. But, this field has a significant potential to grow in the future.

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