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**THE ROLE OF BRAZILIAN STRATEGIC TRADE POLICY IN  
DEVELOPMENT OF NEW INDUSTRIAL BRANCHES.  
THE CASE OF BIOFUELS**

*Summary of PhD dissertation*

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## **1. Justification for the selection of the topic**

The current state of knowledge on strategic trade policy does not allow for its unequivocal reference to the processes connected with industrialization, including building and developing new industrial branches. The authors (i.a. Brander and Spencer, Krugman, Baldwin, Dixit, Grossman) focus mainly on the implications of strategic trade policy for exports, thanks to which the national welfare rises (if the costs incurred by the state on the support instruments, for example subsidies, are lower than the gains from the intervention). Therefore, the intention of the dissertation is to show the role of strategic trade policy in creating/ developing new domestic industrial branches and, by doing this, to present its contribution to the industrialization of emerging economies.

The author attempts to provide a comprehensive analysis of strategic trade policy's application on the example of a selected industrial sector. Thanks to the chosen approach, the research has as an objective to become a useful reference point for elaborating the preliminary concepts of development strategies and/or strategic government interventions of a developing country.

The choice of the country, serving to illustrate the research problem is not coincidental. Being a regional leader in Latin America, a member of the promising group of BRIC and one of the most active actors in multilateral negotiations, Brazil has drawn the attention of both investors and policy-makers as a potential business partner and an example to follow by other developing countries on their way to development. Moreover, application of various strategies and different measures aimed at stimulating the market made Brazil an interesting research area for academics in their ever-lasting attempt to find the best policy to facilitate growth. The country, which used to be a strong supporter of Import Substitution Industrialization and then abandoned it in favor of the strategy of an open growth and connected with it liberalization, serves an interesting case for policy evaluations and identifications of the factors enhancing or deteriorating the economic growth.

Particularly interesting seems the application of strategic trade policy by the Brazilian government to the domestic energy sector, especially in the biofuel branch, which thanks to progressive liberalization has the chance to become the flagship export product of Brazil due to its properties and technological advancement (visible at every stage of production). In light of many empirical studies testing the efficiency and the importance of strategic trade policy for the domestic economy, the biofuel branch has been omitted or analyzed in a very narrow context so far. In the existent research, particularly missing are the studies that would refer the biofuel supporting policies to strategic trade policy of a given

country.

In case of Brazil there are three main studies on economic gains from the energy policy of the Brazilian government aimed at developing the biofuels in order to limit the imports of oil. All of the widely known works, especially Almeida et al. 2008, Macedo 2007 and Goldemberg 2013 underline that the benefits achieved thanks to the policy have been much higher than the incurred costs. According to Goldemberg, Brazil spent approximately 1 billion USD per year for thirty years for subsidizing ethanol, which gives in total about 30 billion USD. In the same time, according to the same scholar, thanks to the oil import reduction, the country saved around 75 billion USD, which gives the net saving of approximately 40 billion USD. Macedo stresses the role of replacing the traditional fuel with ethanol for increasing Brazilian foreign reserves and he calculates that taking into account the interest rates on foreign debt, Brazilian saving thanks to the policy exceeded 120 billion USD.

In light of the existent research, the intention of the author is to show the role of Brazilian strategic trade policy applied in the biofuel branch not so much as far as the general profit and loss account is concerned, but in a wider aspect. In this context, it seems justifiable to analyze the role of the branch in regional development of Brazil, in the process of modernization of connected with it economic branches and its implications for the foreign trade, particularly export.

Thanks to the wide spectrum of research on the efficiency and effectiveness of strategic trade policy, the author tries to study its application not only to dealing with the market access issues (which constitutes a traditional research area of the studies of this type), but to connect it with industrialization and economic transformation, which brings a new perspective to the essence of the research problem.

## **2. The main objective of the dissertation**

The aim of the dissertation is to present, in the light of the theory, the role that strategic trade policy can play in the development of new industrial branches. The problem has been illustrated by Brazilian strategic trade policy applied in the domestic biofuel sector.

The dissertation addresses both theoretical and empirical questions, most vital of which include: How can we define strategic trade policy in the light of 21<sup>st</sup> century economic changes and the state of global international affairs? What are the key success factors for selecting a “strategic sector”? Can strategic trade policy contribute to development of new industrial sectors/branches? In which situations does strategic trade

policy stimulate innovativeness of a given branch/ economy? How important are its implications for the labor market? Can strategic trade policy be an instrument of industrialization enhancement in developing countries?

In this context, the dissertation, apart from the main objective, aims at filling the research gap connecting strategic trade policy with innovativeness, employment and industrialization.

### **3. The dissertation thesis and hypotheses**

The dissertation has one main thesis and two basic hypotheses. Referring to the empirical study on Brazilian policy-making, the author formulates the thesis, *that apart from the traditionally perceived application of strategic trade policy for easing market access, strategic trade policy also contributes to the development of new industrial branches*. As a base for the thesis's verification the energy sector in Brazil is analyzed, which has much evolved since the 70s XX century and nowadays is one of the most diversified and most efficient in the world i.e. thanks to the successful development and the state promotion of the biofuel branch (mainly ethanol from sugar cane).

Brazilian bioethanol branch deserves a particular attention as it is currently considered the most efficient in the world due to the fact, that the production costs have been greatly reduced thanks to innovative technology applied in all its stages. The above mentioned observation make the author to formulate the main hypothesis that *strategic trade policy applied by Brazilian government into energy sector led to development of new industrial branches*. Moreover, another hypothesis stating that *bioethanol branch's success in Brazil was the result of strategic trade policy applied by its Government* has been formulated.

Brazilian biofuel branch serves as a theory-testing area. It has been chosen because of its multi-level importance for Brazilian economy and its innovativeness. Apart from finding out how strategic trade policy has contributed to its development by analyzing its instruments, priorities and generally the scope of application by the consecutive governments, the research also aims to identify the spillovers from bioethanol production to other branches/ economic activities in Brazil and try to prove its relevance for the country's industrialization. For a country like Brazil, which is abundant with natural resources, it is worth remembering that progressive industrialization is not such a clear way to follow. In order not to catch "Dutch disease", it should be, however, always be kept in mind by the policy-makers and governments. The biofuel branch is therefore a great example of how to

mitigate this threat and to take advantage of available resources to create an innovative industry and to successfully internationalize it.

Apart from the main thesis and hypotheses, in each chapter of the dissertation the author formulates detailed hypotheses, of both empirical and theoretical nature, connected with particular research problems, which aids the author to justify the logical coherence of the dissertation and to widen the spectrum of the research.

#### **4. Structure of the dissertation**

The dissertation consists of four chapters, each of which is devoted to a separate research problem but all together enable the author to verify the main thesis and the hypotheses, and present the final conclusions.

Chapter 1 is devoted to a broad review of strategic trade theory and its contribution to the new approach of state interventionism. It sketches the theoretical background for the analysis of Brazilian economic policy and economic growth strategy in general, allows for identifying the features of strategic policy and introduces the discussion on strategic nature of state interventionism. The Chapter discusses strategic trade policy theory's implications on policy-making and presents both theoretical and empirical studies, that have built up the concept since the first papers published by Brander and Spencer in 1980s. A separate section of the chapter is dedicated to strategic sectors. The author shows that their selection and support, which partly go beyond Brander and Spencer views on strategic trade policy and attribute to strategic trade policy a broader, more general meaning, is the most important manifestation of the policy in its contemporary dimension. Apart from theoretical considerations related to strategic sectors' selection and support, the most acknowledged empirical studies within the field are described. The aim of the chapter is not only to provide a necessary overview of the dissertation's leading theoretical concept, but also to show how the policy has been traditionally assessed and how in this context the author's research design differ from the hitherto studies.

In Chapter 2 the author deals with the long-term development tendencies of Brazil and its changing position in the world economy, focusing on the main macroeconomic indicators (especially GDP and GDP per capita) and the country's trade performance and FDIs. The objective of the chapter is to show the long-term development of Brazil and its position in world economy acknowledging how it has been changing in the context of economic policies applied. This serves as the background for Brazil's economic development and enables a deepened strategic trade policy's analysis in the latter chapters.

Apart from external factors of Brazilian economic performance special attention is given to internal determinants of the country's development, such as natural resources, human capital and technological potential. Moreover, a separate section is devoted to Brazil's economic policy, which has played a vital role in the country's development.

Chapter 3 concerns Brazilian strategic trade policy and its role in the country's currently realized economic growth strategy. The biggest research challenge faced by the author was to extract strategic trade policy from the overall development strategy of Brazil and to confront it with the instruments described in the studies dedicated to strategic trade policy. Thanks to the adopted methodology, the author identifies three main demonstrations of strategic trade policy of Brazil, that is: the policy of selecting and supporting strategic industries/branches, the policy of supporting export and rationalizing imports, and the country's policy towards the strategic markets. Then, regarding the above mentioned differentiation, the analysis of the contemporary Brazilian strategic trade policy is conducted.

Chapter 4 is dedicated to the role of Brazilian strategic trade policy in the energy sector. The chapter contains the empirical research on biofuels (in particular – ethanol from sugar cane) performance in light of strategic trade policy and tries to evaluate the policy's effects on the basis of a qualitative methodology proposed by the author. According to the applied model, in order to assess whether a certain state intervention was of a strategic nature in tune with strategic trade policy, it is necessary to refer to four stages of the process: identification, exploration, intervention and assessment. Such a methodology is adopted to analyze Brazilian ethanol branch. The first two stages refer to the theory of strategic sector selection described in the first chapter. On the basis of the analysis, which underlines the importance of the existence of imperfect competition on a given market and a sector's ability to find an international niche thanks to its certain advantages, the author tries to answer the question whether choosing ethanol industry as a strategic one is justifiable from strategic trade policy's point of view. An important element of the chapter is a comparison of state supporting policies for biofuels in Brazil, the United States and the European, that is three main producers of the good, which substantially influence the global market of biofuels and will decide upon the directions of its development.

The final part of the dissertation is constituted by a Summary and Conclusions section. Its objective is to summarize the key research problems undertaken in the work, formulate the most important theoretical conclusions streaming from the conducted research and to identify their usefulness for the further scientific research and building the development strategies of emerging economies.

## 5. Sources and research methods

In the dissertation both quantitative and qualitative methods have been used. The main research method is the analytical-descriptive one, which in the author's opinion is appropriate to capture the nature of the researched problems (economic growth strategy, strategic trade, strategic trade policies, and sector development) and their dynamics as it allows for combining quantitative data with qualitative research. Quantitative data analysis plays an important role too, especially in the parts dedicated to assessing economic performance of Brazil, the comparison of selected macroeconomic indicators and dynamic analysis of the country's biofuel sector. Other important methods used in the dissertation include: a comparative analysis (to illustrate strategic trade policy of Brazil in comparison to the policy of the countries, which the most severe compete with it in production of biofuels, that is the USA and the EU and a case study (for the holistic illustration of the selected phenomena by providing their political-economic and social contexts).

In order to study strategic trade policy of Brazil, the author elaborated a separate methodological approach. The concept which has been elaborated on the basis of available strategic trade literature and the author's desk research presents a model of selecting a priority sector through a four-stage process. According to the model, that consists of: identification, exploration, intervention and evaluation (success or failure), a state is able to choose a sector/product support of which can be economically justifiable. The model has been applied to the author's study of Brazilian biofuel sector, allowing answering the question whether it is justified for the Government to support it in light of strategic trade policy theory.

The access to the relevant Portuguese and Spanish literature as well as Brazilian data bases, which served as the primary sources of statistical data, allowed for a complex analysis of the evolution of Brazilian economic development strategy.

Concerning the choice of the dissertation topic and the approach to the research problem, extremely important were the studies on Brazilian industrial policy, which basis for many decades were constituted by the implications of the Singer- Prebisch thesis, conducted by the author. They resulted in the publication of the following articles: "The efficiency of industrial policy in XXIst century? The case of Brazil", *Gospodarka Narodowa*, n. 7-8 2013; "Czynniki podważające skuteczność brazylijskiej polityki innowacyjności" (The factors under mining Brazilian innovativeness Policy), accepted for publishing in May 2013 in a monography of University of Łódź, "The role of industrial policy in enhancing industrial growth. The case of Brazil. The methodological approach and the research design"

(EDAMBA PhD Summer Academy, on-line publication) and a theoretical article inspired by the role of Brazilian economic diplomacy entitled: “The role of economic diplomacy in raising national competitiveness” *Nierówności społeczne a wzrost gospodarczy, Zeszyt 28, Rzeszów 2012.*

Industrial policy of Brazil constituted the onset for the author’s research on strategic trade policy. After a deepened analysis of the problem, he discovered that after changing the economic strategy of the country and the withdrawal from the concept of import substitution as the leading one in the process of Brazilian industrialization, it was strategic trade policy and its objectives that becomes the major element of the currently applied development strategy of the country. Furthermore, the selection of priority sectors in light of strategic trade policy, which focuses on a successful internationalization, seems to be more proper, regarding the economic gains of the whole economy. The above mentioned observations inclined the author to put strategic trade policy at the centre of the scientific interest and to concentrate on its role and implications for the economic development of Brazil.

## **6. Results and conclusions of the dissertation**

Verification of both the main thesis and two hypotheses required confronting them with several selected by the author research problems significant themes connected with the area of the research, which encompassed the problems of both theoretical and empirical nature.

In the theoretical sphere, through a thorough analysis of the contemporary strategic trade policy of Brazil, the author proved that the concept of the policy is open and except for the general framework of the policy’s instruments, the countries can make use of individual solutions adjusted to their market specifics. The examples of such solutions are provided by some programs/ mechanisms of Brazil (including the REINTEGRA, the regime of Ex-tariff or the Public Procurement policy) implemented in order to realize the strategic trade policy’s goals, which go beyond the tools traditionally associated with strategic trade policy and described in the currently available literature.

In the methodological sphere, after a review of theoretical research and available empirical studies on strategic trade policy, the author confirmed the existence of many limitations to a formalized modeling of strategic trade policy (mentioned already by their authors) and in consequence, proposed a new approach to study the phenomenon. As a result, the author built a four-stage Strategic Intervention Model, which allowed the author for a qualitative analysis of the selected branch in light of its compliance with the theory of strategic trade policy and the concept of strategic sectors. The model allowed for answering

the questions to what extent the policy of supporting the bioethanol branch in Brazil after 1975 can be treated as strategic trade policy, how we can define the success of a given branch in light of strategic trade policy's theory and how this success can be measured. Moreover, in order to establish a relation between strategic trade policy and industrialization, the author introduced into the analysis the assessment of the policy's implication not only for foreign trade but also for the regional development, development of other industrial branches, environmental issues, etc.

In the empirical sphere, the author showed that despite a systematic interest in the energy sector in Brazil that dates back to 1950s, as strategic one can regard the governmental interventions into the sector only after 1970s, that is only at the outbreak of the energy crisis. This was demonstrated by elaborating a strategy connected with the reduction of import of fuel (and oil in general) and the concept of energy independence of Brazil that inclined the government to seek the possibilities to replace the imported energy resources with the ones produced in the country. In practice, the policy led to i.a. a development of the domestic bioethanol branch.

The comparative analysis of Brazilian, U.S and EU biofuel policies revealed the biggest comprehensiveness of Brazilian biofuel policies and their biggest efficiency. Moreover, it was shown that after reaching a satisfactory level of maturity and international competitiveness, the industry is not being exceptionally supported by Brazil and the main instruments of aid are connected with privileged taxation on ethanol fuel. Brazil became the first country that could gradually withdraw from aiding the ethanol (which is particularly visible as far as ethanol subsidies are concerned), as the branch is competitive enough without the state aid. Additionally, Brazil started the process of liberating ethanol trade by reducing tariffs on ethanol to zero. The initiative undertaken also by the United States, led to the situation when two biggest ethanol producers can trade in the good without exposing the domestic importers and exporters for additional costs. The changes in the regulations resulted in significant consequences in the real sphere, where for example the trade intensification in biofuels between Brazil and the US can be observed, together with the growth of Brazilian bioethanol exports.

Regarding the first hypothesis that strategic trade policy applied by Brazilian government into energy sector led to development of new industrial branches, it was shown that energy-dependency minimization approach and connected with it instruments aimed at reducing Brazilian oil imports by developing alternative, domestically-available sources of energy led to establishing and strengthening the domestic bioethanol branch and generated a niche within the automotive industry, which was filled in by domestic production of ethanol-

fuelled vehicles (which was one of the most vital spillover effects). The above mentioned conclusion can be drawn by a comparison of statistical data prior and after the intervention. Before the intervention, which is marked with ProAlcool Program initiated in 1975, ethanol production was marginal and the fuel did not play any role in the transportation sector, so did ethanol-running cars. Moreover, with the success of bioethanol branch and the investment in ethanol-related technology available to a wide spectrum of agents, the flex-fuel engines have been developed and stimulated the transformation of the Brazilian automotive industry, which currently thanks to the vehicles' popularity on the market, focuses on flex-fuel cars' production and can potentially expand their exports.

Regarding the second hypothesis, the author confirmed that bioethanol branch's success in Brazil was the result of strategic trade policy applied by its Government. The hypothesis has been verified on the basis of the branch's performance analysis prior and after the intervention, which encompassed the analysis of the ethanol's industry's efficiency, production scale, innovativeness, etc. as well as the analysis of the instruments of the state support. After revealing that Brazilian policy of supporting ethanol can be treated as strategic trade policy, the author evaluated the branch in order to show if and how big success has been achieved. As a result, the success of the branch has been confirmed on grounds of: a) input-output analysis of the overall costs of state support for the industry in relation to the direct gains achieved by Brazil thanks to import-reduction and excessive profit capture by domestic producers, b) identifying the positive externalities of the ethanol industry into the Brazilian economy, which included the spillover effects to the other economic branches. As it was shown, these externalities go beyond the branch itself and a particular attention should be drawn to the importance of biofuels to regional development (work places, profits from export, activation of rural areas, etc.), labor market (by generating jobs, changing the labor market via promoting formal employment, relatively higher education and wages for the least qualified workers) and to foreign trade (ethanol export and potentially export of ethanol-related technologies). The positive spillovers have been identified also with regards to: a) agricultural sector (thanks to i.a. optimization of sugarcane production on its every stage, introduction of many new sugarcane varieties, promoting and providing funds for R&D activities), b) energy sector (not only replacing the traditional gasoline in Brazilian transportation but also in current use in electrical production thanks to so-called *bagasse* technology), c) automotive industry (by creating a market niche for production of ethanol-powered and later flex-fuel vehicles, which may be associated with domestic production expansion and growing exports and supporting ethanol-related innovations that can be implemented in the transportation), and finally d) environment (by

decreasing emissions of CO<sub>2</sub> and GHG).

By positively verifying both hypotheses the author aimed to defend the main thesis of the dissertation that strategic trade policy also contributes to the development of new industrial branches and by doing this to contribute to the strategic trade policy theory building.

Therefore, the outcomes of the research contribute not only to the enrichment of the theory, but they have significant practical implications as they justify the application of strategic trade policy to enhancing the processes connected with industrialization. As it was illustrated by the Brazilian example, the government can use strategic trade policy in order to develop new industrial branches, and through this, to stimulate the transformation of the domestic economy, promote its innovativeness and competitiveness. Such a conclusion is particularly important for the developing countries, which are the most concerned with fast (and in most of the cases sustainable) development and seek various ways to enhance this process. The problem of the strategic sector selection and its role in the transformation of a domestic economy thanks to the positive externalities, undertaken in the dissertation, seems to be interesting also from the Polish perspective, when various ways to stimulate innovativeness and internationalization of enterprises is being sought. Perhaps, some of Brazilian solutions could serve as a good example for Polish policy-makers while formulating the country's economic policy.

Also, other conclusions are of interesting practical implications. First of all, the author showed that the choice of the strategic industry seems to be crucial, as well as the instruments of its support. The selected branch has to have a potential, allowing it for a successful internationalization. In general, the outward motivation (internationalization, export) constitutes a decisive difference between the strategic trade policy and for example an infant industry argument. In case of Brazil the biofuel branch thanks to its properties, production efficiency and innovativeness, has a huge potential to conquer foreign markets. Such a scenario has been already confirmed after reducing the US import tariff on ethanol to zero. It can be anticipated, that a similar situation would occur after introducing such a policy by European Union. Moreover, as illustrated by the Brazilian example, the state policy-making should be very comprehensive and consequent, even despite some difficulties on the way. Furthermore, it appears to be necessary to involve various stakeholders, especially the academia and the business, which can work together on innovations that can be implemented on the market and generate positive externalities.

Having in mind the above mentioned arguments, it can be claimed that Brazilian strategic trade policy implemented in the domestic energy sector may serve as a model and a

practical example of a successful policy applied by a state in order to increase national welfare. Simultaneously, this practical example can be useful for building a model, going beyond the traditional perception of strategic trade policy. Such a model can serve as a basis for elaborating the concept of strategic trade policy which concentrates on capturing excessive profits by domestic producers as a result of certain institutional solutions (stimulating the export and/or limiting the imports) and on developing new industrial branches that thanks to their positive externalities contribute to the economic transformation of the given region or country. As a consequence, apart from theoretical implications (enriching the existent theory of strategic trade policy), the dissertation can contribute to the contemporary policy-making and may serve as a useful reference point for policy-making, while formulating the economic development strategies and accompanying them policies and assessing their efficiency.

Summing up, the conducted research show four basic advantages: a) cognitive (resulting from examining and describing the new phenomenon which is the application of strategic trade policy, not only in order to facilitate access to markets, but also to develop new industries, which will be illustrated on the example of the biofuel industry in Brazil); b) advantages resulting from enriching the theory of strategic trade policy with identifying its role in the development of new industries and supporting the process of industrialization in developing countries; c) methodological (resulting from developing a 4-stage model of selecting a strategic industry and applying the model to the analysis of the biofuel sector in Brazil as well as formulating on this basis the conclusions for the theory); d) practical (as a reference point for policy-makers in selecting/formulating the development strategy of a country and evaluating it).

Many of the themes undertaken by the author have an open, polemic nature and can inspire the further research. A special attention should be given to the new approach to strategic trade policy presented by the author. Moreover, a valuable contribution could be made by a wider study of the new tools of strategic trade policy, which, as shown in the dissertation on the example of a contemporary strategic trade policy of Brazil, provide the governments with many alternative ways to realize the policy's goals. This theme seem quite perspective, as it concerns strategic trade policy of not only the countries, which already apply it on a wide scale, like the USA and the EU, but also several Asian economies (particularly China) and some African states. Furthermore, the problem seems interesting concerning the limitation in the use of traditional tools of trade policy. Finally, it would be interesting to study other emerging economies in light of strategic trade policy and its consequences for the national wealth.

## **7. The shortened outline of the dissertation**

List of the most important abbreviations

### **Introduction**

#### **1 THE THEORETICAL FRAMEWORK AND EMPIRICAL APPLICATION OF STRATEGIC TRADE POLICY IN LIGHT OF THE EXISTENT RESEARCH**

##### 1.1 The Government and the Economic Development

1.1.1 Changing paradigm for the role of the Government in the economy

1.1.2 The main arguments for State interventionism and protectionism. General overview

1.2 The concept of strategic trade policy and its place within the theory of international trade.

1.2.1 Strategic trade policy – the definitions and terminology used with reference to the concept

1.2.2 The place of strategic trade theory within the theory of international trade

1.2.3 Strategic trade policy versus protectionism and free trade approach

1.3 Literature review of strategic trade theory

1.3.1 The review of the main models in strategic trade policy

1.3.2 Additional issues in strategic trade policy research

1.4 The selection and support of the strategic sectors as the most vital manifestation of the contemporary, state-led strategic trade policy

1.5 Empirical studies on strategic trade policy

1.5.1 The empirical research in the aircraft branch

1.5.2 The empirical research in the automotive industry

#### **2 A LONG-TERM DEVELOPMENT OF BRAZIL AND ITS CHANGING POSITION IN THE WORLD ECONOMY**

2.1 The GDP of Brazil: dynamics and structure

2.2 Internal factors influencing Brazil's economic performance

2.2.1 Natural resources

2.2.2 Human capital

2.2.3 Technological potential

2.3 External factors influencing the position of Brazil in world economy

2.3.1 International trade and its significance for the country's development

2.3.2 Foreign Direct Investment flows and Brazil's development

2.4 The elements of economic policy designed to support Brazil's economic development

2.4.1 The economic and political background of the evolution of Brazilian economic growth strategy

2.4.2 From import substitution to export-oriented development strategy – a brief historical and institutional overview

2.5 The influence of political factor on the change of economic strategy of Brazil

#### **3 STRATEGIC TRADE POLICY IN BRAZILIAN POLICY-MAKING: A MODEL FOR AN EMERGING ECONOMY?**

3.1 Some remarks on strategic trade policy with regards to Brazilian policy-making and the adopted approach to studying the problem

3.2 Strategic sectors and their support between 1950s and 2000s **Fehler! Textmarke nicht definiert.**

3.2.1 The support for industrial sectors during the import substitution era

- 3.2.2 The support for industrial sectors after the economic growth strategy's reorientation since the late 80s
- 3.2.3 The main elements of PITCE and PDP
- 3.3 The elements of strategic trade policy in the Plano Maior Brasil and other governmental initiatives in 2010s.
  - 3.3.1 The goals and challenges ahead of Brazil in light of Plano Maior Brasil
  - 3.3.2. Export promoting and trade protection measures
  - 3.3.3 Strategic sectors and the instruments of their support
  - 3.3.4 Brazilian policy towards the strategic markets

## **4 STRATEGIC TRADE POLICY ROLE IN RESTRUCTURILIZING ENERGY SECTOR IN BRAZIL**

- 4.1 Strategic trade policy in energy sector in Brazil: motivation and main instruments
  - 4.1.1 Brazilian energy sector at the outbreak of energy crises in the 70s
  - 4.1.2 Energy-dependence minimization approach
  - 4.1.3 Ethanol from sugar cane as an alternative energy source
- 4.2 The specification of biofuels - the overview
- 4.3 Biofuel sector's development in Brazil since 1970s. Strategic Trade Policy approach
  - 4.3.1 Methodology
  - 4.3.2 Bioethanol sector development in Brazil in the light of Strategic Intervention Model
  - 4.3.3 Biofuels in the current energy matrix of Brazil
- 4.4 Biofuel promoting policies in Brazil against the other main producers- the USA, EU
  - 4.4.1 Ethanol promoting policies in Brazil
  - 4.4.2 The support for biofuels in the United States and the European Union
- 4.5 The evaluation of Brazilian government interventions on the domestic biofuel market
  - 4.5.1 The overall assessment according to the existent research and strategic trade policy
  - 4.5.2 The role of the ethanol industry in regional development of Brazil
  - 4.5.3 The implications of the development of Brazil's ethanol industry to other branches. The analysis of the spillover effects from ethanol-driven innovations
  - 4.5.4 The implications for Brazilian trade
    - 4.5.4.1 The global market for biofuels
    - 4.5.4.2 Brazilian bioethanol as a competitive globally-traded product
    - 4.5.4.3 Brazilian ethanol exports

### **Summary and conclusions**

- List of tables
- List of figures
- Bibliography

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