Closing the Gaps of IPE Theory
A Theory Developing Study of Differentiated Trade Analysis

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Abstract:

Through a series of problem debates and methodological discussions, a model is presented for combining economic methodology with political science approaches to trade analysis. The developed differentiated model is constructed through contemporary theory and statistical methods as well as newly presented theory to the field of IPE. Through the numerical analysis of the DTA model, the export distortions of Denmark, Sweden and Norway during the recent cartoon crisis are analyzed. Through a series of successful analysis, and some over-distorted cases (in particular for the case of Norway) the DTA model is ratified as a viable model for simplistic economic contra social analysis, and through further mathematical modeling, the approach could be more refined and accurate. The overall conclusions goes to say that a inter-topic methodological link can be constructed under certain circumstances, and that the DTA model can serve as a template for similar approaches to cases of multidimensional approaches.

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1 Introduction

We have over the past century been witnesses to developments which enable us as scientists and operatives, to make more accurate predictions of political- and economic behavior. Such skills of foresight are crucial in a world of complex international negotiations, analyzing conflict scenarios and foreseeing the immense effects of economic ventures in both established economies as well as in developing third world economies. A central problem in modern social studies is that the world, or our lab, is changing rapidly, and that our models can at times seem outdated and obsolete, even before they are published and potentially verified. The reason for this is of course that our field of science is not bound by the same rules which natural sciences are. We are limited to working within a short window of opportunity and seize whatever knowledge we able to grasp as we relentlessly move towards tomorrow's scientific questions and dilemmas. As the 21'st century has just begun, and we already have witnessed dramatic changes in numerous ways, we are faced with a collective need for new theory to help arrange a framework for the development of theory and method for the next generation of international relations.

One of the most crucial elements of modern politics is the issue of international trade, and the effects it has on the host society and on the world in general. As any economist will tell you, trade creates better utilization of available resources, it creates a natural flow of factors of production and integrates people across borders. Obviously the answer you would get, were you to ask politicians around the world, could be quite different. In the world we have known, there are two basic types of politicians, free traders and protectionists. As the economies in the world become more and more entangled and government budgets become increasingly dependent on the results of international trade, the issue begins to take a different form. The classic Ricardian model of trade serves as a fundamental model, which helps explain how trade will be beneficial to both parties due to comparative advantages of production. Furthermore, 'modern trade theory' invites us to the thought of deregulating the barriers of trade, as does empirical data as free trading economies tend to outperform protected economies. Modern trade theory builds on the theory of economics of scale, which means increasing your productivity under certain beneficial conditions. But as international trade takes its rightful place among the most important economic factors, trade also becomes a "weapon" in negotiations and ideological political battles.

As a student, or emerging scientist, within the field of International Relations and its subfields, it is not hard to be caught by a sense of being part of a never-ending story of battling out old wars among different perspectives and different fields of research. There are likely many reasons that these old conflicts are able to maintain their fury and keep gaining new "soldiers" for the battle. But for those

scientists who are stuck in the middle, with no interest in the old methodological conflicts, but rather with a hope for development of new and more cooperative approaches, these battles represent a key opponent to overcome in order to present new theory. A way of thinking of this mission is similar to the search for the missing link within biology, in which we would find the direct path within evolution from single celled organisms to the complex human mind. Similar to this classic missing link, we are missing one or more links between the different theoretical approaches within social sciences. One way of thinking of these missing links could be as gaps of theory, in which our different approaches fall into and battle each other to get out of in order to maintain legitimacy over the other. A consequence of such action would be that instead of thinking about the gap itself and potential passages, we are thinking about a way to expand the border of the gap which we represent and limit the other theory to a minimum of relevance. As such the walls of the gaps are steepened and passage over becomes harder and harder.

As this thesis addresses the issue of theoretical entrenchment between political science and economics, and is dealing with rationality in modern international political economy, I have attempted to analyze how the global economic picture is affected by an emerging economic model of international trade and consumption, by creating a model for differentiated analysis of economic- and political factors on trade related issues. As it will hopefully be clear that this attempt is successful a long way, the thesis also identifies some of the problems faced by such analyses, and are faced with opposing methodological viewpoints from different sides of social science. The emerging theory- and model developed are named "Differentiated Trade Analysis" or DTA, but before going into the model itself, the thesis contains a problem- and method debate, which covers the theoretical background, and in particular the motivation and relevance, of the model developed.

2 Understanding the Problem(s)

In order to provide a sufficient definition of the main problem, it is important to understand the theme of this thesis. As addressed in the introduction, the central theme is to highlight a methodological entrenchment between the fields of political science and economics. When the problem is addressed and investigated, a picture should emerge which tells us that the solution to this divide among social sciences is to establish a foundational theoretical framework by which we will be able to make more precise analysis of international trade. To exemplify the relevance of the framework, a case study from recent history are analyzed and applied for generating a set of rules on how to understand and analyze cases of differentiated trade analysis.

This claimed entrenchment presents a number of interesting cases for us to wonder about, there are however certain issues more relevant that others to this type of inter-subject theorizing. The case considered here, which has foundations in both fields, is that of international trade and in particular that of international trade distortions. The main problem with trade related distortions is that both the reasons for such, and their implications, are subject to a vast and often hostile debate among countering scientists of different fields, and of different methodological schools. Economists can argue that trade related distortions are created by policy related issues, and that the foundation for economic rationality has been distorted (Esfahani & Squire 2006: 683, Goldstein and Gowa 2002: 168), realist political scientists could argue that trade distortions are merely just another field for the classic power battle among nations now just conformed into the economic arena and are producing the conflicts (Baldwin 1985: 18-19, Waltz 1990, Waltz 2000), as well other methodological approaches may present similar arguments on why the perception of hostility among nations or people/cultures produces explicit or implicit conflicts resulting in a diversion from otherwise "normal" behavior. Who is right and who is wrong? As this is not the question of this thesis; rather I set out the question whether or not all schools of thought have legitimate claims during their analysis of certain situations? As it may seem obvious to some that we can all offer legitimate answers, there are significant distinctions between different methodological schools within international relations theory, which are not easily combinable. The main objective of this thesis if therefore to offer the reader with increased awareness of these methodological differences, and through that, present a theoretical- & analytical framework for differentiated trade analysis (DTA) for both economists and political scientists to apply in their continued search for answers to human economic behavior.

2.1 The Theoretical Problem

The first and foremost problem this paper address, is the problem of inter-topic theory construction. Among IPE theorists and economists there many similarities but also many differences, as such where IPE'sts is rooted in politics which in turn is rooted in philosophy, institutions, structure and ideology, they deviate from economists, which historically are operating from "rational behavior perspective" and resource allocation (Frieden & Lake 2000: 1). One could say that IPE'sts are able to operate from a broader perspective, but at the same time argue that this limits them from making narrower and more accurate analysis on particular cases. Policy analysis tends to show what has happened and economic analysis tends to help us understand what can happen in the future. The sum of these perspectives tells us that despite attempts among IPE theorists, no single theory has yet combined the fields of politics and economics and thus we have no standard framework from which to start our analysis of a given case.

As the key to this paper is to find solutions to this theoretical problem, much time will be devoted to understanding the foundational problems and differences among political science and economics. Throughout chapter 3, I will present the methodological foundations for creating a combined theoretical framework for international trade analysis.

2.2 The Analytical Problem

As certain cases are hard to explain from conventional theory, the idea of applying differentiated trade analysis to a particular case, present the researcher with a problem of analysis. This problem manifests in the form of "how to approach the information available?" The general answer to this will be no clear-cut "like this" answer, but rather to point out that this problem is basically nothing more than a problem of variables, since the problem often is to understand what a variable will tell you of a given case. In order to understand the idea of differentiated trade analysis fully, I will present a numerical analyzed case, where I have applied the theoretical techniques developed in chapter 3, and throughout the analysis show how one set of variables can help lead to explanations of the other variables within the model, and as such seek explanations on how to address a case of differentiated trade analysis, and set a formal standard on how the model could be applied in other cases of differentiated analysis.

2.3 The Policy Problem

A central problem to the lack of good theoretical and analytical approaches to international trade distortions results in a policy problem. For if we are not able to present adequate multidimensional explanations for distortions within international trade, then how will decision makers be able to take the appropriate measures against short run irrationality, or construct viable long run trade policy? This leads to the final segment of the thesis, in which I will present different

policy aspects of the developed theory drawing on the experiences of the numerical analysis.

2.4 Research Objectives

The picture I sought to paint through the previous three sub-chapters was that the main entrenchment between politics and economics can be divided into smaller sub-problems which in turn are linked to one another. The foundational theoretical problem leads to the analytical problem which finally leads to the policy problem. This ultimately provides new fuel for initial methodological entrenchment, since we have little combined understanding of the different sub-problems. As such new distortions are able to manifest themselves, presenting us with a new set of theoretical, analytical and policy problems.

The ultimate goal of this thesis is the development of a coherent theoretical and analytical approach to international trade distortions through combined political and economics approaches (diving the cases up in analytical fields for the individual sciences for the optimal research requisites and thereby potential results). The answers that will be presented through this thesis will consist of a comprehensive development and explanation of the model of differentiated trade analysis, as well a numerical example of applied DTA, and the policy implications such cases can have on future trade policy among democratic and non-democratic countries.

As the DTA model is developed theoretically and analytically in general terms, the applied DTA case is limited to the initial stage of the analysis, which means that the case will be limited to the calculations on economic- and social implications on the case. As such, the numerical case serves as a test case for the basics of the DTA model, not as a final approach to a complete differentiated analysis as this would require much more analysis on the calculated social factor implications.

3 Methodology

3.1 Modern IR Theory and Rationality in IPE Studies

How do we explain 'society' from a scientific perspective? This has been the central theme of the methodological debates within modern social research. Whether one views the world in absolute mathematical terms or in a more reflective and relative perspective, there has always been a lack of certainty, by which researchers will always be limited in their quest for the truth. When seeking answer to questions which borderline politics and economics, this barrier becomes even more evident, and a clear methodological discussion for each case, is necessary to argue in favor of certain factors over others.

Throughout the past century's debate of various theoretical approaches to international relations, Realism, Liberalism and Marxism played the main roles. As the different approaches had a massive, but divergent field of supporters, the results of the different approaches also varied a great deal. One central issue which researches of all branches dealt with in some form is the field of International Political Economy (IPE), and the implications economic policy had on the nation-state as well as the international community (Greenwold 1999, Morton 2006: 63-66, Katzenstein, Keohane & Krasner 1998: 645-646). Where each of the main approaches had objections or limitations to the implications of economics in international politics, the main conclusion that can be argued from all the mainstream approaches of IR theory, is that economy matters (Woods in Baylis & Smith 2001: 285-286)

As the world has changed, and the "pure" forms of IR theory has gradually subsided into smaller and smaller component theories, the impact of each mainstream theory has diminished and can ultimately end up being practically extinct as research approaches. As the mainstream approaches' impact on research agendas has diminished, the debate of IR theory is no longer dominated by the "great divide" (Clark 1998: 479-480), but rather by numerous competing frameworks. As IPE studies are regaining relevance among modern scientists, significant understanding of the different theoretical frameworks in contemporary IR theory, as well as economic methodological theory becomes increasingly relevant. Though coming of age, the arguments presented by David Baldwin in Economic Statecraft in 1985, the fact is that we still don't see many general studies on economic international relations (Baldwin 1985: 52), but are rather witnesses to a growing field of IPE studies which aspire to challenge economics in state related issues, but without clear methodological foundations for both political science and economics.

What we are in need of is a combined mandate that includes an array of methodological aspects, so that we can approach international relations from both

political science and economics, while retaining methodological legitimacy and consistency. As we do this, we change the dynamics of the outcome of both our political- and economic analysis dramatically, and narrow the gap between the different fields, and create a more whole and complete analysis.

Arguing that rationality indeed are central to human behavior, bordering hegemony in importance, it is not the sole source of behavior, we are faced with the question of what other forms of behavior there is, and if these are in any way quantifiable or indeed explainable. Throughout the next sub-chapter I will seek to define the methodological foundations of this thesis and establish the important links between rationality, political science, economics, and other relevant thoughts.

3.2 *Methodological Foundations*

3.2.1 Establishing Rationality in Social Theory

The broad scientific field of social theory concerns a range of different sciences, from sociology to political science and psychology to economics. The main common divisor, between these quite different aspects of modern science, is that they all seek to explain human behavior in the form of theory and empirical tests. With this in mind, we can ask ourselves, how does rationality fit into social theory? If rationality is easily definable as a process of faced with multiple choices, choosing the option with the best overall outcome is the rational decision (Ward 2002: 65 quoting Elster 1989), then we could argue that all the borders between the different social sciences could simply be demolished, and future research would simply concern the identifying of the "optimal" course of actions in various types of scenarios. As researchers time and time again question the rationality definitions and legitimacy, there is obviously more to the concept of rationalism then simply choosing the best course of action, as such, we can do a dissection of the concept and create sub-rationalisms such as individual rationalism, collective rationalism, non-conscious rationalism etc. (Example the debate of Hill 1999 concerning philosophic questions to epistemology in different fields of economics). The central idea in this thesis is that rationalism cannot exist on its own, it requires some other theoretical framework for it to become an actual scientific concept which we can apply to some analysis we seek an answer to (Ward 2002: 65).

3.2.2 Does Rationality Matter?

A question we should ask ourselves at this moment, is whether rationality has a place in social science methodology as a foundational behavior variable, or if rationality is simply a human made concept based on a majority of opinions on what "good" behavior is identified as?

Arguments for rational choice analysis include elements such as "explicit assumptions", "simplifications", "multi-disciplinary" and "counter-irrational analysis" (Ward 2002: 69-70). Such arguments seem to be focusing on the methodological strengths of rational behavior, and the idea that rationality can be subjected to repeated tests with similar outcomes, if the information level remains consistent. However, a number of empirical tests has been performed and has revealed that rational choice theory helps us understand the individual as self-interested in the short-run, and renders the individual incapable of performing optimizing collective action which leads to a Nash equilibrium of no cooperation among the individuals in one-shot or finite round games (Ostrom 1998: 2). Holding these findings against one another, we face a theoretical dilemma, for if a supporter of rational choice models (arguing in favor of unconditional rational behavior) recognizes irrational behavior among individuals in short-run cases, we will likely be unsuccessful in convincing methodological opposing researchers, that rationality is a consistent foundation for broader social analysis.

Following the previously stated dilemma further, we can investigate the thought of a differentiated rational choice model, in which we recognize initial rational behavior as the "default" human decision making process, but with different implications in different timeframes. From this we can set out a multiple-level rational choice model for differentiated theory construction, where we can allow rationality to become dynamic and adaptable to different levels of information. An interesting notion comes from a piece of economic methodology research, where Tobias J. Klein, in an attempt to formalize dynamic rationalism in game theory finishes his concluding remarks with:

> "...Maybe, we shall attempt to weaken the assumption of rationality within each period as a consequence." (Klein 2003)

We can therefore, from both classic political science methodological arguments and logic analysis argue in favor of weakening, but not abandoning, rational behavior expectations among actors in games with more than one period. Or presented in an answer to the original question of this section, yes rationalism serves a purpose in social analysis if we understand the causal implications of rationality in different periods and levels of information.

3.2.3 Linking Political Economy with Economics

The differences between certain contemporary social researchers, would by some be narrowed to defining their disagreements as abandoning absolutism and assert primal focus on some level of society (Frieden & Lake 2000: 9) and as such create a operating field for their analysis where e.g. global- or local factors can be neglected due to minimal- or exacerbating effects on the subject in question. Similarly to this definition of factor elimination methodology within political- or economic studies, we can see a similarity between politics and economics, since the difference between these two fields concerns elimination of factors which are considered more or less relevant by the other.

The main link between any political study and a similar economic study is that the key element of analysis concerns human actions, individually or collectively, and as such we are confined within the framework of social sciences. This link does however not sufficiently present a clear path from politics to economics or vice versa, it rather exemplifies the field of social interactions, in which both political- and economic studies operate within. If this is true, then how can we find a path from one to other without sacrificing scientific legitimacy? The answer is to construct a methodological link which enables any political science approach (that accepts the basic idea of rationality) with a quantifiable economic approach. This tells us that in the attempt to create a combined approach, we can think of the elimination process, or methodological link, as a change in a rational belief variable.

3.2.4 The Idea of Differentiated Theory

The main theme throughout the previous subchapters, addresses concepts such as differentiation, dynamics and inter-subject methodological links. The basic common divisor for these concepts is the idea of abandoning absolutism, and adopting a more adaptable scientific approach to distortions in general equilibriums within an economic context.

If we indeed do adopt this thought of differentiated methodology, we need to make clear distinctions, of when one type of methodology is applied, and when another takes over. We also need to explicitly accept that by doing this, we abandon any hope of uncovering universally accepted specific methodological approaches, and rather accepting this generic approach as compromise between otherwise incompatible approaches. Clearly theorists of different schools would object to this idea of being able to adopt everything and to deny nothing, facing us with a methodological, or rather general scientific dilemma. For if everything fits, then how do we test analysis and prove their correctness? The answer to this dilemma is to understand the foundations of differentiated theory construction. In the methodological arguments presented previously, a foundational component of the combined theoretical approach is differentiation of outcomes. This means that any attempt to combine two or more methodological approaches into a differentiated theory, must include acceptance of deviations from the otherwise expected "purebred" theory expectations. In other words, certain approaches would not be adaptable to this sort of "manipulation" since they cannot deviate from their original foundation. An example would be a realist who does not accept any deviance from the idea of a battle for relative gains between two or more nations. If however we adopt outcome differentiation acceptance into the equation, the same research approach can be differentiated over the outcome variables, thus presenting more adaptable projections, in accordance with the changing outcome.

The way a differentiated theory can be constructed therefore includes all aspects of two or more approaches, and locating the gaps between these perspectives, thus being able to analyze the case from a differentiated perspective and provide multiple conclusions within the same empirical context. A differentiated model of analysis therefore becomes our "ontological sweater" by which we can escape the otherwise permanent structure of our "ontological skin". In other words, differentiated models, are thought as a tool for testing cases and theories from multiple perspectives, and analyze their impact on the outcomes, thus being able to gain multidimensional knowledge about the case and/or theory.

3.3 Differentiating Contemporary Theory

In order to present a combined methodological approach in the field of trade analysis, it is important to understand the contemporary theories dominating the different fractions of researchers and research fields. Over the next few pages I will present some of the classic perspectives within more or less modern theories on trade analysis from both an economic perspective and political science perspectives, and try to argue for why these would be adaptable to differentiated analysis in the context I have argued for in the previous sub-chapters.

3.3.1 Ricardian Methodology and Theories of Scale

The field of trade theory is a complicated, but yet comprehensible field of economic theory. Unlike financial- or applied business economics, trade theory works in abstracts and is closely linked to policy questions. There are however a number of fundamentals which differ trade theory from political sciences' IPE variant. The most basic part of any of the established trade theories is the unconditional idea of price governing of individual behavior from microeconomic methodology (Krugman & Wells 2005: 8-9). Without this fundamental idea, all the models, which rests on a sort of expected behavior foundation, fails to produce a viable argument in favor of economic analysis in trade related matters for the cases when price governing fails.

The basic one factor economy of the Ricardian trade model, serves little purpose in today's complex international array of bilateral or multilateral trade agreements (Evans 1993), but it does serve a methodological purpose in both general trade analysis and inter-topic analysis (like this thesis). The main idea in the Ricardian trade model tells us that even though we may be politically inclined to produce and consume only domestic products, we will all benefit from international trade. As this insight to the value of basic trading economies presents us with a numerical argument for trade, it also tells us something about the way economics look upon the world. As Ricardo first develops his theory, he assumes a number of things, the most important being that the individuals within each economy acts in accordance with price governance (Krugman & Obstfeld 2006: 26-27). This

tells us that most basic trade theory we have, rests upon a world which is 100% rational in the economic sense.

Other trade theories tell us that various domestic structures can help understand how to either maximize or extend the current welfare of a country by allowing free trade. What does not change from theory to theory, is the general assumption of rational behavior, and as such the most basic model we know, has presented us with the basic methodological argument of economic trade theory, which is that lower price equal more consumption.

3.3.2 The Lacks of Microeconomic Methodology

If we indeed are living in a world of general price equilibriums in all economic matters, where rational choices dominate our every move, then why do we continue to observe various types of distortions in both trade, and indeed peace itself? A number of studies have been conducted to analyze the behavior of individuals in different types of scenarios (e.g. John & Klein 2003; Baron 2002), and different theories have emerged from this research. Within the school of rational choice theory, the concept of game theory has been around for a long time, and poses questions on how individuals act within a decision making context of cooperation or not (Ward 2002: 66). A development of game theory, is the idea of strategy equilibrium, which is the idea that, no one changes their strategy in order to try to improve their relative gains from the game, since the best choice will always be the same (Ward 2002: 69). What we must ask is whether or not the idea of strategy equilibrium, has trouble in a world of multiple information levels? Say we look upon world trade as a phenomenon of social exchanges based on pure strategic choices, if basic trade theory serves us correct, we should be living in a world where all countries would be fully specialized in labor- or capital intensive production and price equalization (Krugman & Obstfeld 2006: 65) and be trading equally with all other, however, we can obviously find examples where this logic fails. With a little ambition we could claim that the real world, in many situations, acts somewhat different then from what trade theory tells us, and as such we can argue that despite evidence of clear strategic choices within trade policy around the world, there is evidence of some underlying distortion.

A classic rule of thumb in microeconomic theory is that any distortion of the natural market supply-demand equilibrium will produce a loss in welfare for the consumers and for potential competitors, as such the optimal course of action is to choose the lowest possibly price for any given good or service (Krugman & Wells 2005: 15-16). But what happens when we apply this "rule" to the market within modern politico-economic situation and with increasing religious- and cultural entrenchment between the classic western free-markets and non-democratic

influences information based on domestic power struggles, religious ideology or neo-nationalism?

The general thesis at this point is of course that, despite much evidence of rationalism in both test environments and the real world, there are a number of scenarios in which we, accordingly with the definitions set out earlier, can both predict- and observe irrational behavior. As such, the conclusion at this point would be that, despite methodological support, we argue that rationalism alone cannot serve as a complete foundation for either human behavior in general-, nor in trade analysis.

3.3.3 Differentiating Political Science

As argued in the previous chapter, economic methodology may appear rigid and absolute, but when combining economic perspectives with real world observations, we can indeed construct an argument for analytical- and theoretical differentiation. As economic methodology require a little "manipulation" in order to construct a model which are consistent with the original outcomes of the theories, Political science is by nature differentiated, as different branches of political science observe very different perspectives on the world. As such many of the classic ontological discussions within political philosophy serves as a good foundation for the general argument of this thesis, namely that different perspectives meet, and seek to explain their views on the world, and to offer critique of the other perspectives (Lundquist 1993: 14-17). As such one can easily think of taking the next step, when instead of trying to prove the other theories wrong, we can try do an objective analysis of the theoretical foundation of a given theory, and combine it with a another perspective (perhaps outside the political science field), and take the ontology discussion to the next level, where right and wrong are not discussed in absolute terms, but rather in relative terms based on a combined analysis.

We are however faced with a consistency problem in the analysis of differentiating political science perspectives, since certain political science approaches directly speaks against any sort of linkage with outside perspectives or other schools of thought e.g. Almonds methodological dimensions (Lundquist 1993: 91-93). As such, our differentiated approach to a combined economic- and political (social) analysis, becomes limited by the implicit arguments of certain approaches, which does not observe the basic argument of multidimensional analysis, to be a valid method of analysis. The key to the strength of a potential differentiated analysis, therefore lies in understanding the different approaches sought to combine, and thus understanding the limitations of the analysis in general, what we are looking for, is the methodologically strong middle ground where we seek both subjectivity and objectivity (Sørensen 1998: 7). As the limits to a differentiated approach varies in accordance with the approached sought to be

combined, we cannot construct a permanent set of "differentiation rules" which applies to all differentiation attempts. But rather set a standard, which argues that the constructed differentiated model should be methodologically consistent, which means that if the "internal belief factor" is reduced to a minimum (or maximum depending on the views of the researcher), we should see the model revert to either absolute view. Meaning that complete belief in one approach over the other, should mean that our combined analysis should generate the results, a normal single-sided analysis of the "believed" approach would otherwise generate on its own.

4 Differentiated Trade Analysis

In chapter 3 I sought to explain- and highlight methodological entrenchments between political science and economics and presented arguments in favor of looking outside the mainstream approaches in both fields of science. Recalling the methodological debate from chapter 3 and the original question 'on how to make more accurate trade analysis while accounting for both economic and political factors, we are presented with an opportunity to evolve a differentiated model for trade analysis.

4.1 Definitions:

Before presenting the overall model of Differentiated Trade Analysis (DTA), there are a number of concepts which needs to be identified and defined explicitly as they are crucial to the understanding of the model's implications.

4.1.1 "Boycotts"

The first and foremost concept we need a strong definition of, is "boycotts" themselves. A boycott can be interpreted in a number of ways, the definition which is used in this paper is taken from John & Klein (2003), where a boycott is defined as a number of people which refrains from purchasing a product of some sort due to personal choice (John & Klein 2003: 1198). As such a boycott does not necessarily imply full boycott of a company's- or country's product(s), but rather that a number of people (N) are participating in the boycott. As an extension to the John & Klein definition, this paper also addresses the issue of *"rational boycotts"*, which simply is an argument that when the price level of a product becomes too high, people will stop purchasing that particular company's- and/or country's product(s). Similarly the concept of *"irrational boycotts"* refers to the classic perception of a boycott where non-economic factors are governing the individuals' participation in the boycott.

Furthermore, for a boycott to exist, there has to be non-zero participation ($N \neq 0$), and a "boycott success" implies that the protested behavior is changed accordingly to the wishes of the boycotters, this means that either the price is lowered and/or the non-economic reason(s) for the boycott is somehow changed.

4.1.2 The Time Gaps

Time Differentiation: *"Time heals all wounds"*, this old saying plays a central role in the long-run theory of differentiated trade analysis. The idea is that, as time progresses actors receives increasing amounts of information and the level of information insecurity decreases towards zero, and the influence of economic factors in a conflict becomes more relevant, this is conceptualized as the idea of time gaps. In the ideal case there are 3 gaps representing:

1. The first gap representing the transition from the "standard" situation of trend growth to an anomaly where irrationality begins to manifest. This gap will be known as the short-term gap
2. The second phase gap represents the transition from the anomaly to a situation of reducing irrationality and increased evidence of a return to the trend. This gap will be known as the medium-term gap.
3. The third and final gap represents the return to the ideal situation of complete information and total rational behavior. This gap will be known as the long-term gap.

The main idea in this ideal case is that as time progresses the economic drive for the optimal price, of some commodity, induces economic rationality over time. As such the ideal standard situation (rationality) is sought by the market in every situation, and as such any deviation from this standard situation is brought on by the anomaly which in turn is created by incomplete information.

Drawing 4.1 shows a graphical interpretation of the ideal case:

4.1: The Ideal Case - "Linear Equation Model"
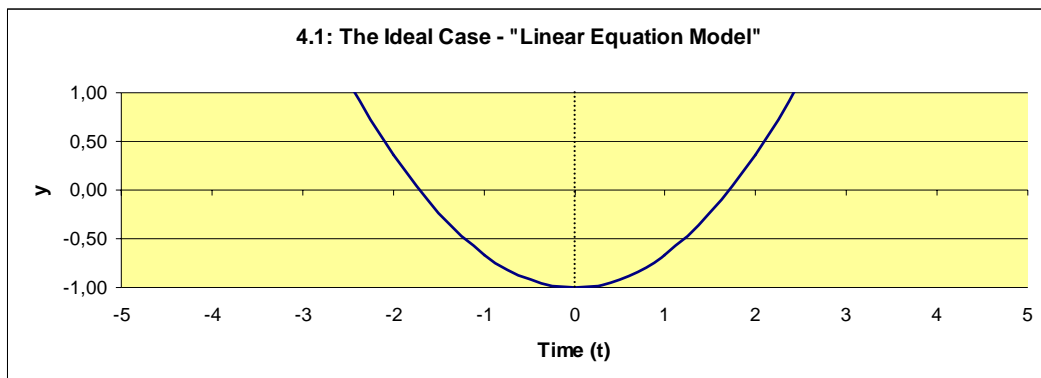
y can be interpreted as an indicator of irrationality, where $y = 1$ = the expected normal situation, and $y = -1$ = the worst case scenario if full irrationality $\sim N=100\%$, t_0 = the bottom point in which the boycott is at its maximum. Every time period before initiation of the boycott, for all t where $y \geq 1$ represent the expected rational period, for $y < 1$ and $t < 0$ the model are in the short-term gap, similarly for all $y < 1$ and $t > 0$ we are in the medium-term gap and finally for $y \geq 1$ and $t > 0$ the model has returned to the expected rational perspective representing the long-term gap.

4.1.3 The Policy Gaps (reputation)

Policy Differentiation: Various local, national or international *"policy"* initiatives can have more or less impact on a case of irrationality, therefore policy can affect the effects of mounting irrationality and/or ease up the amplitude of the effects of a conflict scenario. Where the model does not have any explicit explanations of the individual *"policy"* effects, it does recognize limitations to the concept of "policy". The concept we are establishing on the basis of these *"policy"* issues is that of *"reputation"*. Reputation can be interpreted as any political, social, psychological or cultural-religious activity which has an effect on the bilateral relations between the exporting- and the importing country. Reputation therefore

becomes a function of social activities within the host (importing) country and the guest (exporting) country.

4.2 The Basic DTA Model – A Stylized Approach

On the basis of the definitions set out in the previous chapter and on the discussion earlier about differentiated theory and methodology, I will now present a stylized model of the basic Differentiated Trade Model. As this model builds on both political science and economics, there will be some parts which rely on some basic mathematics. As the math has little relevance to the fundamental analysis which is sought, many of the calculations have been appended to the thesis in the form of mathematical appendixes, which the reader can turn to for more detailed explanations of the internal mathematics if desired[1].

The first part of the basic DTA model we need to establish, are models for each factor in our analysis. As argued in chapter 3, we are seeking a model which takes both economic and political factors into account, and as such we need sub-models for each factor in order to establish a theoretical understanding of their impact on the final model.

As the overall theory tells us that both economic- and reputation[2] factors have an impact on a bi-lateral trade situation, we can establish a basic model of these factors' influence on the relations: We think that the variable P (price) indicates the economic influence on the relations, and Φ (reputation) indicates the social influences on the relations.

The Price Model[3]:
The first part I will introduce is the simplest (from a mathematical perspective), which is the economic factors (P):
P is a simple function of the price differences between different exporters of a given non-differentiable good (say milk or cheese) which we can write as:

$$[1]: P = \frac{\sum_{i}^{n} \frac{(p_i + p_{ti})}{n}}{(p_1 + p_{t1})} = \frac{(p_w + p_{tw})}{(p_1 + p_{t1})}$$

As P varies with the quota changes between the "world" price and the initial exporter's (country 1) price, the general conclusion of basis of this simple model of price differentiation, is that price changes in either p_w or p_1 will have an effect on P. As argued in appendix 1, the conclusion from equation 1, is that we should observe a boycott if $P<1$.

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[1] See Appendix I.01 & I.02 for mathematical explanations to the basic DTA model

[2] See definition sub-chapter for definition of "reputation"

[3] See Appendix I.02 for explanations of variables and mathematical analysis

The Reputation Model[4]:
Similarly to the establishing of *P* we will need to make a formal equation for the social factors (*Φ*) in the overall model, which will be expressed as follows:

$$[2]: \Phi = \left(\frac{\sum\limits_{i}^{n} \varphi_i - \left| \sum\limits_{i}^{m} \frac{\varphi_{wi}}{m} \right|}{\sum\limits_{i}^{m} \frac{\varphi_{wi}}{m}} \right) + 1$$

Once again we have a function where changes in either world reputation or the initial exporting country's reputation has an affect on the value of the social factor (*Φ*), and again as presented mathematically in appendix 1, if *Φ<1* we should see the initiation of a boycott.

The Combined Model[5]:
We establish the basic DTA model by combining these two factors on an equal basis as the following:

$$[3]: \delta = \frac{P + \Phi}{2}$$

The overall general conclusion to equation 3, which represent the core of the basic DTA model, is that if the equal distribution of *P* and *Φ* combined as *δ<1* we should see a general boycott equilibrium in accordance with the initial assumptions.

4.3 Extending the Basic DTA Model

As the basic DTA model clearly has many limitations, there are a number of possible extensions to the basic model. I will in this subchapter present some of the most obvious extensions and explain some of the implications it would have to include these into the numerical analysis done later in the empirical test of the DTA model(s).

The Biased Price-Reputation Model[6]:
The first and most obvious extension we will look at is the idea of biased influence of either economic or social factors to equation 3. By adding a variable to represent such biased beliefs we get the following:

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[4] Appendix I.01 & I.02 for explanations of variables and mathematical analysis

[5] Appendix I.04 for explanations of variables and mathematical analysis

[6] Appendix II.01 for explanations of variables and mathematical analysis

$$[4]: \delta = \frac{(2\eta \cdot P) + (2 \cdot (1-\eta) \cdot \Phi)}{2}; \eta = [0,1]$$

Where η represent the researcher's personal belief in economic rationality (price governance) by which the outcome of equation 4 changes in accordance with the changes in η. $\eta = 0 \sim$ no belief in economic factors, $\eta = 1 \sim$ no belief in social factors. It is important here to note that if $\eta = 0,5$ then equation 4 returns to the basic DTA model and equation 3 since:

$$\delta = \frac{(2 \cdot 0,5 \cdot P) + (2 \cdot (1 - 0,5) \cdot \Phi)}{2} = \frac{(1 \cdot P) + (1 \cdot \Phi)}{2} = \frac{P + \Phi}{2}$$

It is also important to recognize the connection between the mathematical model of the biased model, and the methodological argument presented in chapter 3, when debating the possibility of differentiating political science, and how to make the models methodologically consistent with the original models.

The General Model:
Another extension many researchers likely would argue in favor of, is extending the model with more factors, since economic- and social factors alone can't represent all aspects of modern business.

Thinking of Φ as a all-round variable might not be satisfactory for some researchers, who would wish to introduce some variable, say β, symbolizing some more of less obscure level of influence on the individual's and/or collective's consumption decisions, which would generate a formal general model like:

$$[5]: \delta = \frac{P + \Phi + \beta_1 + ... + \beta_n}{2 + n}$$

The problem we are faced with in this case, is that we no longer can devise a specific value to the non-economic factors (originally only Φ), since we would have to take the variables $\beta_1 ... \beta_n$ into account for the non-economic part of the equation. As such we can no longer estimate the significance of the reputation, by doing a simple numerical analysis of the economic factors. The significance of equation 5 is that it represents the general form of the combined methodological approach model, as such it is relevant to understand the implications of the simplifications we are making in the simplified combined price-reputation model and its biased variant. One significant variable which could be argued to be of high importance is the concept of branding influence, which can take forms of product-based branding or origin-based branding. In cases of international consumer boycotts, origin-based branding could play a significant role in the decision to initiate a boycott in the first place (Marketing Week feb. 9 2006: 22; The Economist Nov. 2 2002: 83; O'Reilly 2006). We can however argue that origin-branding can be included in the Φ value due to its international nature, and therefore are likely to be directly correlated with the country's general reputation. It is however likely that product-based branding would require a separate variable,

thereby complicating the analysis, and forcing us to analyze on an industry level rather than on a specific country. Since we are interested in national effects I will for the remainder of thesis focus on the basic- and the biased models since they are the simplest and most relevant in a national analysis.

Elasticity and Price Differentiation:
A major problem with the later numerical analysis of the Biased- and Basic DTA models is that they don't take consumption- (demand) or production (supply) elasticity's into account. By including elasticity in the equations of the DTA models, we would introduce a new and much more advanced level of mathematics to the general model, which undoubtedly could have significant effects in some cases, this would however greatly distort the attempt to establish a fundamental model for combining economic- and social-political analysis in trade relations.

Other Extensions:
Besides the three previous extensions to the basic DTA model, one can imagine situations of non-linear cases, where the original deviance from the expected irrational economic value (based on the value of η) we would see different patterns of boycott length compared to the original theory of linear time gaps. This could be interpreted as prolonged irrational entrenchments, which deviates from normal price- and social differentiation patterns. Such extensions have no effect on the mathematical models we have established so far, but rather on the social-political analysis based on a numerical calculation of Φ in a given case, for instance dependency analysis or cultural entrenchment scenarios.

4.4 Applying the DTA Model

Having established the formal model for Differentiated Trade Analysis, it is necessary to point out how to make a numerical analysis on the foundation of this formal model. To do this we need to come to terms with what to calculate, and what to assume.

Choosing a Perspective:
The first part of this construction of an applied model, is to come to terms with the two main variables in the basic DTA models P and Φ. A central argument of the theory is that we can't know the implications of the social factors from a classic readout of export data, we will try to calculate these by eliminating the economic factors from the data. As such we are seeking an approach where we calculate the relevance of P based on available statistical data for price levels. Since this model is focused on international trade, we are focusing on the exchange rate as an indicator of the price level, as such changes in the exchange rate become a good indicator of changes in the price level, hence a good indicator of changes in P (Aksoy & Lustig 2007; Paya & Peel 2007). Since this generally can be a source of error, it should be noted one can include more variables to the calculation of P, the rest of the operation remains the same, the changes in P simply becomes more

complicated to calculate. As a consequence of the mathematical model the denomination of changes in P is identified as: Δp_{ti} [7]

A final note to this perspective choice is of course that if one wishes to attempt to analyze a case from the opposite perspective, this is indeed possible, one will however have to rely on other types data for establishing an initial value of Φ, and calculate the expected effects of P and compare them with statistical readouts.

Numerical Statistics: Constructing a Relative Analysis Case
As the analysis we are conducting in the case study (and recommended as the standard approach) includes statistical data on exchange rates and export data, it is necessary to understand how these should be approached.

When observing data retrieved from statistical databases, one is presented with the raw data (some data may be adjusted for seasonal fluctuations), and as such we need to establish what type of data we are interested in? The basics of the general theory and mathematical model tell us that we are looking for deviances from the "expected values". As such we need to establish a trend of exports, which can be interpreted as the growth in bilateral exports. This is done with simple statistical methods, by retrieving a series of data, and calculating the average value (typically on a monthly basis) and with a regression analysis, finding the trend of the data series. Throughout the later analysis, this data will be known as the "Trend Period".

On the basis of the trend period, average exports and trend in export growth, one can establish an expected export period, where results are calculated as: $\mathrm{Pr}\,eviousData * (1 + Trend)$ and repeating this step over the period one intends to analyze. This will be known as the "Expected Data Period".

To make a relative analysis we also need to include the actual observed data, this is the raw data retrieved from the statistical database. This will be know as the "Observed Data Period"

The last step during the initial phase of the analysis is to calculate the relationship between the observed data and the expected data, thereby getting the deviance from the expected exports and the actual observed exports, this done by simply diving the observed data with the expected data.

Calculating Φ and Making Early Conclusions:
When calculating Φ there are two paths one can follow:
1. The Relative $\Delta\Phi$: One calculates the theoretical change in Φ in relative terms by subtracting the previous period's (month) trend deviation (D_0)

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[7] See Appendix IV.01 for calculations of Δp_{ti}

from the current period's trend deviation (D_1) and adds the belief in economic factors multiplied with the change in P:
$$\Delta\Phi_{rel} = (D_1 - D_0)\cdot(\Delta p_{ti}\cdot\eta)$$
From this calculation we get the relative change in Φ from the previous period, implying that the period (D_0) before the first analysis period $= \Phi = 100\%$.

2. The Absolute $\Delta\Phi$: Similarly to the calculation of the relative $\Delta\Phi$, one can calculate the expected absolute $\Delta\Phi$ compared to the expected data:
$$\Delta\Phi_{abs} = (D_1 - 1)\cdot(\Delta p_{ti}\cdot\eta)$$
We thus calculate the $\Delta\Phi$ in terms of the trend data.

Both results will likely be interesting to interpret during the numerical analysis of the model, but generally we should expect the most interesting results to be derived form the relative analysis, since the relative numbers would indicate the change from month to month, regardless of the original Φ value, whereas the absolute analysis becomes much more volatile as the original Φ changes.

When having calculated the relative- and absolute changes in Φ, one can make a quick validity analysis of this by correlating the exchange rate changes Δp_{ti}, with the observed data period. If a correlation $= 1$ or -1 (or being very close to that), it is likely that the changes in the calculated social factors $\Delta\Phi$, has had no effect since we have seen perfect correlations between price changes and export changes. As such we can make an intermediate conclusion of our results at this point based on this relationship.

The last and final operation one can do, is to calculate for different η values, and thereby getting results for different perspectives on the same case, as well an indicator of the error in one's analysis and/or trend calculations, since a η value of 0 should indicate that $\Delta\Phi$ should explain the whole change in exports from period to period. As this is likely not to be the case when calculating the relative $\Delta\Phi$, one need to understand this source of error, and the implications of this, which can mean either dampened- or increased social factor implications in accordance with the basic DTA model, which in turn calls for extending the model with other factors as discussed in chapter 4.3.

5 DTA in Action – Empirical Test of Differentiated Trade Analysis

5.1 The Inter-Cultural Medium Transition Example: The Mohammad Cartoon Crisis

5.1.1 The Initials

On February 4'th 2006, the world witnessed the combined Danish, Swedish and Norwegian embassy in Damascus attacked and set on fire by thousands of demonstrators, who were shouting for a jihad against the artists from Denmark who had provoked an entire religion with 12 cartoons in a newspaper. During the following days the same pictures emerged from Beirut and Teheran, and as the pressing explicit hostilities seceded, the nature of the conflict changed, and turned to become a population proxy-, or surrogate, boycott of Danish products. As we think about the conflict from a distant macro perspective, we can divide the conflict into to two realms.

- The "political" focused on legitimacy, diplomacy, human rights, freedom of expression and domestic politics in both western- and middle eastern countries.
- The "economic" which from an international perspective received the lesser role of importance during the highpoint of the conflict, but which later had received widespread attention.

From this we can adopt the framework of the Differentiated Trade Analysis model developed in the previous chapter. The first step we must take is to dissect the case and choose what to analyze on the basis of. In order to extend the analysis a little further than purely focusing on Danish exports, I have chosen to include Sweden and Norway in the analysis. This is done for two reasons:

- The fact that both Sweden and Norway shared much of the pain in absolute terms, with Denmark, it would be interesting to extend the analysis in order to understand the implications of the case for both countries.
- In order to conduct a more refined error analysis in the end of the case study, it serves much validity to include several countries in the same analysis in order to detect errors in the formal model.

The goal of the analysis is to open the case for all three countries, and identify economic effects in accordance with the DTA model, and ultimately present a case analyzed from bi-polar stances of social science, resulting in answering the impact of economic- and social factors.

5.1.2 Impact of the Protests: Loss of Exports

When looking back at the events in primo 2006, there was a number of potential outcomes of what we were witnesses to, what happened when the violence subsided and people stopped protesting the streets was that a silent protest emerged in the form of a surrogate boycott resulting in visible loss of exports from countries associated with the cartoons.

When observing the aggregate exports for the three case countries to the countries identified as "Islamic States"[8] we can see sharp reductions in the period right after the crisis had emerged:

Aggregated Nordic Exports to Islamic Countries
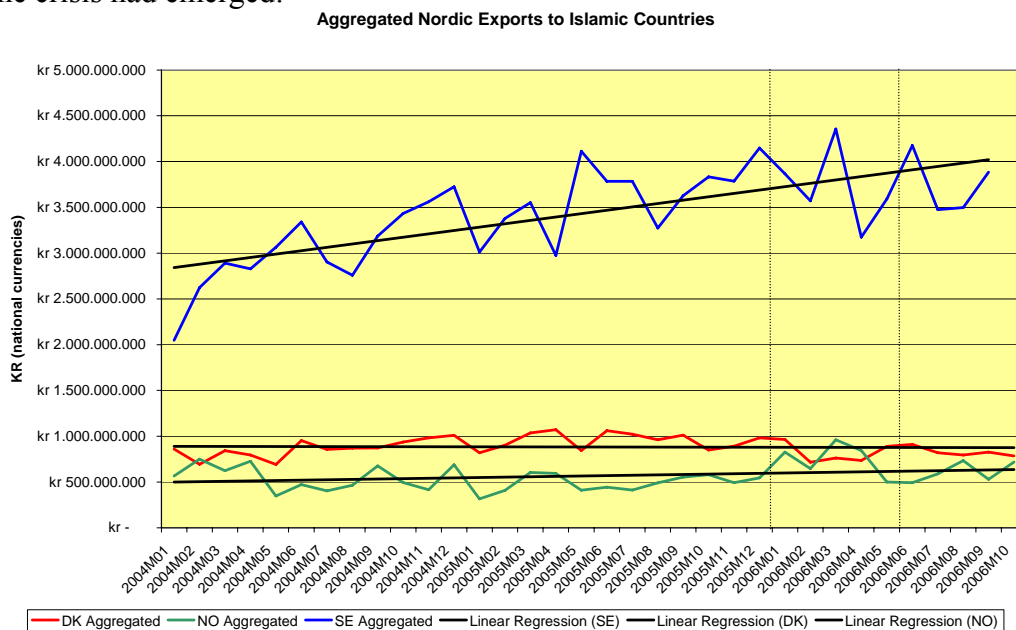
As the exports of Denmark and Norway are relatively stable with few major distortions apart from the conflict period (located between the two vertical lines), the Swedish exports are far more volatile, I will later return to this when trying to ascertain certain deviations across the countries.

A special note can also be said about the length of the drop in exports, where both Sweden and Norway experiences increased volatility, Denmark appeared to have experienced a more sustained loss throughout the period.

In order to analyze the case more accurately I have selected six export markets which will serve as our test cases. These were six of the most exposed markets, which at the same time have had relatively stable imports form all three exporting countries. These six countries are: Turkey, Egypt, Iran, Saudi Arabia, Syria and

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[8] These countries are: Turkey, Egypt, Nigeria, Somalia, Syria, Iran, Saudi Arabia, Qatar, United Arab Emirates, Yemen, Afghanistan, Pakistan, Indonesia, Lybia, Jordan, Kuwait, Oman and Thailand

The United Arab Emirates. These six countries for the remainder of the analysis be the reference countries to which all aggregated numbers refer, and will be referred to as the Arab World series.

5.1.3 Adapting the Statistical Data to the DTA Model

When having identified the individual parts of the analysis it is time to conduct the initial numerical analysis, as the DTA model has spelled out, the first step which should be taken is identifying the price factor, as such the first data which is retrieved is exchange rates for each of the involved countries.

On the basis of the exchange rates for each of the involved countries, a model has been constructed in order to discern the individual host-guest (importing-exporting countries) rate compared with the exporting rate and main international rates (US-Dollar, Euro and Yen), this is done in order to construct a relative price change from potential international exporters[9].What we get from these calculations are monthly numerical predictions of the economic factor effects for each export market for each of the three initial exporters[10].

Before comparing the changes in price factors with the export losses, we need to create an export trend analysis, where the expected exports are predicted in accordance with historical data. This is done as described in chapter 4.4 – applying the DTA model, for each export market for each of the three initial exporters[11].

The next step in the data calculation process is to hold the relative prices changes (Δp_{ti}) up against the calculated export trend, calculated from the retrieved data from national statistical databases. This step identifies the last numerical calculations where the projected changes in "reputation" ($\Delta\Phi$), in accordance with the definitions set out in chapter 4.1, are calculated from relative- and absolute perspectives. The following tables show the calculated changes in relative reputation for the three exporters to each market[12]:

Denmark's Total Reputation Change 2005M12-2006M05 as function of (η)

	η	0,00	0,25	0,50	0,75	1,00
Turkey		-10,14%	-8,88%	-7,61%	-6,34%	-5,08%
Egypt		-10,88%	-9,77%	-8,67%	-7,56%	-6,46%
Iran		-34,04%	-31,34%	-28,64%	-25,94%	-23,24%
Saudi Arabia		-15,76%	-14,96%	-14,16%	-13,36%	-12,56%
Syria		-11,93%	-9,36%	-6,79%	-4,21%	-1,64%
Utd. Arab Emirates		20,51%	21,31%	22,12%	22,92%	23,73%

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[9] See Appendix IV.01 for calculations of exchange rates ($\Delta p_{ti})$

[10] See appendix IV.02 data tables on exchange rate calculations

[11] See Appendix III.01, III.02 & III.03 for the three individual trend analyses

[12] See Appendix III.01, III.02 & III.03 for calculations of $\Delta\Phi_{pi}$ in relative and absolute terms for η=0,5 (50-50 belief in economic- and social factors)

Sweden's Total Reputation Change 2005M12-2006M05 as function of (η)

η	0,00	0,25	0,50	0,75	1,00
Turkey	-9,11%	-7,54%	-5,98%	-4,41%	-2,85%
Egypt	-75,52%	-74,11%	-72,70%	-71,29%	-69,88%
Iran	-14,87%	-11,86%	-8,85%	-5,83%	-2,82%
Saudi Arabia	-7,33%	-6,23%	-5,12%	-4,01%	-2,91%
Syria	41,36%	44,25%	47,13%	50,01%	52,89%
Utd. Arab Emirates	-6,77%	-5,66%	-4,56%	-3,45%	-2,34%

Norway's Total Reputation Change 2005M12-2006M05 as function of (η)

η	0,00	0,25	0,50	0,75	1,00
Turkey	67,92%	69,79%	71,67%	73,54%	75,41%
Egypt	-5,56%	-3,86%	-2,17%	-0,47%	1,23%
Iran	-495,47%	-492,16%	-488,86%	-485,56%	-482,26%
Saudi Arabia	14,85%	16,24%	17,64%	19,03%	20,42%
Syria	-103,37%	-100,20%	-97,02%	-93,85%	-90,67%
Utd. Arab Emirates	-29,63%	-28,24%	-26,84%	-25,44%	-24,05%

As these numbers represent the final relative analysis of Danish, Swedish and Norwegian exports to the six Middle-Eastern test countries, we should now see a picture emerging, from which we can analyze the cases and the DTA model in general.

5.1.4 Analyzing the Results

The Danish Cases: [13]

When observing the calculated relative reputation changes for the six export markets from a Danish perspective, we see five cases which act in accordance with what we could believe from the initial observations, that the cartoon conflict initiated a decline in the overall reputation of Denmark and thus of Danish products. One case (United Arab Emirates) appears to be deviating from the initial belief that we should see declining exports in accordance with the trend expectations, as we in for the entire η specter [0;1] see increased reputation. We can however explain this deviance from the expected loss of exports by observing the data for 2006M04 and M05, where the trend export calculations rise from 89,51% to 132,87%, thus bringing the export back over the expected 100% barrier for this particular market. Additionally to this error analysis it can mentioned that the export trend for the United Arab Emirates appears to have been negative for the trend period, as such we should see deviations from the expected reputation compared with countries with positive trends.

When plotting the exports contra the export trend analysis (expected exports) the following graph emerges:

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[13] See Appendix III.01 for data on Danish export trends and reputation calculations
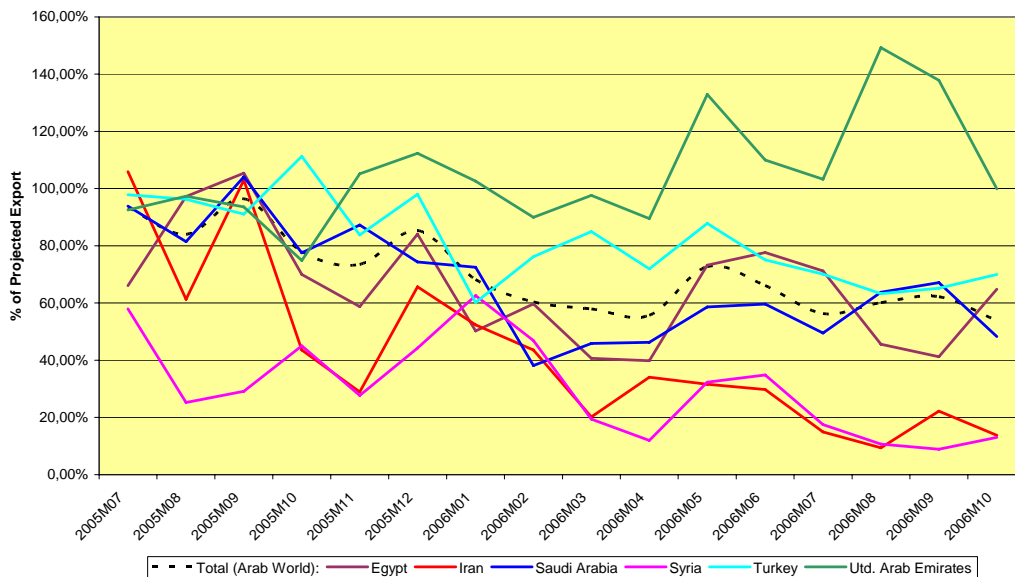
As some of the countries in the analysis has obvious declining graphs, it is easy to physically observe the deviations form the expected numbers (the trend), but as we in this analysis is trying to determine the social effects on the case, we cannot let this picture fool us. Recalling the DTA model for η=0,5, we can think of these declines in exports held against the trend analysis and our economic factors (exchange rates), as indicators of the δ value for Denmark against each country and the total export to the selected countries. The key to understanding the relative reputation changes calculated, is to look at the graph (or data), and see that many of the case were initially below their expected level (100%). As the conflict emerges in the period 2006M01, we can indeed see declines in expected exports, but as the initial exports lay at an average of 85% of the expected, the decline due to the conflict appears smaller than a pure export trend calculation would have indicated. The final result of the analysis appears to be that a new overall trend level for the six countries emerges around 65% of the initial value (see Total Arab world series).

The calculated reputation changes held against the trend analysis tells us that even though the actual exports did live up to the expected trend, there appears to have been a decline in most of the six cases, and as such we can with some legitimacy argue that calculated reputation changes can explain at least part of the decline.

As such, in the case of Danish exports, we can see direct links between the calculated social factor changes, and drop in exports in relative terms (and absolute). The argument is then that for this case, we see that the DTA model, for the different η values, generates a list of social factors changes which correlates quite well with our initial expectations. The key to the strength of the analysis is the relative size of the reputation declines within each η series, as such we have an analyzed factor which correlates well with what we expected it to, namely that social factors operate outside economic factors, but influence overall exports.

The Swedish Cases: [14]

When observing the calculated social factor changes for the case of Swedish exports, we see that five of the six cases appear to act in accordance with the expected drop in reputation. The deviant market in this case is that of Syria which appears to have experienced an increase in the reputation factor, contrasting the expected decline.

Sweden's Relative Export - 2005M07-2006M09
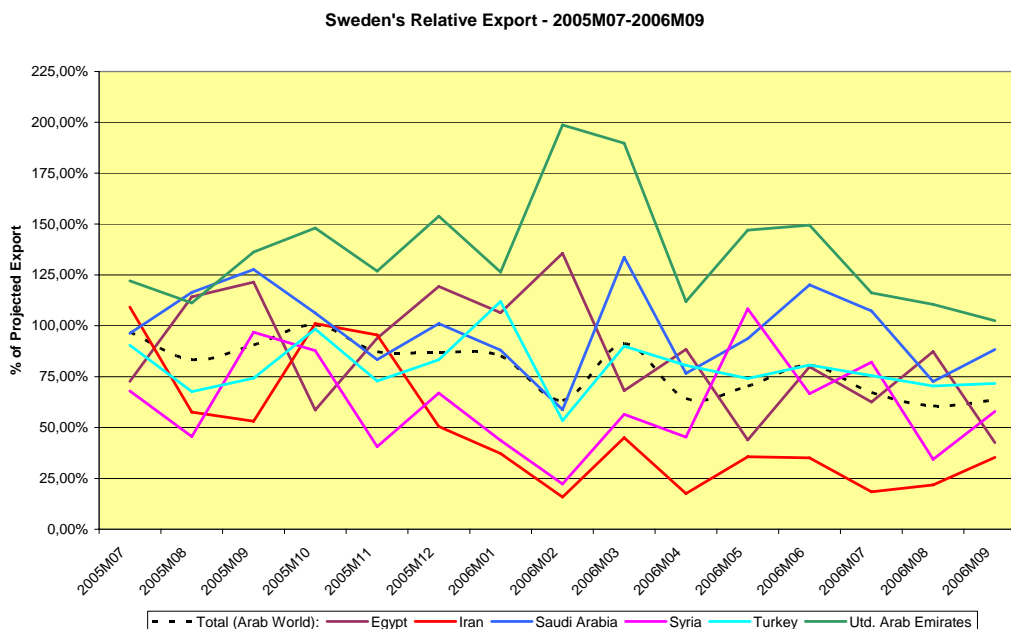
However, when observing the graph (or data) of Swedish relative exports, we can see that Syrian export market has over a period before the crisis, been in a decline, and in the period 2006M04-M05 experiences a sudden sharp rise back to the expected trend followed by a drop in the months that follow. The simple conclusion is that the Swedish-Syrian export market is indeed very volatile (as mentioned in aggregated terms earlier for Swedish exports).

Furthermore, we can see that the market of the United Arab Emirates once again appear deviant, as the relative exports increase compared to the trend (and in absolute terms as well) during the conflict, but subside at the end of the analysis period. This the market for the United Arab Emirates produces an almost neutral social factor analysis, as the change is calculated within the range of -6,77% to -2,34% depending on the η value.

The general conclusion from a DTA perspective on the case of Sweden in this conflict, is that we do indeed observe sharp declines in the relative export numbers, but that the effect appears smaller on average then compared to the Danish case, and more volatile as some of markets appears more of less unaffected by the conflict in either the entire period, or in smaller sub-periods e.g.

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[14] See Appendix III.02 for data on Swedish export trends and reputation calculations

Saudi Arabia 2006M03 where the relative exports suddenly rise to 133,72% compared with the previous month of 58,76% of relative exports.

What we can see from this case, is that again the calculations of social factors do, in most of the markets, appear to follow the expectations and produce a drop in exports, and follow the pattern, we have from our initial expectations, and produce declines in the overall exports as an non-economic factor for the different η series. Unlike the Danish exports, the four best correlated social factor markets (Turkey, Iran, Saudi Arabia and United Arab Emirates) all produce close to neutral values in η=1.00 (pure economic analysis), and as such we have another strong argument that the calculations of social factors can be used in analysis which are building on social explanations rather than pure economic analysis.

The Norwegian Cases:[15]

The last case represents a deviant case from the otherwise good results the Danish and Swedish case presented us with. In case of Norwegian exports to the six case markets, we see certain markets that deviate quite a bit from results we would have expected.

Norway's Relative Export - 2005M07-2006M10
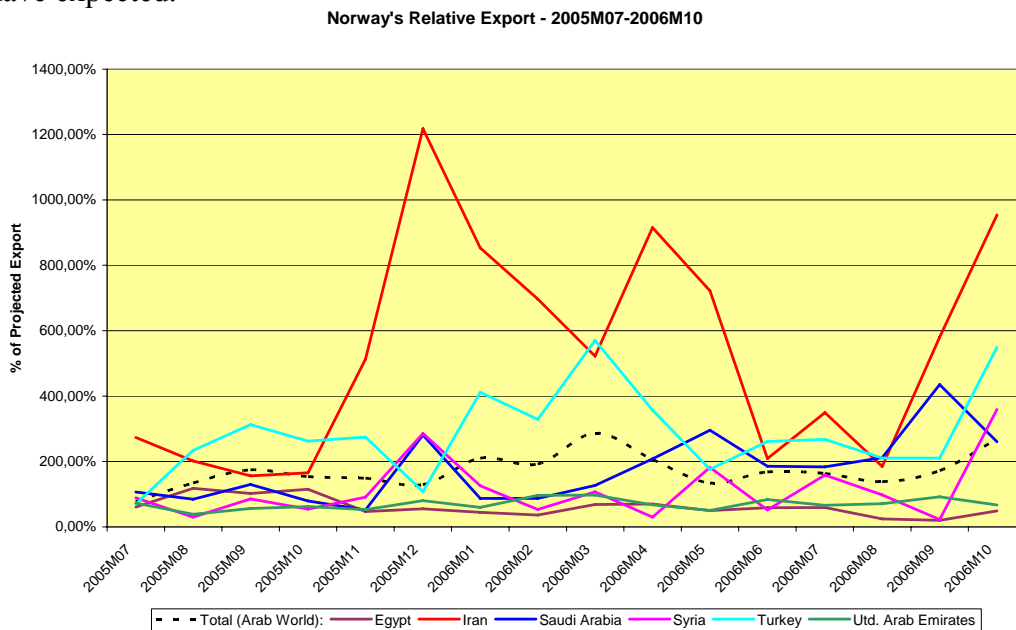
The two most obvious deviants are Iran and Syria, as these both produce reputation changes below -100%, indicating that export should have been complete halted if the theory of reputation is to hold. The case of Syria can be explained by observing that the previous period to the conflict initiation 2005M12, where Norway experienced a deviant relative export of 285,5% compared with 91,02% the month before and 125,47% in the first month of the conflict period. Clearly such deviants produce errors in our attempt to accurately calculate the changes in economic factors Δp_{ti} and thus we are limited to look at

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[15] See Appendix III.03 for data on Norwegian export trends and reputation calculations

the markets that are less deviant. As such, in Norwegian case we are left with only two markets that are relatively stable (not deviating with several hundred percent from month to month) which are Egypt and United Arab Emirates.

Limiting our analysis to these two markets, we see another good correlation between the expected behavior and the changes in the social factors. As η increase and economics become more relevant than social factors, the reputation changes approaches 0, and in the case of Egypt actually converges around η=0,8.

The general problem with the Norwegian case, which is an interesting notion to the theory construction, is that the export markets are quite volatile, and thus the resolution, or degree of accuracy, of the analysis declines rapidly as the month to month deviations increase.

6 Conclusions

The main objective with the thesis was to construct a methodological link between two very different fields of science, and thus help to create a better understanding of the trade patterns emerging in a more globalized trading world. The methodological discussion taken in chapter 3, presented arguments for deviating from absolute stances in ontological and epistemological frameworks, and broaden the horizon of possible explanatory theories within IPE studies. As shown, there are already numerous arguments present in contemporary literature in both economic- and political science research. As such, a model which attempts to take multiple levels of factors into account, while remaining quantitatively consistent, is mathematically constructed in order to conduct a quantitative analysis of trade distortions, while observing non-quantitative factor influence on the general outcome. This differentiated model of trade analysis has showed both good and bad results in the later numerical analysis of Denmark; Sweden and Norway during the recent cartoon crisis.

For Denmark and Sweden we see very good results for a good part of the cases, in particular when changing the η value form $0 \rightarrow 1$, where the calculated social factor diminishes. As such we do have an argument for the DTA model, as an intermediate inter-topic analysis model for combining economic- and other social methodologies into one combined analysis. In these, the differences of the analyses can be explicitly presented, and thus we can change the debate from stating that one analysis differs from another, to how much and why they differ, based on the calculated social factor changes. For cases with large month to month deviations, this sort of analysis are unsuitable, and thus we are faced certain limitations to the DTA model of analysis, and must therefore be observant to the cases which are being tested using DTA analysis. As a conclusion to this first attempt to create a stylized mathematical model to explicitly present methodological differences in numerical terms, we are being limited to certain cases where the numbers in both trend period and analysis period are relatively stable.

Thus there are two general conclusions to this thesis:
1. The methodological link can, if desired, indeed be constructed, and if the researcher has an open mind to multiple factors, a model similar to the DTA model can indeed present data on cases of both economic and political interest, while remaining objective to both the case and the theories in question
2. The Differentiated Trade Analysis model shows some promising signs in combined economic and political analysis. As there are obvious limits to the model, and due to simplifications, some results are quite distorted. There likely no way to completely eliminate all errors of such models as the DTA model, it is however my strong belief that such models can be a beneficial tool in future IPE theory and numerical analysis.

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8 Appendixes

This section contains a series of statistical data, graphs and mathematical formulae by which the main text is based, these data are not directly necessary for the overall understanding of the thesis, but are thought to serve as a supplementary set of information.

8.1 Appendix I: The Basic DTA Model

Appendix I.01: The Basic-Reputation Model:
The Basic-Reputation model builds on the idea that all behavior is related to our concept of reputation, which means all consumption in a country is rooted in our perception of the seller's reputation, as such we can construct a mathematical model of reputation based consumption:

$$[1.1]: \Phi = \left(\sum_{i}^{n} \varphi_i \right) + 1$$

n = number of reputation changing events, φ = reputation change value
Reputation can be interpreted as any political, social, psychological or cultural-religious activity which has an effect on the bilateral relations between the exporting- and the importing country.

In the basic-reputation model we assume a one factor economy, with two trading countries. As such negative reputation is defined as negative values, positive reputation as positive values, and the simple case would initiate a boycott when: $\Phi < 1$

Appendix I.02: The Extended-Reputation Model:
Trying to extend the basic-reputation model, we will try to incorporate world reputations into the equation. Assuming perfect competition and a general world reputation equilibrium, the general extended-reputation model takes the following form:

$$[1.2]: \Phi = \left(\frac{\sum_{i}^{n} \varphi_i - \left| \sum_{i}^{m} \frac{\varphi_{wi}}{m} \right|}{\sum_{i}^{m} \frac{\varphi_{wi}}{m}} \right) + 1$$

n=number of reputation changing events, m=number of countries[16], φ_{wi}=country [1,2,…,m] reputation levels, as such the country in focus of the analysis are also contributing to the world reputation equilibrium level: $\sum_{i}^{m} \dfrac{\varphi_{wi}}{m}$

we should see a general boycott of country 1 if: $\Phi < 1$,

The extended-reputation model only works in this form in the case that the world reputation equilibrium level is different from zero $\left[\sum_{i}^{m} \phi_{wi} \neq 0 \right]$

If and only if the world reputation equilibrium is thought to be zero, then the extended reputation model transforms to:

$$[1.3]: \Phi = \left(\sum_{i}^{n} \varphi_i - \sum \frac{\varphi_{wi}}{m} \right) + 1 = \sum_{i}^{n} \varphi_i + 1$$

which ultimately makes us return to equation 1.1 or the basic-reputation model.

Since we can make an argument for the likeliness of a world reputation equilibrium = zero, since there tends to be some countries that are "popular" and some that are "unpopular", we can in some cases make use of the basic-reputation model when trying to ascertain the Φ of a particular case.

Appendix I.03: The Price Model:
We assume there is some world market price equilibrium $\left(p_w \right)$ which denominates the market price country 1 compares against. Including the costs of transportation $\left(p_{ti} \right)$ we get the following price differentiation:

$$[1.4]: P = \frac{\sum_{i}^{n} \dfrac{\left(p_i + p_{ti} \right)}{n}}{\left(p_1 + p_{t1} \right)} = \frac{\left(p_w + p_{tw} \right)}{\left(p_1 + p_{t1} \right)}$$

Assuming that country 1 is the initial exporter, then country 1 will experience loss of exports if: $P < 1$
As we in this model observe complete economic rationality, this expected loss of exports, can not necessarily be interpreted as a boycott, but rather as a normal market regulation due to price differences. Transportation costs include various intentional market distortions e.g. tariffs, subsidies and quotas as well as necessary costs to actual transportation and storage, thereby including all economic costs of exporting to the importing country.

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[16] The specific case would only include countries that are exporting the same good as country 1, as such m=number of countries that export the same good. As argued in the standard model of trade, there will often be a small number of specialized countries producing the same good, as such the number m might be very small or even 1 in some cases where only the country in question is a producer.

In a case of perfect competition, p_1 is likely to equal p_w, as such the only difference between countries is $\left(p_{tw} - p_{t1}\right)$

Appendix I.04: The Basic Combined Price-Reputation Model:
When trying to adapt the two developed "pure" models, we recall equations 1.2 and 1.4

$$\Phi = \left(\frac{\displaystyle\sum_{i}^{n}\varphi_i - \left|\sum_{i}^{m}\frac{\varphi_{wi}}{m}\right|}{\displaystyle\sum_{i}^{m}\frac{\varphi_{wi}}{m}}\right) + 1$$

$$P = \frac{\left(p_w + p_{tw}\right)}{\left(p_1 + p_{t1}\right)}$$

From these we establish the combined import incentive variable δ, which is constructed as follows:

$$[1.5]: \delta = \frac{P + \Phi}{2}$$

Assuming that country 1 is the initial exporter, then country 1 will experience "boycott" if: $\delta < 1$

The basic conclusions we can draw from equation 1.5 is that P and Φ combined should present us with a value of which we can estimate whether or not a boycott is likely.

In cases of "boycotts" we can do an analysis based on statistical data, which in most cases could give us a good idea of the value of P, which we can then correlate with the loss of exports and find an estimate for δ by which we can calculate the relevance of price contra reputation influences in a particular case.

8.2 Appendix II: Extensions to the Basic DTA Model

The Biased Price-Reputation Model:

An extension which can be made the original price-reputation model is introducing "biases" towards price or reputation. As the main argument of the general theory of this thesis is that different researchers may observe different perspectives on the relevance of different variables, it is therefore necessary to introduce a method of biased variable observance. The idea is that a scientist who researches a case of trade distortion (e.g. a consumer boycott) is arguing from a methodological perspective that observes political dominance over economic issues. As such the researcher is biased towards the Φ variable and needs to be able to incorporate this to his or hers model.

Writing this in mathematical terms we get:

$$[2.1]: \delta = \frac{(2\eta \cdot P) + (2 \cdot (1-\eta) \cdot \Phi)}{2}; \eta = [0,1]$$

Where η is the subjective valued belief in economic rationality, e.g. if the researcher believes 100% in economic rationality ($\eta=1$), we get:

$$\delta = \frac{(2 \cdot 1 \cdot P) + (2 \cdot (1-1) \cdot \Phi)}{2} = P$$

And similarly if $\eta=0$

$$\delta = \frac{(2 \cdot 0 \cdot P) + (2 \cdot (1-0) \cdot \Phi)}{2} = \Phi$$

What we see from these calculations is that if a researcher believes in one perspective and only one perspective then the equations reduces to the original basic models from appendix I, where either "reputation" or price level completely dominates the scenario.

Finally we can observe the incident where a researcher is not absolutely biased towards one perspective but instead observes the possibility of multiple perspectives $[0 < \eta < 1]$ the biased equation can take either its normal form for all cases

$$\delta = \frac{(2\eta \cdot P) + (2 \cdot (1-\eta) \cdot \Phi)}{2}$$

or in the special case for $[\eta = 0,5]$ in which equation reduces to the basic DTA delta equation:

$$\delta = \frac{(2 \cdot 0,5 \cdot P) + (2 \cdot (1-0,5) \cdot \Phi)}{2} = \frac{(1 \cdot P) + (1 \cdot \Phi)}{2} = \frac{P + \Phi}{2}$$

For $[\eta = 0,5]$ we have a case where economics and social factors (including all the previously mentioned factors) have equal sized influence on the consumers' decision to "boycott" one product from another.

8.3 Appendix III: Empirical Analysis - Statistical Data and Graphs

Appendix III.01: Danish Export Data Tables and Analysis

Trend Period:

Country/Time	2004M01	2004M02	2004M03	2004M04	2004M05	2004M06	2004M07	2004M08	2004M09	2004M10	2004M11	2004M12	2005M01	2005M02	2005M03	2005M04	2005M05	2005M06	M!=T0
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Turkey	153794773	99496819	118345086	133251980	133108497	126155663	150298612	117725902	141646004	150847494	150702650	136264296	101043809	136719257	135870296	214608751	190003444	173109039	**142388465,1**
Egypt	49075113	45204286	48872458	41747352	27421201	44079652	22686827	33165693	43031523	32198352	60018267	48687310	45502916	40661136	51008976	60856186	41033799	57789650	**44057817**
Iran	58951985	59212189	70174182	56924198	66928679	74236189	104649396	73743129	116359618	168436314	183091315	172786066	91873907	120033806	132810149	95925581	73304543	118788269	**102123861,9**
Saudi Arabia	156496900	118585461	155141780	157890211	120142174	195333096	126552065	153335161	150105463	155138983	154827090	207235459	123366884	170149314	174511175	199071943	157401742	168663581	**157997137,9**
Syria	4795878	6742168	12542318	9725718	4622433	27720287	8662805	10151862	7162495	6672428	8404612	24917334	7891196	14515945	17219997	36296662	14761138	20247360	**13502924**
Utd. Arab Emirates	169912517	114192442	102035008	102361035	85752642	115195981	105625036	148215158	90621899	106699108	117161286	116693687	115397772	124793248	122782527	119299082	99778061	120862178	**115409925,9**
Total (Arab World):	593027166	443433365	507110832	501900494	437975626	582720868	518474741	536336905	548927002	619992679	674205220	706584152	485076484	606872706	634203120	726058205	576282727	659460077	**575480131,6**

Expected Data Period: (assumption: P=constant ~ constant exchange rate)

Country/Time	2005M07	2005M08	2005M09	2005M10	2005M11	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05	2006M06	2006M07	2006M08	2006M09	2006M10
Turkey	176698386	180362157	184101895	187919175	191815605	195792826	199852512	203996375	208226159	212543646	216950655	221449041	226040699	230727563	235511608	240394848
Egypt	58699439	59623550,9	60562211,3	61515649	62484096,9	63467791,1	64466971,7	65481882,6	66512771,3	67559889,4	68623492,4	69703839,8	70801195,3	71915826,6	73048005,6	74198008,6
Iran	123254118	127887862	132695811	137684515	142860769	148231625	153804399	159586681	165586348	171811573	178270835	184972934	191926999	199142501	206629271	214397506
Saudi Arabia	170759193	172880842	175028852	177203551	179405270	181634345	183891115	186175926	188489125	190831065	193202103	195602601	198032925	200493445	202984536	205506579
Syria	21485292,8	22798913,3	24192849,2	25672011	27241609,2	28907173,7	30674571,4	32550028,6	34540152,1	36651952,6	38892869,6	41270797,3	43794112,5	46471704,4	49313005,5	52328025
Utd. Arab Emirates	120570414	120279355	119988998	119699342	119410385	119122126	118834563	118547694	118261517	117976032	117691235	117407126	117123703	116840964	116558907	116277532
Total (Arab World):	670914088	682567040	694422390	706483653	718754406	731238286	743938996	756860301	770006034	783380092	796986441	810829115	824912220	839239931	853816496	868646239

Observed Data Period:

Country/Time	2005M07	2005M08	2005M09	2005M10	2005M11	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05	2006M06	2006M07	2006M08	2006M09	2006M10
Turkey	172855480	173628052	167652588	209022464	160661330	191849041	120239710	155379307	176975527	152860353	190580788	166224857	158489817	145989358	153477332	168206976
Egypt	38773681	57967672	63834640	43029702	36708433	53341805	32372126	39106104	27067268	26893781	50210289	54125837	50409262	32799914	30118644	48084276
Iran	130551574	78354477	136641735	60033634	41367564	97347947	80501372	69545611	33397292	58466390	56385120	55031265	28732539	18661370	45821990	29518593
Saudi Arabia	160241864	140837041	182126226	137353323	156491231	135045474	133278525	70916317	86398924	88232096	113190897	116704778	98016333	127858519	136279945	99150410
Syria	12444776	5758332	7042171	11556349	7534617	12791114	19214786	15261206	6688091	4398728	12568268	14373336	7675731	4960483	4379964	6820046
Utd. Arab Emirates	111563307	117088695	112269437	89546305	125614039	133842742	121947696	106641698	115427486	105601821	156372636	129086939	120952204	174365608	160662280	116120283
Total (Arab World):	626430682	573634269	669566797	550541777	528377214	624218123	507554215	456850243	445954588	436453169	579307998	535547012	464275886	504635252	530740155	467900584

Observed/Trend Analysis:

Country/Time	2005M07	2005M08	2005M09	2005M10	2005M11	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05	2006M06	2006M07	2006M08	2006M09	2006M10
Turkey	97,83%	96,27%	91,07%	111,23%	83,76%	97,99%	60,16%	76,17%	84,99%	71,92%	87,85%	75,06%	70,12%	63,27%	65,17%	69,97%
Egypt	66,05%	97,22%	105,40%	69,95%	58,75%	84,05%	50,22%	59,72%	40,69%	39,81%	73,17%	77,65%	71,20%	45,61%	41,23%	64,81%
Iran	105,92%	61,27%	102,97%	43,60%	28,96%	65,67%	52,34%	43,58%	20,17%	34,03%	31,63%	29,75%	14,97%	9,37%	22,18%	13,77%
Saudi Arabia	93,84%	81,46%	104,05%	77,51%	87,23%	74,35%	72,48%	38,09%	45,84%	46,24%	58,59%	59,66%	49,49%	63,77%	67,14%	48,25%
Syria	57,92%	25,26%	29,11%	45,02%	27,66%	44,25%	62,64%	46,89%	19,36%	12,00%	32,32%	34,83%	17,53%	10,67%	8,88%	13,03%
Utd. Arab Emirates	92,53%	97,35%	93,57%	74,81%	105,20%	112,36%	102,62%	89,96%	97,60%	89,51%	132,87%	109,95%	103,27%	149,23%	137,84%	99,86%
Total (Arab World):	93,37%	84,04%	96,42%	77,93%	73,51%	85,36%	68,23%	60,36%	57,92%	55,71%	72,69%	66,05%	56,28%	60,13%	62,16%	53,87%

Calculating Φ and the Implications of changes in P, (η=0,5) - Denmark

Reputation Changes:

Country/Time		2006M01	2006M02	2006M03	2006M04	2006M05						ΔΦ Total
Turkey	ΔAVGw = Δpti	0,47%	-0,03%	0,41%	1,49%	2,73%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)	-37,59%	15,99%	9,03%	-12,33%	17,29%						**-7,61%**
	ABS ΔΦdeviation/expected trend (Trend Φ=100)	-39,60%	-23,85%	-14,80%	-27,34%	-10,79%						
Egypt	ΔAVGw = Δpti	0,66%	0,23%	-0,08%	2,07%	1,53%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)	-33,50%	9,62%	-19,06%	0,15%	34,12%						**-8,67%**
	ABS ΔΦdeviation/expected trend (Trend Φ=100)	-49,46%	-40,16%	-59,34%	-59,16%	-26,07%						
Iran	ΔAVGw = Δpti	1,32%	0,59%	1,29%	6,54%	1,07%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)	-12,67%	-8,47%	-22,76%	17,13%	-1,87%						**-28,64%**
	ABS ΔΦdeviation/expected trend (Trend Φ=100)	-47,00%	-56,13%	-79,19%	-62,70%	-67,84%						
Saudi Arabia	ΔAVGw = Δpti	0,46%	-0,19%	0,25%	1,24%	1,44%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)	-1,64%	-34,48%	7,87%	1,02%	13,07%						**-14,16%**
	ABS ΔΦdeviation/expected trend (Trend Φ=100)	-27,29%	-62,00%	-54,04%	-53,14%	-40,69%						
Syria	ΔAVGw = Δpti	1,23%	0,57%	1,25%	6,19%	1,05%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)	19,01%	-15,47%	-26,90%	-4,27%	20,84%						**-6,79%**
	ABS ΔΦdeviation/expected trend (Trend Φ=100)	-36,75%	-52,83%	-80,01%	-84,90%	-67,16%						
Utd. Arab Emirates	ΔAVGw = Δpti	0,46%	-0,18%	0,25%	1,25%	1,44%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)	-9,51%	-12,75%	7,77%	-7,47%	44,07%						**22,12%**
	ABS ΔΦdeviation/expected trend (Trend Φ=100)	2,85%	-10,13%	-2,27%	-9,86%	33,59%						

Denmarks Projected Relative Reputation Changes (ΔΦ)
Relative Price Level Changes: (η=0,5)
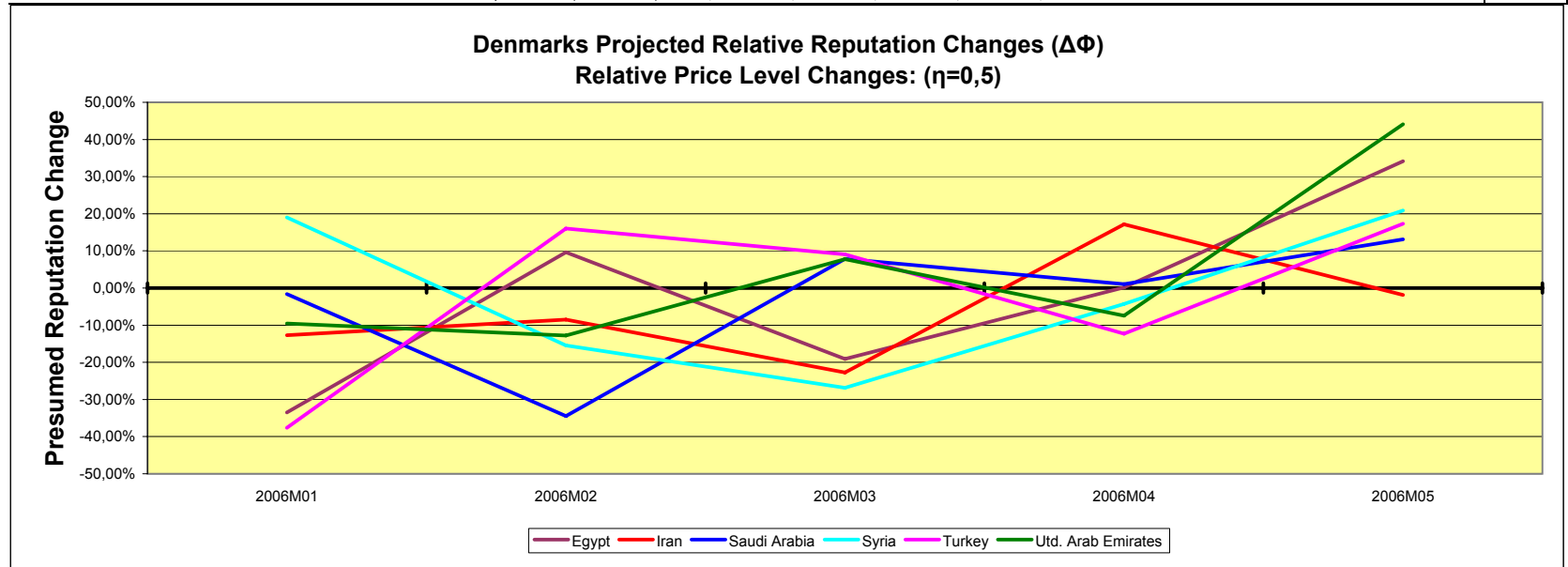
Appendix III.02: Swedish Export Data Tables and Analysis

Trend Period:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Country/Time	**2004M01**	**2004M02**	**2004M03**	**2004M04**	**2004M05**	**2004M06**	**2004M07**	**2004M08**	**2004M09**	**2004M10**	**2004M11**	**2004M12**	**2005M01**	**2005M02**	**2005M03**	**2005M04**	**2005M05**	**2005M06**	**M!=T0**
Turkey	484250000	497638000	515754000	700344000	502732000	672367000	548053000	625951000	636866000	726920000	662392000	666785000	591825000	802914000	756705000	707032000	696595000	802513000	**644313111,1**
Egypt	175375000	146327000	189934000	183025000	260032000	281159000	84627000	261379000	159526000	196108000	172388000	147245000	201631000	290860000	208439000	86682000	411770000	279019000	**207529222**
Iran	463470000	425511000	493715000	439782000	522193000	550011000	452072000	247075000	670334000	883479000	1004911000	828518000	807091000	616536000	762760000	475595000	889381000	686936000	**623298333,3**
Saudi Arabia	261999000	281750000	540086000	363849000	494297000	566311000	411464000	290838000	365159000	359422000	638657000	504110000	294465000	399071000	383999000	390369000	772618000	556085000	**437474944,4**
Syria	42299000	95697000	59083000	95145000	61995000	36900000	61217000	87745000	173538000	79654000	59122000	94921000	108265000	60082000	90910000	64697000	44706000	65036000	**76722889**
Utd. Arab Emirates	123025000	269660000	176269000	241076000	236061000	222185000	213165000	191840000	308784000	256569000	234479000	385631000	204752000	212413000	244581000	257745000	273991000	220268000	**237360777,8**
Total (Arab World):	1550418000	1716583000	1974841000	2023221000	2077310000	2328933000	1770598000	1704828000	2314207000	2502152000	2771949000	2627210000	2208029000	2381876000	2447394000	1982120000	3089061000	2609857000	**2226699278**

Expected Data Period: (assumption: P=constant ~ constant exchange rate)

Country/Time	2005M07	2005M08	2005M09	2005M10	2005M11	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05	2006M06	2006M07	2006M08	2006M09
Turkey	821063971	840043767	859462303	879329719	899656393	920452940	941730221,9	963499352	985771699	1008558896	1031872844	1055725720	1080129981	1105098373	1130643938
Egypt	285240970	291601687	298104244	304751804	311547602	318494942	325597203,7	332857842	340280389	347868454	355625729,1	363555893	371663085	379950968	388423665
Iran	710924778	735751277	761444754	788035483	815554797	844035126	873510027,1	904014234	935583691	968255598	1002068454	1037062104	1073277780	1110758160	1149547408
Saudi Arabia	568388020	580963236	593816671	606954479	620382953	634108524	648137763,5	662477391	677134274	692115430	707428034,4	723079421	739077084	755428685	772142055
Syria	65140245,5	65244658,2	65349238,2	65453985,8	65558901,3	65663985	65769237,11	65874657,9	65980247,7	66086006,8	66191935,39	66298033,8	66404302,2	66510741	66617350,3
Utd. Arab Emirates	223542302	226865278	230237649	233660151	237133529	240658539	244235948,7	247866537	251551094	255290422	259085335,7	262936661	266845237	270811914	274837556
Total (Arab World):	2673873905	2739461073	2806657022	2875501213	2946034076	3018297033	3092332519	3168184015	3245896063	3325514302	3407085488	3490657526	3576279492	3664001671	3753875578

Observed Data Period:

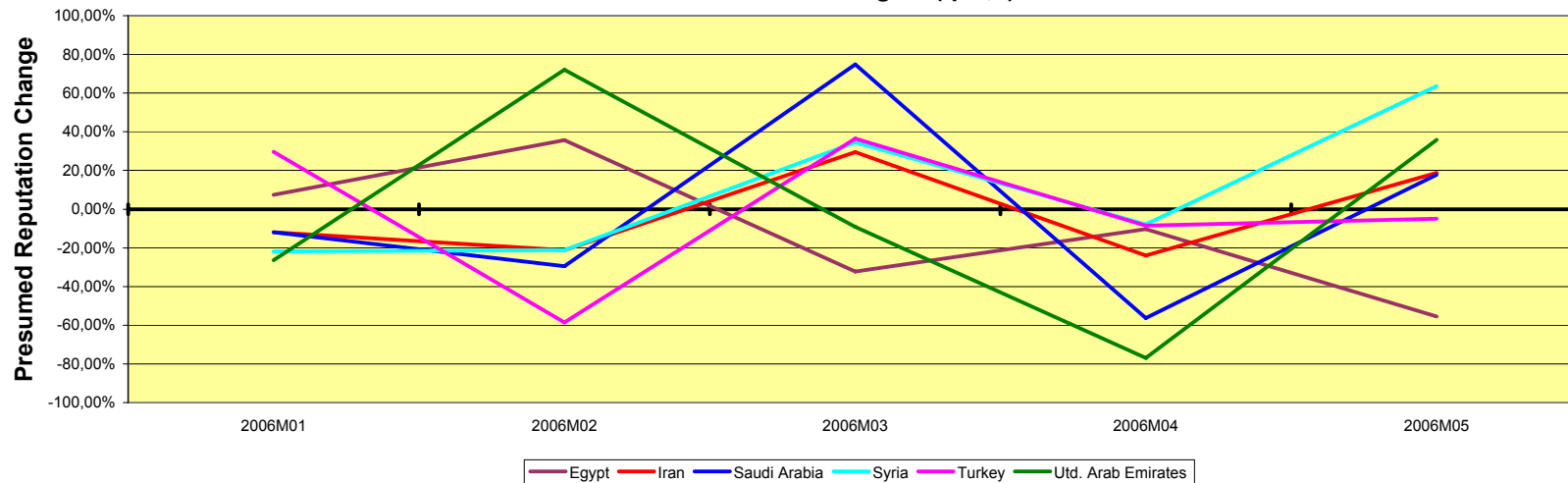| Country/Time	2005M07	2005M08	2005M09	2005M10	2005M11	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05	2006M06	2006M07	2006M08	2006M09
Turkey	742598000	567925000	638730000	865061000	655557000	766376000	1053779000	515124000	887630000	812002000	765186000	851614000	815131000	777362000	810327000
Egypt	207173000	333078000	362159000	178349000	292606000	380078000	346439000	451356000	231963000	307570000	155828000	290207000	232122000	331554000	165382000
Iran	776101000	423130000	403933000	796554000	778530000	426479000	324859000	142751000	420623000	169394000	357349000	363815000	197270000	242383000	405737000
Saudi Arabia	546956000	676518000	758001000	645165000	517269000	640680000	570857000	389281000	905488000	530008000	662889000	868358000	792681000	548263000	682105000
Syria	44247000	29705000	63315000	57477000	26596000	43952000	28708000	14643000	37300000	29933000	71685000	44173000	54532000	22845000	38577000
Utd. Arab Emirates	272961000	252294000	313825000	346040000	300752000	370228000	308781000	492466000	477181000	285620000	381024000	392847000	310024000	299258000	281655000
Total (Arab World):	2590036000	2282650000	2539963000	2888646000	2571310000	2627793000	2633423000	2005621000	2960185000	2134527000	2393961000	2811014000	2401760000	2221665000	2383783000

Observed/Trend Analysis:

Country/Time	2005M07	2005M08	2005M09	2005M10	2005M11	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05	2006M06	2006M07	2006M08	2006M09
Turkey	90,44%	67,61%	74,32%	98,38%	72,87%	83,26%	111,90%	53,46%	90,04%	80,51%	74,16%	80,67%	75,47%	70,34%	71,67%
Egypt	72,63%	114,22%	121,49%	58,52%	93,92%	119,34%	106,40%	135,60%	68,17%	88,42%	43,82%	79,82%	62,45%	87,26%	42,58%
Iran	109,17%	57,51%	53,05%	101,08%	95,46%	50,53%	37,19%	15,79%	44,96%	17,49%	35,66%	35,08%	18,38%	21,82%	35,30%
Saudi Arabia	96,23%	116,45%	127,65%	106,30%	83,38%	101,04%	88,08%	58,76%	133,72%	76,58%	93,70%	120,09%	107,25%	72,58%	88,34%
Syria	67,93%	45,53%	96,89%	87,81%	40,57%	66,93%	43,65%	22,23%	56,53%	45,29%	108,30%	66,63%	82,12%	34,35%	57,91%
Utd. Arab Emirates	122,11%	111,21%	136,30%	148,10%	126,83%	153,84%	126,43%	198,68%	189,70%	111,88%	147,07%	149,41%	116,18%	110,50%	102,48%
Total (Arab World):	96,86%	83,32%	90,50%	100,46%	87,28%	87,06%	85,16%	63,31%	91,20%	64,19%	70,26%	80,53%	67,16%	60,63%	63,50%

Calculating Φ and the Implications of changes in P, (η=0,5) - Sweden

Reputation Changes:

Country/Time		2005M07	2005M08	2005M09	2005M10	2005M11	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05	2006M06	2006M07	2006M08	2006M09	2006M10	ΔΦ Total
Turkey	ΔAVGw = Δpti							1,91%	-0,19%	-0,28%	2,08%	2,73%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)							29,59%	-58,53%	36,44%	-8,49%	-4,99%						-5,98%
	ABS ΔΦdeviation/expected trend (Trend Φ=100)							12,86%	-46,63%	-10,10%	-18,45%	-24,48%						
Egypt	ΔAVGw = Δpti							2,12%	0,07%	-0,75%	2,67%	1,53%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)							-11,87%	29,23%	-67,81%	21,58%	-43,83%						-72,70%
	ABS ΔΦdeviation/expected trend (Trend Φ=100)							7,46%	35,63%	-32,21%	-10,25%	-55,42%						
Iran	ΔAVGw = Δpti							2,80%	0,42%	0,61%	7,15%	1,07%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)							-11,94%	-21,19%	29,47%	-23,89%	18,70%						-8,85%
	ABS ΔΦdeviation/expected trend (Trend Φ=100)							-61,41%	-84,00%	-54,74%	-78,93%	-63,80%						
Saudi Arabia	ΔAVGw = Δpti							1,93%	-0,35%	-0,43%	1,84%	1,43%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)							-12,00%	-29,49%	74,74%	-56,22%	17,84%						-5,12%
	ABS ΔΦdeviation/expected trend (Trend Φ=100)							-10,96%	-41,41%	33,51%	-22,50%	-5,58%						
Syria	ΔAVGw = Δpti							2,70%	0,41%	0,56%	6,80%	1,05%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)							-21,93%	-21,22%	34,59%	-7,84%	63,53%						47,13%
	ABS ΔΦdeviation/expected trend (Trend Φ=100)							-55,00%	-77,57%	-43,19%	-51,31%	8,83%						
Utd. Arab Emirates	ΔAVGw = Δpti							1,93%	-0,34%	-0,43%	1,85%	1,44%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)							-26,45%	72,08%	-9,20%	-76,89%	35,90%						-4,56%
	ABS ΔΦdeviation/expected trend (Trend Φ=100)							27,39%	98,51%	89,48%	12,80%	47,78%						

Swedens Projected Relative Reputation Changes (ΔΦ)
Relative Price Level Changes: (η=0,5)

Appendix III.03: Norwegian Export Data Tables and Analysis

Trend Period:

Country/Time	2004M01	2004M02	2004M03	2004M04	2004M05	2004M06	2004M07	2004M08	2004M09	2004M10	2004M11	2004M12	2005M01	2005M02	2005M03	2005M04	2005M05	2005M06	M!=T0
Turkey	332437690	413592646	254954221	320996759	124592360	175492338	98640833	224367664	210111767	160686033	207338331	355784574	115701658	77061186	288641560	239616254	74134852	122819538	**210942792,4**
Egypt	21929631	14653169	17988453	14899962	16319654	11206231	13510699	4154950	12920865	37067516	9555625	15014812	25519496	37225108	23878607	37700690	59989541	23284012	**22045501**
Iran	32236619	72171089	50331891	18974404	2975970	22197396	46157803	3597868	114998765	12655344	19953073	30808138	8494475	34369400	42667905	6983537	23783874	5011048	**30464922,17**
Saudi Arabia	23399920	32952503	30388818	163264548	22886731	21997633	37662090	31810286	31709922	38514373	34659594	80626822	24732209	17915162	19550999	38121997	22528147	26153464	**38826401**
Syria	255190	718873	1759931	2947226	1897249	2022222	4362162	1147382	7944872	6604481	3900094	891492	991585	749914	10693432	1077024	1250449	963050	**2787590**
Utd. Arab Emirates	56719452	95750610	72369559	85236219	67991542	91188701	100702965	43512379	137955112	114284690	59041811	59184678	46235789	53722846	57978248	94310545	92053013	111708030	**79997010,5**
Total (Arab World):	466978502	629838890	427792873	606319118	236663506	324104521	301036552	308590529	515641303	369812437	334448528	542310516	221675212	221043616	443410751	417810047	273739876	289939142	**385064217,7**

Expected Data Period: (assumption: P=constant ~ constant exchange rate)

Country/Time	2005M07	2005M08	2005M09	2005M10	2005M11	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05	2006M06	2006M07	2006M08	2006M09	2006M10
Turkey	117488766	112389368	107511300	102844956	98381146,8	94111081,7	90026351,4	86118911,87	82381068,03	78805458,9	75385043	72113084,3	68983139,4	65989044,4	63124903	60385074,7
Egypt	24803761,4	26422704,9	28147317,1	29984494,8	31941585,2	34026415,1	36247322	38613187,71	41133473,65	43818258,86	46678280,2	49724975,4	52970528,7	56427919,4	60110974,4	64034422,6
Iran	4767468,3	4535728,65	4315253,52	4105495,37	3905933,25	3716071,56	3535438,76	3363586,261	3200087,26	3044535,706	2896545,28	2755748,46	2621795,56	2494353,92	2373107,03	2257753,77
Saudi Arabia	25190474	24262942	23369562,4	22509077,7	21680276,7	20881992,8	20113102,3	19372522,88	18659212,17	17972166,05	17310417,6	16673035,1	16059121,5	15467812,7	14898276,4	14349710,7
Syria	987422,982	1012412,8	1038035,06	1064305,77	1091241,35	1118858,61	1147174,81	1176207,649	1205975,249	1236496,212	1267789,6	1299874,97	1332772,36	1366502,32	1401085,92	1436544,76
Utd. Arab Emirates	112049529	112392071	112735661	113080301	113425995	113772746	114120556	114469430,3	114819370,8	115170381	115522464	115875624	116229863	116585185	116941594	117299092
Total (Arab World):	282174537	274617868	267263569	260106218	253140542	246361408	239763819	233342915,1	227093963,5	221012359,7	215093622	209333389	203727415	198271570	192961834	187794292

Observed Data Period:

Country/Time	2005M07	2005M08	2005M09	2005M10	2005M11	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05	2006M06	2006M07	2006M08	2006M09	2006M10
Turkey	81597015	263112237	336143893	269824341	269868452	101820949	370417611	282876320	469651573	281776912	132763665	188255115	184625652	139062546	133051812	331378405
Egypt	15014006	31153524	28805294	34424305	14992352	18836669	16109250	13876382	28142084	30614211	23243945	28991458	31289250	13936149	12049022	31426293
Iran	13035208	9148486	6723851	6797580	20021593	45241924	30169057	**23443655**	16718253	27868479	20913031	5757226	9160944	4618677	13771079	21534185
Saudi Arabia	26776096	20569377	30382577	17896097	11141120	58604253	17501029	16919282	23666698	**37409076**	51151454	30975811	29461708	32754469	64814710	37342735
Syria	877952	299622	889115	575614	993299	3194296	1439307	624925	1288696	366640	2308954	668475	2110590	1339448	310778	5161402
Utd. Arab. Emirates	81598877	43493747	63655273	70663178	60003386	91235489	67906588	110495593	111896131	77535635	58407025	96930841	76489725	82239647	107681471	78318115
Total (Arab World):	218899154	367776993	466600003	400181115	377020202	318933580	503542842	448236157	651363435	455570953	288788074	351578926	333137869	273950936	331678872	505161135

Observed/Trend Analysis:

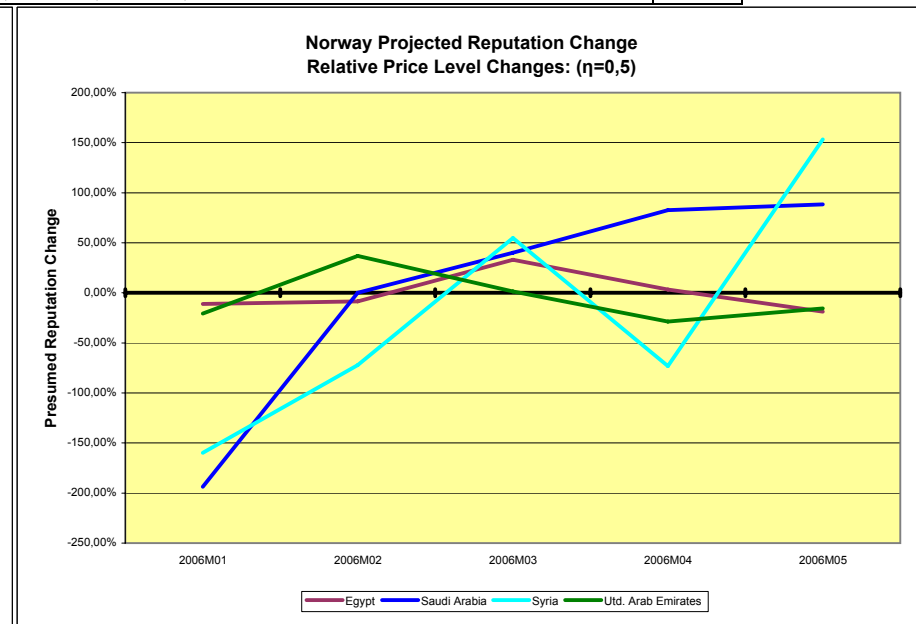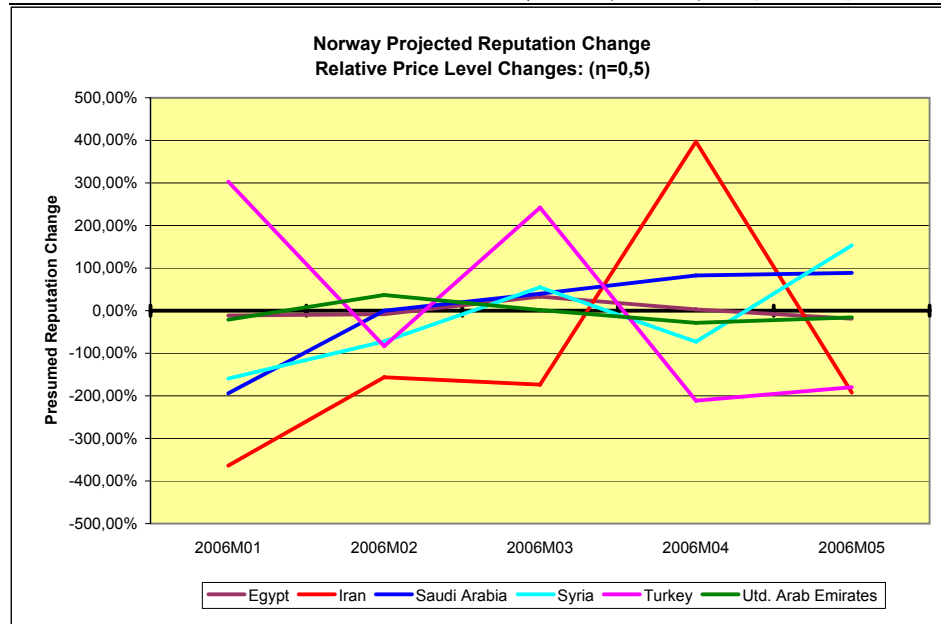| Country/Time	2005M07	2005M08	2005M09	2005M10	2005M11	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05	2006M06	2006M07	2006M08	2006M09	2006M10
Turkey	69,45%	234,11%	312,66%	262,36%	274,31%	108,19%	411,45%	328,47%	570,10%	357,56%	176,11%	261,06%	267,64%	210,74%	210,78%	548,78%
Egypt	60,53%	117,90%	102,34%	114,81%	46,94%	55,36%	44,44%	35,94%	68,42%	69,87%	49,80%	58,30%	59,07%	24,70%	20,04%	49,08%
Iran	273,42%	201,70%	155,82%	165,57%	512,59%	1217,47%	853,33%	696,98%	522,43%	915,36%	722,00%	208,92%	349,41%	185,17%	580,30%	953,79%
Saudi Arabia	106,29%	84,78%	130,01%	79,51%	51,39%	280,64%	87,01%	87,34%	126,84%	208,15%	295,50%	185,78%	183,46%	211,76%	435,05%	260,23%
Syria	88,91%	29,59%	85,65%	54,08%	91,02%	285,50%	125,47%	53,13%	106,86%	29,65%	182,12%	51,43%	158,36%	98,02%	22,18%	359,29%
Utd. Arab Emirates	72,82%	38,70%	56,46%	62,49%	52,90%	80,19%	59,50%	96,53%	97,45%	67,32%	50,56%	83,65%	65,81%	70,54%	92,08%	66,77%
Total (Arab World):	77,58%	133,92%	174,58%	153,85%	148,94%	129,46%	210,02%	192,09%	286,83%	206,13%	134,26%	167,95%	163,52%	138,17%	171,89%	269,00%

Resolution Decreasing Data:
Iran 2006M02 has been 'cleaned' from 96422774 to: (2006M01+2006M03)/2
Saudi Arabia 2006M04 has been 'cleaned from 300982487 to: (2006M03+2006M04)/2

Calculating Φ and the Implications of changes in P, (η=0,5) - Norway

Reputation Changes:

Country/Time		2005M07	2005M08	2005M09	2005M10	2005M11	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05	2006M06	2006M07	2006M08	2006M09	2006M10	ΔΦ Total
Turkey	ΔAVGw = Δpti							-0,23%	-0,33%	1,35%	3,13%	3,56%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)							303,15%	-83,15%	242,30%	-210,97%	-179,67%						71,67%
	ABS ΔΦdeviation/expected trend (Trend Φ=100)							311,34%	228,31%	470,77%	259,13%	77,89%						
Egypt	ΔAVGw = Δpti							-0,05%	-0,06%	0,86%	3,73%	2,32%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)							-10,94%	-8,54%	32,91%	3,31%	-18,91%						-2,17%
	ABS ΔΦdeviation/expected trend (Trend Φ=100)							-55,58%	-64,10%	-31,15%	-28,27%	-49,04%						
Iran	ΔAVGw = Δpti							0,60%	0,29%	2,23%	8,22%	1,86%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)							-363,83%	-156,20%	-173,44%	397,04%	-192,43%						-488,86%
	ABS ΔΦdeviation/expected trend (Trend Φ=100)							753,63%	597,13%	423,55%	819,47%	622,93%						
Saudi Arabia	ΔAVGw = Δpti							-0,24%	-0,48%	1,18%	2,89%	2,22%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)							-193,75%	0,08%	40,09%	82,76%	88,46%						17,64%
	ABS ΔΦdeviation/expected trend (Trend Φ=100)							-13,11%	-12,91%	27,43%	109,60%	196,61%						
Syria	ΔAVGw = Δpti							0,52%	0,28%	2,19%	7,87%	1,84%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)							-159,77%	-72,20%	54,82%	-73,27%	153,39%						-97,02%
	ABS ΔΦdeviation/expected trend (Trend Φ=100)							25,72%	-46,73%	7,95%	-66,41%	83,05%						
Utd. Arab Emirates	ΔAVGw = Δpti							-0,25%	-0,48%	1,19%	2,90%	2,23%						
	Rel. ΔΦdeviation/previous month (2005M12 Φ=100)							-20,81%	36,78%	1,52%	-28,68%	-15,65%						-26,84%
	ABS ΔΦdeviation/expected trend (Trend Φ=100)							-40,62%	-3,71%	-1,95%	-31,23%	-48,33%						

Norway Projected Reputation Change
Relative Price Level Changes: (η=0,5)

Norway Projected Reputation Change
Relative Price Level Changes: (η=0,5)

8.4 Appendix IV: Calculating Δp$_{ti}$

Appendix IV.01: Formal Calculation Method for Δp$_{ti}$:

As part of the approach taken in the analysis utilizing the DTA model, it is necessary to calculate values for each markets Δp$_{ti}$ (the price deviation in accordance with exchange rates changes.

The method applied utilizes bi-lateral exchange rates between exporter and importing neutralized with main international rates as indicators of changes between the exporting currency rate and the world average rates. The first step is to retrieve data for bilateral export-import currencies, and import-main international currencies[17]. Thus, the importing currencies are evaluated with the US dollar (\$), the Euro (€) and the Japanese Yen (¥) by calculating the average exchange rate for each international currency over a period of a month, and finding the monthly deviation. Following, an average international currency deviation is calculated with a simple average of the three month to month deviations for the Dollar, Euro and Yen: Δp_{AVGw}

Second the bilateral export-import currency month to month deviations are calculated by simply finding the average monthly values, and calculating the month to month deviations: Δp_{I-AVG}

Finally the Δp$_{ti}$ is calculated by: $\Delta p_{ti} = \Delta p_{AVGw} + \Delta p_{I-AVG}$

This is then done for all exporting currencies contra importing currencies for all the periods (months) in the analysis.

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[17] Online Database of Historic Exchange Rates: http://www.oanda.com/convert/fxhistory

Appendix IV.02: Data Tables of Numerical Δp_{ti} Calculations:

Turkey World Currencies

Currencies	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05
EURO-AVG	*0,00000063*	*0,00000062*	*0,00000063*	*0,00000063*	*0,00000061*	*0,00000055*
- %Change		*-0,72%*	*1,82%*	*-1,13%*	*-1,93%*	*-9,73%*
USD-AVG	*0,00000074*	*7,50645E-07*	*7,56786E-07*	*7,52903E-07*	*7,51667E-07*	*7,06774E-07*
- %Change		*1,44%*	*0,82%*	*-0,51%*	*-0,16%*	*-5,97%*
YEN-AVG	*8,78797E-05*	*8,68423E-05*	*8,92882E-05*	*8,82397E-05*	*0,000088153*	*7,90803E-05*
- %Change		*-1,18%*	*2,82%*	*-1,17%*	*-0,10%*	*-10,29%*
AVGw Change:		**-0,15%**	**1,82%**	**-0,94%**	**-0,73%**	**-8,67%**

Nordic Currencies

Currencies	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05		Correlations	
Denmark-AVG	*215714,1613*	*217055*	*213034,3571*	*215902,1935*	*220689,6667*	*245847,4839*		*σ: dk-se*	*0,987*
- %Change		*0,622%*	*-1,852%*	*1,346%*	*2,217%*	*11,400%*		*σ: dk-no*	*0,987*
ΔAVGw = Δpti		**0,47%**	**-0,03%**	**0,41%**	**1,49%**	**2,73%**		*σ: se-no*	*0,965*
Sweden-AVG	*170374,8387*	*173897,8387*	*170405,6071*	*171528,3226*	*176351,5667*	*196453,3226*			
- %Change		*2,068%*	*-2,008%*	*0,659%*	*2,812%*	*11,399%*			
ΔAVGw = Δpti		**1,91%**	**-0,19%**	**-0,28%**	**2,08%**	**2,73%**			
Norway-AVG	*201786,5484*	*201634,7742*	*197303,8929*	*201823,0968*	*209622,0333*	*235253,6452*			
- %Change		*-0,075%*	*-2,148%*	*2,290%*	*3,864%*	*12,228%*			
ΔAVGw = Δpti		**-0,23%**	**-0,33%**	**1,35%**	**3,13%**	**3,56%**			

Egypt
World

Currencies	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05
EURO-AVG	*0,14808065*	*0,14563871*	*0,14763929*	*0,14644194*	*0,14426333*	*0,13794516*
- %Change		*-1,65%*	*1,37%*	*-0,81%*	*-1,49%*	*-4,38%*
USD-AVG	*0,175493548*	*0,176045161*	*0,176428571*	*0,175996774*	*0,176583333*	*0,176035484*
- %Change		*0,31%*	*0,22%*	*-0,24%*	*0,33%*	*-0,31%*
YEN-AVG	*20,80213548*	*20,35795161*	*20,81211786*	*20,6316871*	*20,70364*	*19,69095484*
- %Change		*-2,14%*	*2,23%*	*-0,87%*	*0,35%*	*-4,89%*
AVGw Change:		**-1,16%**	**1,27%**	**-0,64%**	**-0,27%**	**-3,19%**

Nordic

Currencies	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05		Correlations	
Denmark-AVG	*0,921929032*	*0,938670968*	*0,9289*	*0,934151613*	*0,956026667*	*1,001164516*		*σ: dk-se*	*0,948*
- %Change		*1,816%*	*-1,041%*	*0,565%*	*2,342%*	*4,721%*		*σ: dk-no*	*0,943*
ΔAVGw = Δpti		**0,66%**	**0,23%**	**-0,08%**	**2,07%**	**1,53%**		*σ: se-no*	*0,836*
Sweden-AVG	*0,728167742*	*0,75206129*	*0,742978571*	*0,742151613*	*0,763963333*	*0,800048387*			
- %Change		*3,281%*	*-1,208%*	*-0,111%*	*2,939%*	*4,723%*			
ΔAVGw = Δpti		**2,12%**	**0,07%**	**-0,75%**	**2,67%**	**1,53%**			
Norway-AVG	*0,862403226*	*0,871980645*	*0,860310714*	*0,873225806*	*0,9081*	*0,95816129*			
- %Change		*1,111%*	*-1,338%*	*1,501%*	*3,994%*	*5,513%*			
ΔAVGw = Δpti		**-0,05%**	**-0,06%**	**0,86%**	**3,73%**	**2,32%**			

Iran
World

Currencies	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05
EURO-AVG	0,00009347	0,00009181	0,00009297	0,00009301	0,00009366	0,00008945
- %Change		*-1,78%*	*1,26%*	*0,04%*	*0,70%*	*-4,50%*
USD-AVG	0,00011076	0,00011098	0,00011109	0,00011178	0,00011467	0,00011414
- %Change		*0,20%*	*0,10%*	*0,62%*	*2,58%*	*-0,46%*
YEN-AVG	0,01313194	0,01283484	0,01310643	0,01310452	0,01344100	0,01276871
- %Change		*-2,26%*	*2,12%*	*-0,01%*	*2,57%*	*-5,00%*
AVGw Change:		**-1,28%**	**1,16%**	**0,22%**	**1,95%**	**-3,32%**

Nordic

Currencies	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05		Correlations	
Denmark-AVG	1452,04	1489,79	1481,29	1497,22	1565,90	1634,58		*σ: dk-se*	*0,959*
- %Change		*2,600%*	*-0,571%*	*1,075%*	*4,587%*	*4,386%*		*σ: dk-no*	*0,977*
ΔAVGw = Δpti		**1,32%**	**0,59%**	**1,29%**	**6,54%**	**1,07%**		*σ: se-no*	*0,886*
Sweden-AVG	1146,85	1193,65	1184,85	1189,49	1251,31	1306,20			
- %Change		*4,081%*	*-0,738%*	*0,392%*	*5,197%*	*4,387%*			
ΔAVGw = Δpti		**2,80%**	**0,42%**	**0,61%**	**7,15%**	**1,07%**			
Norway-AVG	1358,28	1383,89	1371,92	1399,58	1487,40	1564,38			
- %Change		*1,885%*	*-0,865%*	*2,016%*	*6,274%*	*5,175%*			
ΔAVGw = Δpti		**0,60%**	**0,29%**	**2,23%**	**8,22%**	**1,86%**			

Saudi Arabia World Currencies

	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05
EURO-AVG	0,22501935	0,22061935	0,22314643	0,22190000	0,21784333	0,20901935
- %Change		-1,96%	1,15%	-0,56%	-1,83%	-4,05%
USD-AVG	0,266690323	0,266696774	0,2667	0,2667	0,26669	0,266748387
- %Change		0,00%	0,00%	0,00%	0,00%	0,02%
YEN-AVG	31,61161613	30,83985484	31,45858571	31,26267097	31,26234333	29,83512903
- %Change		-2,44%	2,01%	-0,62%	0,00%	-4,57%
AVGw Change:		-1,46%	1,05%	-0,39%	-0,61%	-2,86%

Nordic Currencies

	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05
Denmark-AVG	0,596590323	0,608087097	0,600553571	0,604422581	0,615636667	0,642119355
- %Change		1,927%	-1,239%	0,644%	1,855%	4,302%
ΔAVGw = Δpti		0,46%	-0,19%	0,25%	1,24%	1,44%
Sweden-AVG	0,471196774	0,487187097	0,480378571	0,480183871	0,491963333	0,513112903
- %Change		3,394%	-1,398%	-0,041%	2,453%	4,299%
ΔAVGw = Δpti		1,93%	-0,35%	-0,43%	1,84%	1,43%
Norway-AVG	0,558067742	0,564883871	0,556210714	0,564987097	0,584776667	0,61453871
- %Change		1,221%	-1,535%	1,578%	3,503%	5,089%
ΔAVGw = Δpti		-0,24%	-0,48%	1,18%	2,89%	2,22%

Correlations

σ: dk-se	0,944
σ: dk-no	0,932
σ: se-no	0,817

Syria World Currencies	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05
EURO-AVG	*0,01633097*	*0,01607903*	*0,01631571*	*0,01631613*	*0,01643233*	*0,01570839*
- %Change		*-1,54%*	*1,47%*	*0,00%*	*0,71%*	*-4,41%*
USD-AVG	*0,019351613*	*0,01943129*	*0,019495*	*0,01960871*	*0,020115667*	*0,020045161*
- %Change		*0,41%*	*0,33%*	*0,58%*	*2,59%*	*-0,35%*
YEN-AVG	*2,294390323*	*2,247522581*	*2,3002*	*2,298954839*	*2,358136667*	*2,242093548*
- %Change		*-2,04%*	*2,34%*	*-0,05%*	*2,57%*	*-4,92%*
AVGw Change:		**-1,06%**	**1,38%**	**0,18%**	**1,96%**	**-3,23%**

Nordic Currencies	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05		**Correlations**	
Denmark-AVG	*8,387722581*	*8,579445161*	*8,510207143*	*8,601248387*	*8,965436667*	*9,349009677*		*σ: dk-se*	*0,955*
- %Change		*2,286%*	*-0,807%*	*1,070%*	*4,234%*	*4,278%*		*σ: dk-no*	*0,960*
ΔAVGw = Δpti		*1,23%*	*0,57%*	*1,25%*	*6,19%*	*1,05%*		*σ: se-no*	*0,852*
Sweden-AVG	*6,624770968*	*6,873970968*	*6,807142857*	*6,833429032*	*7,164263333*	*7,470893548*			
- %Change		*3,762%*	*-0,972%*	*0,386%*	*4,841%*	*4,280%*			
ΔAVGw = Δpti		*2,70%*	*0,41%*	*0,56%*	*6,80%*	*1,05%*			
Norway-AVG	*7,84616129*	*7,969658065*	*7,881867857*	*8,040325806*	*8,515996667*	*8,947532258*			
- %Change		*1,574%*	*-1,102%*	*2,010%*	*5,916%*	*5,067%*			
ΔAVGw = Δpti		*0,52%*	*0,28%*	*2,19%*	*7,87%*	*1,84%*			

Utd. Arab Emirates

World Currencies	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05
EURO-AVG	*0,22977097*	*0,22528710*	*0,22787143*	*0,22659032*	*0,22247333*	*0,21341613*
- %Change		*-1,95%*	*1,15%*	*-0,56%*	*-1,82%*	*-4,07%*
USD-AVG	*0,272306452*	*0,272312903*	*0,2723*	*0,272316129*	*0,272316667*	*0,272332258*
- %Change		*0,00%*	*0,00%*	*0,01%*	*0,00%*	*0,01%*
YEN-AVG	*32,27919677*	*31,49210645*	*32,12402143*	*31,9239871*	*31,92659333*	*30,46223226*
- %Change		*-2,44%*	*2,01%*	*-0,62%*	*0,01%*	*-4,59%*
AVGw Change:		**-1,46%**	**1,05%**	**-0,39%**	**-0,60%**	**-2,88%**

Nordic Currencies	2005M12	2006M01	2006M02	2006M03	2006M04	2006M05		Correlations	
Denmark-AVG	*0,584406452*	*0,59563871*	*0,588296429*	*0,592090323*	*0,603066667*	*0,629135484*		*σ: dk-se*	*0,944*
- %Change		*1,922%*	*-1,233%*	*0,645%*	*1,854%*	*4,323%*		*σ: dk-no*	*0,932*
ΔAVGw = Δpti		**0,46%**	**-0,18%**	**0,25%**	**1,25%**	**1,44%**		*σ: se-no*	*0,818*
Sweden-AVG	*0,461570968*	*0,477209677*	*0,470560714*	*0,470377419*	*0,48191*	*0,502745161*			
- %Change		*3,388%*	*-1,393%*	*-0,039%*	*2,452%*	*4,323%*			
ΔAVGw = Δpti		**1,93%**	**-0,34%**	**-0,43%**	**1,85%**	**1,44%**			
Norway-AVG	*0,546670968*	*0,553325806*	*0,54485*	*0,553458065*	*0,57284*	*0,602119355*			
- %Change		*1,217%*	*-1,532%*	*1,580%*	*3,502%*	*5,111%*			
ΔAVGw = Δpti		**-0,25%**	**-0,48%**	**1,19%**	**2,90%**	**2,23%**			