



Executive summary

Import-substituting industrialization have been a policy that have been used in many industries as to create a domestic as well as an autonomous industry. The Brazilian automobile industry have used this type of enhancement several times through history with positive results. When the industry experienced foreign influences that created problems for the industry, the government again introduced import-substitution in 1995 and 2011. The use of import-substitution in today's world crates more difficulties than in the 1950s. In what way will import-substitution contribute to enhance an already established industry and contribute to establish a domestic value chain, and how will the external impacts either help or harm the industry that is being protected. Additionally, when comparing internal and external influenced, which one overrules the others in support the success of the policy. Through a SWOT analysis it is possible to attain the internal and external influences, as well as divide what are characterized as strengths, weaknesses opportunities or threats. The measures in the automobile industry in Brazil have led to foreign subsidiaries enhancing productivity in the country, as well as increase investment in research and development that will led to a greater value chain within Brazil. Additionally, the use of local content requirement has led to increased use of Brazilian produced inputs in production. The agreement Brazil have made with fellow Mercosur members Argentina, Paraguay and Uruguay have established long-run export markets, as well as contributed to the establishment if a regional value chain in producing vehicles. External influences that are putting the industry in risk is recession that will lower demand for cars. In addition, an appreciation of the exchange rate will make Brazilian export less attractive on the international market, and increase the amount being imported. A prominent threat of introducing import-substitution in this time is how international trade is regulated by the WTO, which involves commitments that are signed being a member, and how the measures included in import-substitution goes against these commitments.

Key words: Brazil, automobile industry, SWOT analysis, import-substitution, industrial policy, trade policy, domestic industry.

Sammendrag

Import-substitusjon har vært en plan som har blitt brukt på mange industrier for å opprette en nasjonal- i tillegg til en selvstendig industri. Brasilianske myndigheter har brukt denne politikken flere ganger for å fremme bilindustrien. Da industrien opplevde eksterne påvirkninger som skapte problemer for industrien, introduserte myndighetene import-substitusjon igjen i 1995 og 2011. Bruken av import-substitusjon skaper flere problemer i dagens verden enn på 1950 tallet. På hvilken måte vil import-substitusjon bidra til å forsterke en allerede etablert industri og bidra til å etablere en nasjonal verdikjede, og hvordan vil eksterne påvirkninger enten hjelpe eller harme den beskyttede industrien. I tillegg til hvordan vil de eksterne og interne påvirkningene se ut når de blir satt opp mot hverandre for å vurdere politikken sin suksess. Gjennom en SWOT analyse er det mulig å finne de interne samt eksterne påvirkningene, samt å dele opp hva som klassifiseres som styrker, svakheter, muligheter eller trusler. Import-substitusjon har ført til en økning av utenlandske selskaper som har styrket sin produksjon i landet, i tillegg til at de har økt investering i forskning og utvikling, som vil føre til en styrking av den brasilianske verdikjeden. I tillegg har bruken av krav av lokalt innhold i produksjon ført til en økning av brasilianskprodusert innsatsfaktorer i produksjon. Avtalen Brasil har med andre medlemmer i Mercosur, Argentina, Paraguay og Uruguay har etablert eksportmarkeder i lang tid, i tillegg til å bidra med å etablere en regional verdikjede i å produsere biler i verdensdelen. Eksterne påvirkninger som er en risiko for industrien, er tider med lavkonjunktur vil synke etterspørselen etter biler. I tillegg, vil en appresiering av valutaen gjøre brasiliansk produserte biler mindre attraktive på det internasjonale markedet, i tillegg til å øke bilimporten. En fremtredende trussel ved å introdusere import-substitusjon er hvordan internasjonal handel er regulert av verdens handelsorganisasjon, som innebærer forpliktelser som er signert av medlemmer, og hvordan midlene involvert i import-substitusjon er i konflikt med disse forpliktelsene.

Nøkkelord: Brasil, bilindustri, SWOT analyse, import-substitusjon, industripolitikk, handelspolitikk, nasjonalindustri

Table of content

Executive summary	1
Sammendrag	2
List of Tables	5
List of Figures	5
Abbreviations	6
Chapter 1: Introduction	7
1.1 Import-substitution in the Brazilian automobile industry	7
1.2 Objectives	8
1.3 Organization of the thesis	9
Chapter 2: Background	10
2.1 Overview	10
2.1.1 The Economy in Brazil, 1956-2014	10
2.1.2 The Automobile industry in Brazil	11
2.2 Industrial policy in Brazil 1950- 2014	13
2.2.1 The beginning of import-substitution	13
2.2.2 Industrial policy under military regime	14
2.1.3 Industrial policy in the trade liberalization period	16
2.2.4 Industrial policy under the Lula- and Rouseff Administrations	18
2.3.1 Key numbers regarding the development of the industry	20
2.4 Trade agreements	23
2.4.1 Mercosur	23
2.4.2 Brazil and the WTO	25
2.4.3 Brazil and Mexico	25
Chapter 3: Theory and literature review	27
3.1 Import substituting industrialization	27
3.2 Theories as to why protect domestic industry	28
3.2.1 Dependency theory	28
3.2.2 Infant industry argument	30
3.3 Government invention theory	30
3.3.1 Industrial policy	31
3.3.1.1 Local content requirement	31
3.3.1.2 Subsidy	34
3.3.2 Trade policy	34
3.3.2.1 Import tariff	35
3.3.3 Macroeconomic policy	36

3.3.4. WTO views on government invention policies	39
3.4 The International automotive industry	39
3.5 Literature Review.....	40
3.5.1 Other countries experiences with import-substitution on the automotive industry	40
3.5.2 Other governmental strategies as to promote domestic automotive industry	43
Chapter 4: Methodology	48
4.1 SWOT analysis	48
4.2 Literature review of a swot analysis	48
4.3 SWOT analysis of the automobile industry in Brazil.....	50
4.3.1 Internal factors.....	50
4.3.2 External factors.....	52
4.4.3 SWOT analysis of the Brazilian automobile industry	54
Chapter 5: Analysis	58
5.1 Internal changes in the industry	58
5.1.1 Strengthen the industry.....	59
5.1.2 International companies establishing production plants and subsidiaries	63
5.1.3 Developing a domestic car part industry	64
5.2 External factors	66
5.2.1 Impacts of trade agreements with Mercosur and Mexico.....	66
5.2.2 Export destinations and business cycles.....	70
5.2.3 Changes in the exchange rate	72
5.2.4 Commitments with the WTO	73
5.3. Internal vs. External effects.....	75
Chapter 6: Conclusion	78
6.1 Limitations of the thesis	80
6.2 Recommendations for further study.....	80
Bibliography	81

List of Tables

Table 1: Macroeconomic developments in Brazil 1956-2014	p. 10
Table 2: Overview of Industrial Plans in Brazil 1956-2014	p. 13
Table 3: Developments in the automobile industry 1956-2014	p. 21
Table 4: Trade restrictions in Brazil 1957-2014	p. 22
Table 5: Development of the Mercosur Automobile policy	p. 24
Table 6: SWOT analysis of the Brazilian automobile industry	p. 55
Table 7: Revenue, production, IPI revenue number of imported vehicles and market share of the automobile industry 1990-2014	p. 60
Table 8: Employment and investment in the industry	p. 61
Table 9: Investment in research and development	p. 62
Table 10: Development of the car part industry	p. 64
Table 11: Percentage growth in the value of trade in cars with Mercosur members 1991-2014	p. 66
Table 12: Import of car parts from Mercosur and Mexico	p. 68
Table 13: Largest export destinations of Brazilian cars 1995-2012	p. 70
Table 14: Changes in the exchange rate BRL/USD and changes in trade between Brazil and the US	p. 72

List of Figures

Figure 1: Growth of the automobile industry in Brazil 1956-2014 number in thousands of units	p. 21
Figure 2: Model of local content requirement in an input market	p. 33
Figure 3: Welfare effects of an import tariff	p. 35
Figure 4: Changes in excess supply/demand with an appreciation of the currency	p. 38
Figure 5: Growth in new car per 1000 inhabitant and GDP per capita	p. 59
Figure 6: Trade of cars with Mexico	p. 68
Figure 7: Connection between GDP growth and exports to Argentina	p. 71

Abbreviations

ISI – Import-Substituting Industrialization

BNDES – Brazilian Development Bank

WTO – World Trade Organization

HS – Harmonized System

SWOT – Strengths Weaknesses Opportunities Threats

GDP – Gross Domestic Product

OEM – Original Equipment Manufacturer

EU – European Union

LCR – Local Content Requirement

IPI – Tax on Industrialized Products

CET – Common External Tariff

MAP – Mercosur Automobile Policy

DSB – Dispute Settlement Body

GATT – General Agreement on Tariffs and Trade

FDI – Foreign Direct Investment

DC – Developed Countries

LDC – Less Developed Countries

TRIM – Trade Related Investment Measure

R&D – Research and Development

ROW – Rest of World

TNS – Transnational Corporations

NAFTA – North American Free Trade Agreement

VER – Voluntary Export Restraint

BRL – Brazilian Real

USD/US\$ – United States Dollar

Chapter 1: Introduction

1.1 Import-substitution in the Brazilian automobile industry

Import-substituting industrialization (ISI) was a common policy in the 1950s and 1960s in the developing world. Many so-called infant industries were protected by high tariffs and prohibition of imports in developing countries. Import-substituting industrialization is about protecting domestic industry by preventing imports through the use of trade restrictions as tariffs and quotas. This can lead to economic growth, through promoting industrialization, when transforming a traditionally agriculturally-based economy into a manufacturing one (Szirman, Naudé, and Alcorta, 2013). This is a desired outcome for developing countries, among others Brazil.

Brazil is considered by the World Bank as one of 13 success stories regarding economic growth in the world after the Second World War (World Bank, 2008). In addition, the country has gone from being a mainly agricultural nation to becoming a manufacturing producing country. In the 1950s, the country started the process of import-substituting industrialization with the objective of increasing domestic industrial production through trade barriers on imports of these complementary products.

The automobile industry in Brazil is one of the biggest industries in the country, in 2005, 10,9% of gross industrial production and 6,2% of industrial employment came from the automobile together with the cars part industries (Arza, 2011). The industry has been so since the import-substituting industrialization started in 1956. The protection of the industry started with a strict prohibition of imported cars into the country, a prohibition lasting until September 1990. The common trend of the different governments throughout history has been prohibition of imports, high tariffs and local content requirement (LCR) when producing a car in the country, in addition to direct financial aid from the Brazilian Development Bank (BNDES). Today Brazil has the world's eighth largest automotive fleet, and is the seventh biggest producer of automobiles according to the Anfavea, the Brazilian Automotive Industry Association (Anfavea, 2015²). It is only subsidiaries or branches of international car companies that produce cars in Brazil. International companies have established plants in Brazil since the 1920s, and more subsidiaries have been established since then, among other reasons the industrial regulations imposed by the government.

The country has experienced periods of growth as well as crisis since the 1950s. There have been periods of high economic growth, followed by periods characterized by debt crisis and

macroeconomic difficulties. The automotive industry has managed to stay stable and has grown by a yearly average of production growth of 21% since 1958 (Anfavea, 2015¹), much due to the government's intervention in the industry. The last industrial plan was "Brasil Maior" of 2011. This latest measure has been referred to import-substituting industrialization version 2.0, due to several similarities from the policy led in the 1950s (Troyjo, 2012). Thus, the industry is protected by the government, even though Brazil is a member of the World Trade Organization (WTO), and this goes against their commitments with the organization.

1.2 Objectives

The objectives in this thesis is to perform a policy evaluation of the use of import-substituting industrialisation on the automobile industry in Brazil, to evaluate the impacts made by the policy in developing the industry. In particular, how the use of import-substitution has contributed to strengthen the Brazilian value chain. Thus, the first research question asks:

- Is there evidence of import-substitution have contributed to modernize, amplify and enhance the industry. If the measures have contributed to strengthen the Brazilian value chain of producing automobiles in the country.

In addition, the thesis will analyse if how the measures coincide with external influences, this is seen in the light of Brazil being a part of global trade as well as different trade agreements, and how these external influences interact with the industry. Thus, the second objective asked is:

- In what way are the policy coinciding with external influences? If external influences are threats or opportunities for the impacts of the policy.

This thesis will thereby use theory regarding industrial policy, trade policy as well as macroeconomic policy to analyse the changes made in the in the industry with introduction of import-substitution, and further analyse the external influences on the industry. Ending with a comparison internal and external influences to evaluate the policy.

The methodology being used is a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis, which is appropriate for assessing the positive and negative effects of the policy initiatives by evaluating the different changes separately. This methodology will also link internal and external effects on the industry.

The time will be limited to from the 1990s, and until 2014. The reason for this is there was two changes in the 1990s. The first regards changes in the external circumstances, the

international automobile industry. The industry became more internationalized and globalized, with production moving to developing countries due to relatively lower production costs. Second, there was internal changes in Brazil regarding the political situation, almost 30 years of military dictatorship ended, and the country pursued trade liberalization.

The analysis of the automobile sector is limited to cars, excluding trucks, busses and light commercial vehicles. The Harmonizes system (HS) codes, which is the standard codes to classify commodities in relation to the movement of trade (Comtrade, 2008), that used in measuring imports/exports of cars is 870321, 870322, 870323, 870324, 870331, 870332, 870333, and 870390 which are cars with different sizes motors that runs on gasoline as well as diesel. In addition, to assess the implications of local content requirements, the study includes auto parts HS 8703 and 8708, which are, respectively, motor vehicles for transportation of people and parts and accessories for motor vehicles.

1.3 Organization of the thesis

Chapter 2 is a historical background of the first round of import-substitution industrialization in Brazil that assesses the industrial policies implemented in Brazil from the 1950s until the new policy initiative in 2011-12. The macroeconomic developments in Brazil are considered to link the different programs to the performance of the industrial development. In chapter 3 there is a discussion on theory as to why protect domestic industries, as well as theory related to industrialization, linking industrial policy with industrialisation or improving targeted industrial sectors in an economy, as well as macroeconomic policies and trade policies that complement that effort. A review of the literature reports on the experience of import-substitution industrialization in countries for development of the car industry. Chapter 4 elaborates on the SWOT methodology and describes the SWOT analysis of internal and external influences that affects the industry, and how this changes with the use of import-substitution. Chapter 5 executes the analysis of data linked to the internal development of the industry, followed by analysis of external influences. Ending with a comparison and discussion or the external and internal effects. Chapter 6 provides a conclusion of the results of chapter five related to the objectives of the thesis.

Chapter 2: Background

This chapter describes the developments of the automotive industry in Brazil in the context of macroeconomic developments, and industrial policy as well as trade agreements.

2.1 Overview

2.1.1 The Economy in Brazil, 1956-2014

Table 1 shows key numbers in regards to macroeconomic developments in Brazil during different governments from 1956 until 2014.

Table 1: Macroeconomic developments in Brazil 1956-2014

	1956- 1963	1964- 1972	1973- 1989	1990- 2002	2003- 2014	
GDP growth*	7,05	7,74	4,97	1,90	3,52	%
GDP per capita**	0,24	0,40	1,74	3,81	7,83	US\$ millions
Balance of Payment	-3	465	188	2303	26190	US\$ millions
Trade Balance	51	182	4220	3986	25706	US\$ millions
FDI	138	241	1683	13157	39558	US\$ millions
Total External Debt*	-	-	75	184	300	US\$ billions
Exports	1336	2250	19286	46230	175411	US\$ millions
Imports	-1241	-2067	-15066	-42244	-149781	US\$ millions
Unemployment rate	-	-	9,48	10,44	8,45	%
Interest rate	-	-	8,46	19,27	13,86	%
Overnight/Selic*****						
Inflation	38,14	32,19	268,17	539,75	6,17	%
Change in Reserves	-3	465	188	2303	26190	US\$ millions
% of GDP from agricultural sector	19	15	11	7	6	% value added
% of GDP from industrial sector	38	36	43	31	28	% value added
% of GDP from manufacturing sector*	26	28	34	21	16	% value added
Industrial production****	-	-	882	1050	1428	Quantity
Licenced car per 1000 capita***	0,6	2,4	5,1	6,5	11,0	Units

Source: Ipedata, 2015 Banco Central do Brasil, 2015 OECD, 2015 World Bank, 2015 Anfavea¹, 2015

*missing data 2014

**missing data 2013 and 2014

*** missing data 1956

**** missing data 1973, 1974 and 2014

*****missing data 1973

The change in the rate of Gross Domestic Product (GDP) growth peaks from 1956 until 1972 with annual average growth of 7,4%. The number further shows a slow period between 1990 and 2002, with an upswing again the years after. GDP per capita shows a steady growth from the 1950s until today (Ipedata, 2015).

Brazil experienced inflation above 1000% in the late 1980s and early 1990s, with the highest occurring in 1993 at an average annual rate of 2708%. In 1999, Brazil introduced inflation targeting, where the monetary authorities are responsible to keep inflation at pre-defined rates (Serrano, 2011). The inflation target has been 4,5% since 2005. Since 2003, average inflation rate has been 8,45% (Banco Central do Brasil, 2015).

When it comes to sectorial contribution of GDP, the industrial sector is above the agricultural sector all five periods. The agricultural sector has contributed less and less contribution to GDP, and has decreased from 19% during 1956-1963 to 6% between 2003 until 2014.

Agricultural value added growth had an average percentage growth of 3,4% from 1966 until 2013 (World Bank, 2015), hence the sector was constantly growing, but manufacturing as a share of GDP was growing at a higher rate. Contribution of the industrial sector to GDP was at its highest in the period from 1973 to 1989, a period marked by stagnation and debt crisis in Brazil. Since the beginning of the 1990s, it has been decreasing (World Bank, 2015).

Manufacturing is included in the industrial sector and in recent years, manufacturing has had the largest share of industrial output. Industrial production in output has increased since 1975 by an average of 2.35% (Ipedata, 2015).

The number of licensed cars per person has increased. The biggest change came from the 1990s until 2000. This means that there has been an increasing demand for automobiles since the beginning of production, the Brazilian population is continuing to buy new cars. While the average percentage growth in the population between 1956 and 2014 was 2%. The same growth rate of licencing of new cars was 21.1% (World Bank, 2015), (Anfavea, 2015¹).

2.1.2 The Automobile industry in Brazil

Cars and car parts is Brazil's 12th and 13th biggest export articles and counts for 1,7 and 1,5% of the nation's exports, respectively. When it comes to the articles of imports, it counts as the third and fourth biggest import articles of 4,2 and 3,1% of all imports (OEC, 2015). The automobile industry in Brazil has been a success story in regards to two aspects: how the industry contributed to economic growth from the 1950s, especially in the years of the

“economic miracle” between 1968 and 1973. As well as how the industry is viewed as an example of how import-substituting industrialization can be successful (Mera, 2007).

The automotive industry started in Brazil in 1919, when Ford established an assembly park in the country to start producing automobiles. General Motors followed a couple of years later, and established their first assembly park in 1925 and second in 1929 (Shapiro, 1991). Today the biggest producers in Brazil are Volkswagen, Fiat, General Motors, Ford and Renault. With a total of 13 automobile producers in the country. In 2013, Brazil was ranked having the world’s eighth largest automotive fleet, and was the seventh biggest producer of automobiles (Anfavea², 2015). Regarding production, the many subsidiaries have established full production in Brazil, i.e. operates as an original equipment manufacturer (OEM), which means producing all parts themselves within Brazil (EIU, 2010). Shapiro (1996) states that the automobile industry in Brazil is a result of the international automobile industry’s interaction with the policies targeting the industry made by the state.

The position of the Brazilian market is beneficial when it comes to exports to other countries in Latin America, in the way that Brazil through have established trade agreements with many countries in Latin America other than Mercosur members, those being; Chile, Mexico, Venezuela, Colombia and Ecuador. In addition, Brazil have been exporting to destinations in Europe and North America for twenty years (Arza, 2011). This has been a reason for establishing subsidiaries in Brazil, and have contributed to increased exports. In 2006 the distribution of exports in percent was; South America (47%), Mexico (23%), EU (9%), Africa (13,5%), Asia (6,5%) and the last 1% to other regions (Quadros and Consoni, 2009). However, it is not a big proportion of production that are exported, in since 2000, annual average has been around 17% (Ipedata, 2015).

The vehicles produced in Brazil are specialized into small, low cost vehicles, called “popular car”. This is beneficial for the Brazilian consumers due to their low purchasing power compared to other nations. Duties and taxes have changed throughout the years, since the 1990s there have been a focus on promoting the “popular car” thorough tax relieves on that specific segment (Quadros and Consoni, 2009). This is to create an advantage for Brazilian producers, in addition to the car segment living standards matching the Brazilian population. SIA (2007) states that this specialization has made the production profitable when it comes to trade agreements and to achieve economies of scale, economies of scale meaning that are reducing average cost with higher production (Suranvic, 2010).

During the history of the Brazilian automotive industry, not one domestic Brazilian producer have emerged (Mukherjee and Sastry, 1996). This emphasizes the importance international companies have in Brazil, as well as shows the result of the specific policies the government have introduced for the industry.

2.2 Industrial policy in Brazil 1950- 2014

Table 2 provides an overview of the industrial policies implemented by different governments in Brazil since the 1950s and until today. The table presents as an overview to demonstrate the years of important industrial plans as well as the corresponding targeted sectors. The policies are discussed in detail further in the chapter.

Table 2: Overview of Industrial Plans in Brazil 1956-2014

Year	Name of industrial Plan	Targeted Sectors
1956	Target Plan	Energy sector, transportation, food supply, basic industries, education, automobiles
1964	National Development Plan	Infrastructure, heavy industries
1973	Second National Development Plan	Industrial products and capital goods
1995	Industrial, Technological and External Trade Policy	Aerospace technology, nuclear technology, military technology, agriculture
2001	Industrial, Technological and Trade Policy	Semiconductors, software, capital goods, pharmaceuticals, medicine
2008	Productive Development Policy	Aeronautics, oil, natural gas, petrochemicals
2011	Greater Brazil Plan	Manufacturing industry, small- and medium sized enterprises, energy market, automobiles

Source: Baer, 2008; Cimoli, Dosi and Stiglitz, 2009; Melo, 2001, Kupfer, 2012, Ministry of Development, Industry and Foreign Trade, 2014

2.2.1 The beginning of import-substitution

Kubitschek, who served as President in the 1950s amplified the use of import-substituting industrialization in industrial policy. He started governing under the Plano de Metas (Target Plan), where the government wanted improvement in five sectors in the economy: the energy sector, transportation, food supply, basic industries and education. The state initiated sectors in the economy that they wanted to industrialize by making sure that sector attracted foreign and domestic investments (Baer, 2008). The government measures supporting import-substituting industrialization was high tariffs and quantitative restrictions on imported goods. The initial goal was to attract more foreign direct investment through fiscal incentives such as tax exemptions. In addition, the BNDES was giving out loans, leading to establishment of more state-owned enterprises (Barbosa, 1998). Specifically, the BNDES gave fiscal incentives

to the energy and transportation sector with a long-term focus. (Musacchio and Lazzarini, 2014).

The industrial policy at the time included the “Auto Plan”, where the automobile market was completely closed for foreign imports. There was a prohibition on 104 imported groups of automotive parts, those for an import-competitive sector existed. The reason for this was to protect local producers and to kick-start the automobile sector as a leading industry in the country (Shapiro, 1994). The government also required local content of 90-95% of domestically produced cars within five years (Shapiro, 1989). The Brazilian Government wanted the automobile industry in Brazil to be the leading sector within manufactured goods, and wanted to attract foreign investment and technology (Shapiro, 1989). Because of this policy, Volkswagen and other companies established assemblies in Brazil, as this was more profitable than to export to the country (Shapiro, 1991).

The “auto plan” under the Kubitschek administration was organized by the BNDES, and directed by an institution of different agencies that were affected by the new policy called GEIA (Executive Group for the Automotive Industry). Companies would get benefits and directly financial support from BNDES to import manufacturing equipment to establish assembly plants in Brazil. The firms that fulfilled the domestic content requirements received financial incentives from BNDES (Shapiro, 1991).

2.2.2 Industrial policy under military regime

There was a military coup in 1964. The new government viewed increased exports as a positive mean to achieve economic growth. The government stopped export taxes, created subsidies for exports and simplified administrative actions to exports (Baer, 2008). These measures were taken to reduce the trade deficit, which was at its lowest at 897 US\$ million in 1962 (Ipedata, 2015). Their new policies focused on creating a system of incentives for direct investments into sectors that seemed essential to the government. Attracting foreign investment to expand the country’s productive capacity, and the expansion of public investments in infrastructure projects and heavy industries were key components of the plan. The development bank, BNDES, was used during to directly finance firms and support related sectors. BNDES was changed during this period into a state-owned company, which gave them more flexibility when it came to investing in firms, which was one objective of the industrial policy at the time (Musacchio and Lazzarini, 2014).

Domestic producers focused on the local market in their design and development of products in the automotive industry. A common strategy was to use old models from Europe and North America. This suggested that the technological level of production in Brazil was lower of that in the Triad countries (North America, Europe and Japan). The international companies were pleased with the sales in Brazil and continued to produce there (Quadros and Consoni, 2009).

In 1973, Brazil experienced a time of recession due to among other things an increase in the oil prices. This affected Brazil because their industry was dependent on imported oil. The government came up with a plan regarding industrial policy, called the Second National Development Plan (PND II). The plan contained import substituting of basic industrial products and capital goods, because the government wanted to increase investments into these sectors. The government wanted to invest in the parts of the economy that was dependent on imports to make the economy more autonomous, which they believed would prevent Brazil suffering from a price shocks in the future (Baer, 2008). The practice of industrial policy of this plan was still import-substituting industrialization. However, there was a promotion of trade combined with efforts to attract direct investments from either abroad or at home (Cimoli, Dosi and Stiglitz, 2009). With the new gained freedom of BNDES, they were able to invest in the Brazilian production. Many new state-owned companies were created during this decade (Musacchio and Lazzarini, 2014). The government relied on foreign money to support these newly-established companies, and foreign direct investment into the country increased by 157 % from 1972 to 1973, and further by 13% annual average growth towards 1980 (Banco Central do Brasil, 2015).

Another policy measure in the 1970s was that the government started to promote exports of cars in the country by giving tax exemptions on exports through the programme BEFIEEX (Benefícios Fiscais a Programas Especiais de Exportação) (Mera, 2007). To receive these benefits from the government, there were still the requirement of domestic content, which was now lowered to 85%. The local content requirement was lowered with the idea that firms could import certain parts and components needed to produce cars. In addition, companies had to make contracts that were planned to be long-term in exports (Shapiro, 1994).

The 1980s are called the “lost decade” in Brazil. The decade was characterized by debt crisis, after decades of borrowed money from abroad, especially after the increase in the oil price (Baer, 2008). External debt increases from 11 billion in 1972 to 118 billion in 1988 (World Bank, 2015). The government had to seek financial help at the IMF in 1982, which helped them create an austerity programme that went on for two years. The IMF came up with

conditions for a stabilization package, which included privatization of companies as a mean to improve the debt situation (Baer, 2008). The percentage industrial growth from 1976 until the end of the 1980s was 3.4% (Ipedata, 2015).

An example of how this debt crisis affected the automobile industry is that Volkswagen and Ford, which both had established subsidiaries in Brazil at the time, collaborated into a joint venture to cut costs. This was due to the decrease in demand of automobiles that followed the economic crisis (Quadros and Consoni, 2009). The practice of import-substitution industrialization was still present until the end of the 1980s, where it was comprised on fiscal and financial incentives, high local content requirements, and closed markets to imports. The car parts industry grew continuously with the assembling industry (Mera, 2007).

2.1.3 Industrial policy in the trade liberalization period

During the 1990s, there was a political shift towards a neoliberal policy including privatization, trade and investment liberalization as well as tight monetary and fiscal policy (Mera, 2007). It was a decade characterized by stabilization programmes introduced by newly elected governments. Mexico, an important trading partner, experienced a debt crisis in 1994, which affected the balance of payment in Brazil due to a reduced inflow of capital from their important trading partner (Mera, 2007). The Ministry of Finance and the Central Bank were responsible for re-achieving a positive balance in the budget and for macroeconomic stabilization, respectively (Mera, 2007).

The opening up of the markets in the beginning of the 1990s, made Brazil more vulnerable to external shocks due to the overvaluation of the currency. The real plan of 1994, aimed to achieve macroeconomic changes included trade-, industrial- and monetary policies. The real plan and the stabilization plans before that resulted in a trade deficit in 1995, which again led to an overvalued currency and hyperinflation which created a consumption boom among Brazilians (Mera, 2007).

President Fernando Henrique Cardoso, who governed the country between 1995 until 2001 introduced an industrial policy in 1995 called “Industrial, Technological and External Trade Policy”. The aim behind it was to increase productivity and to improve technological innovation, to make Brazilian production more competitive on the international market (Melo, 2001). One way of achieving this was through policies stated in the Brazilian Multi-Annual Plan, which focused on the necessity to get rid of distortions made by heavy protection of the Brazilian market. The main policy in the programme was to make the cost of production equal

to other countries by cutting the so-called “Brazil-Cost”, make it more profitable to invest, and create better circumstances for the Brazilian producers regarding foreign unfair competition (Melo, 2001). The “Brazil-Cost” is an expression referring to the high cost of doing business in Brazil. The term is linked to currency appreciation that occurred in the 1990s, as well as the high tariff levels kept in Brazil compared to other countries with the same living standards (Economist, 2013).

The industries of aerospace technology, nuclear technology, military technology and agriculture was of special focus at this time from the Ministry of Science and Technology. In addition, the industrial policy included programs to establish new non-existing industries like special materials biotechnology, energy conservation, energy alternatives (Melo, 2001). The World Bank funded two projects developed by the Ministry of Science and Technology in their plan to achieve technology development: the program to support Technological Sector Entities (TSEs) and the Program for Technology Management and Competitiveness (Melo, 2001). The general trend in industrial production in this period was positive, with an average industrial growth during the decade of 1990s was 2,02% (Ipedata, 2015).

Trade liberalization was also oriented towards the automobile industry. The president believed that opening up the market would lead to more competition helping the automobile industry to invest in new technology and to update the models that was produced in Brazil (Shapiro 1994). The plants had to be modernized to keep up with international competition. Another reason for opening the market to foreign competition, was done to give the domestic industry a jump-start from the previous stagnating decade (Shapiro, 1996).

The liberalization led to a boom of imports. As a response, a plan called “The New Automobile Regime” was drafted as an industrial policy between 1995 and 2000 to control this trend and to increase investment and exports. The sector was again protected with tariffs, investment incentives, export promotion measures and quantitative restrictions. The new policy went against the commitments Brazil had made with regional neighbours as well as their WTO commitments. The overvaluation of the exchange rate that followed the macroeconomic policy affected the trade of automobiles in the country. Thus, an important reason for implementing this New Automobile Regime was due to those macroeconomic reasons, i.e., to regain positive balance of payment. Industrial policy that affected the industry was tax exemptions and fiscal incentives, to help the industry to become more competitive while being protected (Mera, 2007). The positive effects of the programme were that it would help balancing the external deficit, however negative effects were a fiscal burden due to

domestic investments. The tariff on imported cars was raised several times, due to their failing effects on imports. The government found it necessary to introduced quantitative restrictions that would not only stop imports, but also contribute to fiscal revenues and foreign direct investment which would benefit the balance of payment problems Brazil had experienced (Mera, 2007). Brazil's justification for this action to its trading partners was based on the serious balance of payments crisis it was experiencing, which is acceptable reason under WTO rules. However, the WTO did not share this same view, and the quota idea was dropped the same year (O'Keefe, 2009).

After a period of decrease in demand among the Brazilian consumers, there was a collaboration between unions, suppliers, dealers, assemblers as well as the Brazilian government to discuss the future of the industry. At this time, there was an idea of giving special tax reductions to the car segment "popular car", which managed to rise demand for domestically produced cars in Brazil (Quadros and Consoni, 2009).

2.2.4 Industrial policy under the Lula- and Rousseff Administrations.

In 2003, Brazil elected a new president, Luiz Inácio Lula da Silva. When he was inaugurated as president, the country had been suffering from a deficit on the balance of trade since 1995 (Ipedata, 2015). The new government introduced two industrial policy programmes created to fix the trade deficit and economic instability of the 1990s, the first one was called PITCE (Política Industrial, Tecnológica, e de Comércio Exterior), and was aiming at industrial, technical and trade policy. The objectives of the plan were to increase competitiveness through technological innovation by establishing incentives by both the public and private sectors, with the idea that these measures would lead to a greater participation in foreign trade from the country (Pereira, Marcelino and Kruglianskas, 2006). The objectives of the plan included "1) to increase the technological content of domestic production; 2) to promote exports of value-added products; and 3) to make Brazilian companies more pro-active in international markets" (Kupfer, 2012, p.7). Organizations were created to help the cooperation between private and public sector, the National Council for Industrial Development (CNDI), which was established to overlook the guidelines (Cimoli, Dosi and Stiglitz, 2009).

The second industrial policy programme performed by the Lula administration set into action in 2008 expecting to last until 2010 was called PDP (Productive Development Policy). This programme wanted to "increase fixed investment, boost expenditure in private research and development, increase Brazilian share in exports, and increase the number of exporting micro- and small enterprises" (Kupfer, 2012, p.19). The policy focused on the sectors of aeronautics,

oil, natural gas and petrochemicals, bioethanol, mining, steel, pulp and paper, meat. The government would provide financing to industry and services, R&D and provide tax incentives (Cimoli, Dosi and Stiglitz, 2009). The policy led to an increase in exports and investments due to a common understanding of more innovation, research and development to compete with new established products in the international market. The investments paid off, Brazilian manufactured goods became more competitive, its share of exports increased, and the balance of trade turned positive reaching a peak surplus of 46 billion US\$ in 2006 (Cimoli, Dosi and Stiglitz, 2009), (Ipedata, 2015).

The administration contributed to many positive changes in the Brazilian economy: there was an annual percentage change in GDP per capita between 2003 and 2011 of 18.49%. The balance of trade averaged 23.187 million US\$ in the period. The country attracted more foreign direct investment, an average increase of 27% in the years De Silva was president. Unemployment decreased from 12% in 2003 to 6% in 2011. However, the debt of the country increased by more than 100 billion US\$ during De Silva's presidency (Ipedata, 2015), (Banco Central do Brasil, 2015).

In 2011, the newly elected President Dilma Rousseff offered the plan "Plano Brasil Maior" (Greater Brazil Plan), another industrial policy promotion, with the slogan "Innovate to compete, compete to grow". The objectives were:

- 1) to build and strengthen critical competencies in the national economy; 2) to enhance productivity and technology density within value chains, 3) to expand the domestic and external markets of Brazilian companies; and 4) to ensure socially inclusive and environmentally sustainable growth (Kupfer, 2012, p.23).

The plan was divided into three groups regarding how to act. Regarding investment and innovation, the government provided tax relief and legal framework for innovation. Regarding foreign trade, there were tax relief on exports and trade promotion. Regarding industry and domestic market defence, tax relief was provided to domestic companies and a special automotive regime for the automotive industry called "Inovar-Auto" (Innovate-Auto) (Kupfer, 2012). The plan also states as a challenge that Brazil must deal with the effects of currency appreciation. The minister of finance at the time stated that the usage of quantitative easing the US was constantly weakening of the dollar relative the Real, which threatens the competitiveness for the Brazilian producers (Leathy, 2012).

The Inovar-Auto programme implemented by the government in 2012 had the objective to increase technology in the Brazilian automotive industry. The policy was aimed at promoting innovation, investment, efficiency and environmentalism in Brazilian car manufacturing (Stansfield, 2014). In September 2013, the plan also included the auto parts sector, with “Innovate-Auto parts”. The government wanted technological progress of the industry and with that reducing import of auto parts. Financing from BNDES intended to increase technology in the industry (Cross, 2013).

The Inovar-Auto programme started with a tariff increase of 30% on the Tax on Industrialized Products (IPI). The IPI tax is an additional tax to the bound tariffs on imported and domestically produced goods that have been somewhat modified before sale (The Brazilian Business, 2015). However, companies get reduction on this tax if they fulfil certain requirements set by the government. Those manufacturing requirements are: they must invest in research and development, engineering, basic industrial technology and capacity-building of actual and potential suppliers in Brazil; and they must meet energy efficiency targets that will improve the industry’s environment friendliness. How much of a tax reduction companies receives, depended on the amount of producing activity that is conducted in Brazil or Mercosur including Mexico (WTO, 2014). The rules states that importers from other markets than Mercosur and Mexico can import 4,800 cars a year without the additional tax, but above that number, the imported cars will be taxed with the IPI at 55% (Stansfield, 2014). The OEM should locate 12 out of 14 production steps in Brazil. In addition, the company should introduce a tagging system to make it easier to check for local production (Stansfield, 2014).

2.3.1 Key numbers regarding the development of the industry

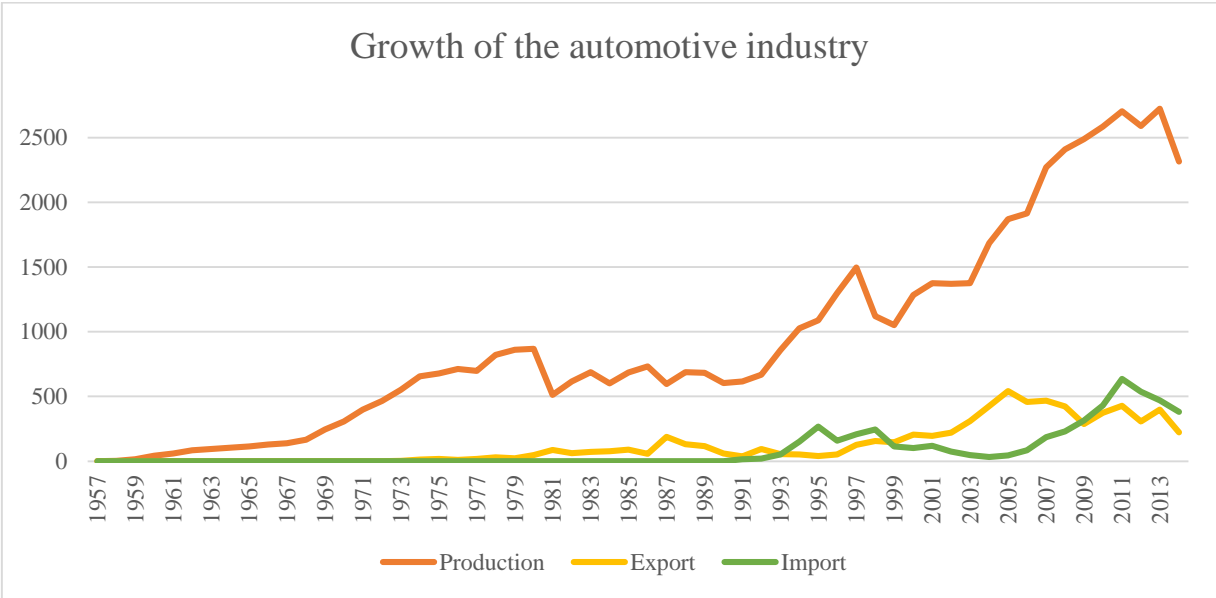
Table 3 and figure 1 shows developments in the automobile industry in Brazil, in relation to revenue, industrial GDP, investment, employment as well as the units of trade and production, from 1956 to 2014.

Table 3: Developments in the automotive industry 1956-2014

Period	Revenue vehicles in US\$ millions	Share in industrial GDP %	Investments in US\$ millions	Employment, Number of employees	% growth employment
56-63	-	-	-	32382	33
64-72	16427	14	-	58907	7
73-89	34080	15	509	113491	3
90-02	42560	13	1485	98587	-3
03-14	70684	17	2463	109509	4

Source: Anfavea, 2015¹, Anfavea, 2015²

Figure 1: Growth of the automotive industry in Brazil 1956-2014, number of thousand units



Source: Anfavea, 2014.

In the 1950s, trade policy constituted a prohibition of imports including vehicles and car parts. The local content requirement was 90-95%. With the beginning of import substituting industrialization, production increased by 132 %, employment by 33 %. Thus, the promoting of the industry in the 1950s, led to an increase in production and employment, and by that prevented a “kick start” for the industry. Years that stands out in terms of changes are the 1967 that showing the beginning of the increase in production, see table 3. This is the time of the “Brazilian Miracle”, with an increase in production between 1964 and 1972 of 20%. At this period, the industry was counting for 14 % of the industrial GDP, and employing around 60.000 Brazilians (Anfavea, 2015²).

In the 1970s, the focus on promoting exports became visible in 1975 when exports were five times higher than in the previous year. Exports continued to grow, and average annual growth was 33% until 1989. ISI with promotion of trade and efforts to attract domestic or foreign

direct investment resulted in 509 US\$ million on average from 1973 to 1989 (Anfavea, 2015²). According to table 4, page 22, the local content requirements were reduced from the level of the 1950s-60s. The industry maintained production and employment levels throughout the 1980s, despite the debt crisis the country experienced at the time.

The period of 1990-02 shows the increase in revenue from previous periods, but the share of industrial GDP was lower than previously. Employment decreased due to new production technology that used substituted for labour and capital machines (Quadros and Consoni, 2009). Figure 1 shows an increase in production at this period, which corresponds with the many new plants that were being established.

The changes in imports are responsive to the changes in the rates of tariffs that are applied. The prohibition on imports in 1993 and the tariff increase in 1996, were responsible for the decrease in imports. The same occurred in 2011, when the local content requirement and the IPI tax increase.

Table 4: Trade restrictions in Brazil 1957-2014

Year	Import Tariff	Local content requirement
1957-1969	Prohibition	90-95%
1970-1979	Prohibition	85 %
1980-1989	Prohibition	90 %
1990	85 %	70 %
1991	60 %	
1992	50 %	
1993	40 %	60 %
1994	35 %	
February 1995	20 %	
April 1995	70 %	
1997	63 %	
1998	49 %	
1999-2014	35 %	60 %

Source: WTO.org, 2015, Shapiro, 1996, Mera, 2007, Mukherjee and Sastry, 1996

In the 1990s, the tariff rate changed several times. With the opening up of the automotive market, the Brazilian producers quickly understood that their products were inferior when it came to productivity and quality compared to the imported good. The ratio export/imports of automobiles changed from +74.500 units in 1992 to – 228.998 units in 1995 (Anfavea, 2015¹), which is evident from figure 1, with imports exceeding exports. During 2003-14, the industry stabilized and, figure 1 and table 3 shows that production, share of industrial GDP,

revenue and investment were at its highest levels. In addition, employment shows growth compared to the previous period.

Local content requirements started out at almost 100 %, but reduced steadily and have been at 60% since 1994. Figure 1 shows that import increased in 1993, the year that the tariff was lowered, and further increasing in 1994. The decrease in 1995, coincided with the increase in tariffs in the New Automobile Regime. After the rate was bound at 35 %, figure 1 shows that imports were relatively stable, except in 2011, where Chinese, Korean as well as Mexican imports were peaking.

2.4 Trade agreements

2.4.1 Mercosur

Mercosur is the common market in South America, including Argentina, Brazil, Paraguay, Uruguay, Venezuela and with Bolivia is membership pending (BBC, 2015). Mercosur is classified as a customs union by the WTO, which implies that the countries have free trade among themselves and that they have collaborated towards a policy of harmonizing the external trade policy (WTO, 1997). The members collectively come up with trade policy with respect to the outside world, ergo a common external tariff (CET) (Appleyard and Field, 2014).

Within Mercosur, the biggest automobile producing countries are Brazil and Argentina. These two countries are each other's biggest trading partners regarding automotive products (Humphrey and Memedovic, 2003). In addition, the two countries have focused on different car segments with small cars in Brazil and cars with small/medium engines in Argentina, and importing the bigger and luxury cars from the USA and EU (SIA, 2007). Trade in vehicles within the trade block counts as 18% of total value of trade in goods (Kudryavtseva, 2012).

Table 5 shows historic progress of a common automotive industry among the Mercosur member countries, called the Mercosur Automobile Policy (MAP). It starts out with when the collaboration between Argentina and Brazil degenerates, and later how the Mercosur automobile policy was established and developed between the member countries of Mercosur. Regarding how the policy developed by changes in common trade policy towards other countries, and which countries initiated the changes and collaborations. The agreement has taken a long time to develop, much due to disagreements between the member nations regarding the level of CET and local content requirement. The trend has been that Brazil and Argentina request higher than Uruguay and Paraguay are willing to accept (Arza, 2011).

Table 5: Development of the Mercosur Automobile Policy

Year	Mercosur Automobile Policy
1986	Brazil and Argentina signed PICE (Argentina-Brazil economic and Integration Corporation Program)
1990	Economic complementation agreement between Brazil and Argentina
1991	Special custom tariffs on automobiles
1994	Improved agreement between Argentina and Brazil, acknowledging national regimes. What was discussed and proposed was free circulation of vehicles, common external tariff, no national incentives, and harmonization of automotive industries in the two countries.
December 2000	An elaborated MAP signed by Brazil, Argentina and Uruguay
March 2001	Paraguay signed the MAP
2001	Members continued elaboration regarding trade outside Latin America, as well as aiming to create an integrated, competitive production platform for cars within the region.
2002	Revised MAP was signed
2002-2003	Common external tariff for vehicles and components imported from non-member countries.
2006	Free-trade area, which was elaborated in 2002, for vehicles and components in force.
June 2006	New Automobile Policy was signed, which went on two years
2012	The rise of regional component level for cars produced in the block.

Source: Kudryavtseva, 2012, O'Keefe, 2009

The Mercosur Automobile Policy (MAP) agreement between Argentina, Brazil, Paraguay and Uruguay states that there is a zero percentage internal tariff between member countries if the production is within the local content rules. If those measures are not met, there will be a tariff on the cars of 70-75%. The CET on imported goods from outside Mercosur is 35% on vehicles and 2% on auto parts. The local content requirement of cars produced within Mercosur is at 60%, however this number changes according to the number of years a vehicle has been on the market, 40% on the first year, 50% on the second year and 60% on the third year the vehicle is on the market (O'Keefe, 2009). Argentina and Brazil have quotas on imports from Uruguay and Paraguay. The CET on cars has kept its levels of 35%, that is the bound rate stated to the WTO, and the 2% on auto parts is kept at this level. There is a prohibition of used vehicles and auto parts (O'Keefe, 2009). The bound rates of the Mercosur on automobiles is 35% in Brazil, Argentina and Uruguay, but Paraguay have lower tariffs on some models. Moreover, the applied rates for the different countries are different, Brazil is maintaining 35% rate where as in Argentina is around 25%. Paraguay, a country without an

automobile production sector applies a tariff at 8 % and Uruguay at 23%. All tariff rates are an average of the last three years (WTO, 2015³).

2.4.2 Brazil and the WTO

The WTO is an organization that is working towards trade liberalization, which they believe will lead to economic development. As being a member of the WTO, a country has agreed on a bound rate, which is the maximum tariff a country can have on a certain product (Suranvic, 2010). Among the WTO members, there can arise a dispute between two or more countries. In an event of a dispute, a member country thinks that another country introduced trade barriers that do not agree with the commitments of the WTO. The agreements are made by the member countries, and negotiations regarding disputes are handled between member countries with the Dispute Settlement Body (DSB). A panel who makes a report does the first step of a dispute, and the complaint is either endorsed or rejected by all the WTO member governments. The WTO wants to contribute with consultation, to help government reach a settlement (WTO, 2015⁶). The WTO however cannot make a country change their violating policies, thus the violating government itself must evaluate if they should follow the critics from the WTO and change their policies (Krugman and Obstfeld, 2009).

Brazil has been a member of General Agreements on Tariffs and Trade (GATT) since 1948, and followed when the organization turned to WTO in 1995. The WTO has stated Brazil as one of their most active members, as well as the country is committed to amplify the international trade system (WTO, 2015⁶). Brazil's applied tariff rates of 2012 are on an ad valorem basis. However, Brazil have other taxes additionally to import duties, for example the IPI tax. Brazil have signed the GATT agreement of 1995 where they intend to follow the WTO rules. The fact that Brazil is a member of the WTO entail that they have signed the agreements stated by the WTO toward working on an open market. The signing includes ground-rules on how to pursue trade in goods and services. The member countries are committed to apply their trade policies consistent with WTO rules (WTO, 2015⁶).

2.4.3 Brazil and Mexico

Brazil through Mercosur has a trade agreement with Mexico. The agreement started in 2011 with a free trade agreement. In 2012 the agreement changed towards a quota system, which includes trade of vehicles with the value of up to \$1,56 billion, this amount changed however by 30% every year until 2019, when the trade regime would resort to free-trade (Jelmayer and Althaus, 2015). The automobile industry in Mexico is an integrated domestic industry, in which 80% of the car parts that are used in production comes from the country. The

agreement between Mercosur and Mexico is called the Economic Complementation Agreement no.55 (ACE55). The agreement was drawn in 2002 and went into effect in January 2003, between the countries Argentina, Brazil, Mexico, Paraguay and Uruguay. The idea of the agreement was to reduce tariffs on vehicles and auto parts between the countries to improve trade between the countries. After the agreement was put into action, trade increased between the countries with more than twice as before. However, as the agreement started Mexican produced vehicles benefitted due to the appreciation of the Brazilian currency and the high cost of producing in Brazil. This led to an introduction of a quota of imported vehicles from Mexico to Brazil. Especially in 2011, when imports from Mexico to Brazil increased compared to previous years. When this occurred, Brazil proposed to withdraw from the ACE 55 agreement if Mexico did not reduce the number of vehicles sold in Brazil (The Offshore Group, 2012).

Following this overview of the historical development of the Brazilian automobile industry, as well as a description of the trade agreements that Brazil is a part of, is the next chapter describing the theory behind the different aspects of import-substitution.

Chapter 3: Theory and literature review

This chapter starts out by describing import-substituting industrialization, and the effects of government intervention, particularly industrial, trade and macroeconomic policy. At the end of the chapter, there is literature review of other countries experiences with import-substitution in regards to developing automotive industry, as well as how these measures coincide with external influences. Additionally, experiences regarding other possibilities or policies used, as to compare the strategies used in Brazil with strategies used on the automotive industry in other countries, e.g. focus on attracting Foreign Direct Investment (FDI), or establishing a domestic brand.

3.1 Import substituting industrialization

Krugman and Obstfeld (2009) defines ISI as “the strategy of encouraging domestic industry by limiting imports of manufactured goods” (Krugman and Obstfeld, 2009, p.253) Appleyard and Field (2014) note that ISI involves producing a good that it otherwise would have to import had the policy intervention not been put into action. Alavi (1996) states that ISI is adopted for two reasons: to promote industrialization and to cope with external trade imbalances, which occurs in a situation where the value of imports consistently surpasses the value of export (FT, 2015⁵).

The idea behind it is that with this protection of imports, the effects will be more investments and greater technical capabilities for the domestic producers. Import protection works as a guarantee that the domestic markets will be profitable to invest in by home-market business owners (Rodrik, 2007). By protecting the domestic production, industrialization would happen faster, since the domestic producers would increase output with greater capacity (Kruger, 1995). Import protection has the great attraction of not requiring additional revenue, since support for investors is provided by domestic consumers of the protected good, which characterized the benefits for producers with low risk (Szirman, Naudé, and Alcorta, 2013).

The reason behind the protection is that the domestic industries cannot compete with international firms that are importing, since they might be inferior in technological progress. With protection, the industries are given time to develop and adapt methods to the same technological level as internationally competing firms. A common measure being used is tariffs or import quotas to protect domestic industry (Krugman and Obstfeld, 2009).

Important groundwork before implementing import-substitution is to look at the country’s stage of development, the structure of the economy in the country, the size of the market and

how the industry that is about to be promoted is important to the country (Pitre, 1979). With a big domestic market, industries have a better chance to experience economies of scale than small countries, big being a country with over 20 million inhabitants in the research of Chenery (1982). This is because among other things that the small countries have lower levels of income. There is easier for a big country to promote local suppliers as well, due to transport cost, which is the cost of transporting products or assets (Chenery, 1982).

Disadvantages with import-substitution are that the formally imported product may have a small, high-income group in the population. In addition, with import-substitution, the markets are too small to lead large-scale production. This is not good for a country, because it may lead to high production costs, high prices and high monopolistic profits. Moreover, eventually there will be concentration of wealth (Melink, 1982). Pazos (1982) defines theoretically as well as real costs that are associated to import-substitution as inefficient allocation of resources, wage drop of the salaries of the employees, price distortions that might affect exports and limitation of growth of an industry due to lack of possibilities.

3.2 Theories as to why protect domestic industry

3.2.1 Dependency theory

In period of widespread import-substituting industrialization in the 1950-60s, there was a common understanding that if developing countries were to continue the policy of free trade, they would always be a country where the main production was primary commodities. If a country wanted to industrialize, free trade would be incompatible with this objective (Kruger, 1997). With a change into producing manufactured goods that have higher income elasticity of demand compared to the agriculture sector, industrialization was more likely to occur (Pazos, 1985).

Dependency theory is further based on the hypothesis that there are unequal relationships between developed countries (DCs) and less developed countries (LDCs). The theory defends the action of introducing protection to domestic markets in developing countries. The theory states that the capitalistic forces from the DCs are affecting the development of LDCs, socially and economically. Dependency theory argues that LDCs cannot achieve economic growth unless they gain independency from DCs. With the capitalistic system, the world is divided into two parts, where the DCs receives the surplus from LDCs. LDCs experiences underdevelopment due to unfavourable exchange between the two parts, the continuation of this leads to more income inequality. This pattern may lead the county into a balance of

payment crisis, and lead to higher unemployment (Ghosh, 2001). If, however there is a nationalized industry, this will create opportunities for the country to assert themselves on the international market (Meier and Seers, 1984). This phenomenon of underdevelopment is believed to be exogenous, thus the development of LDCs will follow the capitalist structure of the world (Ghosh, 2001). The reasons why LDCs were dependent on DCs is:

- Technology transfers. Is technology not transferred then a firm must establish a subsidiary instead of selling technology. In that way the mother company will earn from the use of the technology in the country of the subsidiary (Krugman and Obstfeld, 2009).
- Economic and financial aid. To assist with balance of payment problems an LDC is reliant on foreign aid or assistance. The relative capital scarcity means other financial dependency including FDI, loans, and interest on loans.
- Market dependency. The DCs firms has market power that LDCs firms follows, in addition, inflation rates and currency values depend what is going on in DCs. Further, LDCs are dependent on export markets for raw materials and primary products.
- Academic dependency. Thoughts and ideas comes mainly from western countries/authors.
- Cultural dependency. Lifestyle is being copied from western countries and by that consumer's dependency, where LDCs are copying tastes and preferences from DCs.
- Human resource dependence. Brain drain can occur, which means educated domestic labour emigrates without being replaced (Appleyard and Field, 2014).
- Environmental dependency. DCs are deciding environmental goals for LDCs.
- Policy dependency. International institutions, aid and assistance brings with certain preferences of policies. DCs effects economic, social and political processes (Ghosh, 2001).

Cases where DCs take advantage of LDCs are if there are low costs on raw materials and labour in LDCs. DCs sell costly products, as well as low quality and expensive technology in LDCs (Ghosh, 2001). Prebisch, a defender of dependency theory emphasizes that compared to LDCs, DCs have trade unions with more influence, more control over exports of manufacture goods, elasticity of demand is lower in regards to imports, and export prices are higher as well as wages among other things. With opening up of markets, this leads to a worse situation for LDCs, and better for DCs due to increase in export prices from DCs, and decrease in export prices from LDCs. Which again leads to slower growth for LDCs. Industrialization is the only

way out of the spiral, with protection in the form of changes in the composition if imports of industrial products (Ghosh, 2001).

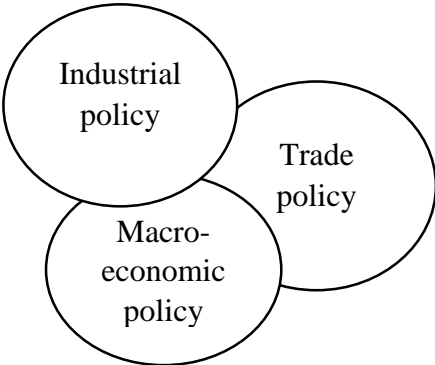
3.2.2 Infant industry argument

A second reason for protecting domestic industries is the infant industry argument. This states that the newly established industry may lead to a comparative advantage for the country in the long run (Appleyard and Field, 2014). After some time of protection, the industry would achieve technological progress and economies of scale. The process would increase the knowledge of workers, and increase human capital. If the industry were protected from foreign imports, it will have better possibilities to grow (Appleyard and Field, 2014)

The following policies are used in protecting a domestic industry in the case of infant industry argument: restricting trade policy on imports, facilitating policy on exports, government subsidies to promote science and technology programmes, government procurement that factors goods and services produced locally, regulations affecting foreign direct investment and intellectually property rights, and the allocation of financial resources (Cimoli, Dosi and Stiglitz, 2009). Infant industry protection is a process whose first step by the government is to impose tariffs, quotas or import subsidies. Eventually ISI shift toward subsidising the use of labour, provide training facilities and provide cheap credit (Alavi, 1996). The strategy is supposed to be in a transitional period of the economy, to be released when the industry is at competition levels when it comes to technology, and then the government can lower the trade policies done in the beginning, and move towards free trade (Alavi, 1996).

3.3 Government invention theory

With the different theories in mind regarding the motivation for protecting domestic industry, the government will introduce changes in three areas, industrial policy, trade policy and macroeconomic policy. These overlap, and complement each other.



For example, when introducing industrial policy, the targeted sector is protected through trade policies. In addition, regional trade agreements will be beneficial for industrial policies in the way that these agreements will give possibilities for emerging industries (Rodrick, 2007). Krugman and Obstfeld (2009) emphasizes that when introducing trade policy, this should be coordinated with a domestic policy aiming at the same issue. A way macroeconomy and trade policy is connected, is that trade policy can help reduce current account deficits. The level of import and export both directly and indirectly affects macroeconomic issues as output and employment. Macroeconomic policy will affect trade in the way that changes in the policy leads to changes in aggregate spending which again affects the amount spend on imports (WTO, 2004).

3.3.1 Industrial policy

Weiss (2013) defines industrial policy as “policy interventions designed to affect the allocation of resources in favour of industry (principally manufacturing) as distinct from other sectors” (Szirman, Naudé, and Alcorta, 2013, p.393). The focus of the policy is on industries in total or designated firms. Dosi (2009) defines industrial policy as those measures that achieve economic reconstruction through their ability to mobilize resources (Cimoli, Dosi and Stiglitz, 2009).

Rodrik (2007) argued that one motivation for industrial policy is to create a new comparative advantage by diversifying the economy. He also emphasis the important prerequisite that industrial policy may or may not be successful. There is no perfect model of how industrial policy will be best suited for a country. Further, the government should choose sectors where the intervention from the government will make a difference, sectors whose possibilities are linked to high risk, that private actors are not willing to take (Szirman, Naudé, and Alcorta, 2013).

However, there are also negative spill-over effects from the use of industrial policy, such as government failure, survival of inefficient firms, rent-seeking behaviour, and the misallocation of resources from choosing the wrong industry to promote the support (Szirman, Naudé, and Alcorta, 2013).

3.3.1.1 Local content requirement

A local content requirement is a domestic regulation requiring that a produced good is containing production factors from the domestic country. For example, domestically produced inputs or domestic labour (Appleyard and Field, 2014). Trade related investment measures

(TRIMs) is a form of domestic regulation issued by the government if they want investors from other countries to meet certain performance standards (Hoekman and Kostecki, 2009).

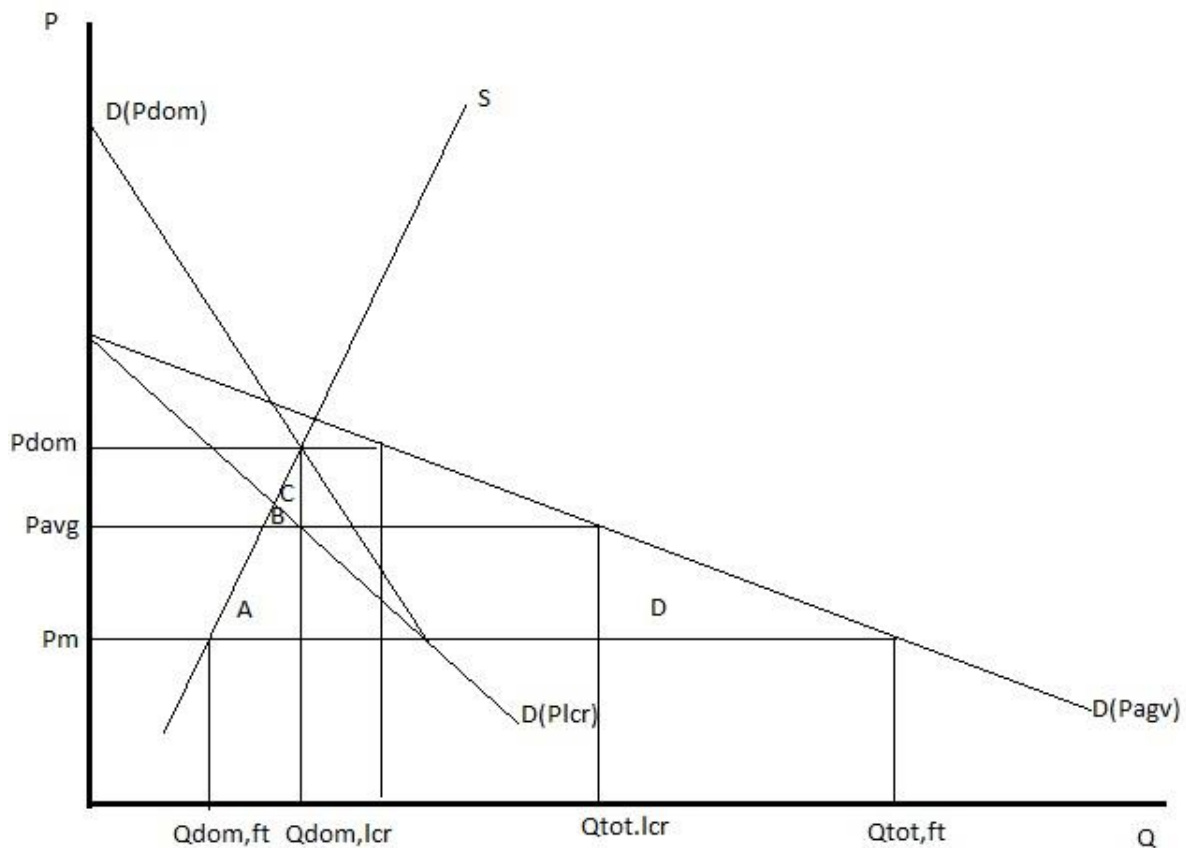
A positive effect of introducing a local content requirement is that it can lead to an increase in domestic employment and output, as well as strengthen domestic industry, and eventually achieve economic growth. Local content requirements additionally lead to technology transfers and create forward and backward linkages. In addition, it serves as a means to even out trade imbalances (Ado, 2013).

A local content requirement is a type of Trade Related Investment Measure (TRIM) under WTO disciplines. With an increase in FDI, this also led to distortions or externalities in the economy (Hoekman and Kostecki, 2009). Problems regarding externalities emerge when the social and private costs and benefits do not match each other regarding a product (Appleyard and Field, 2014). When introducing FDI into a country, investors have to follow certain policies to maintain the investment. Examples of TRIMs other than local content requirement are trade-balancing, foreign exchange-balancing and domestic sales requirement. The method involves discrimination against imports, when there are requirements that favours domestic producer (Hoekman and Kostecki, 2009).

Views on local content requirement are different between developed and developing countries. Developed countries think that the performance requirements discourage their investment. Developing countries do not share this same view, they thought the local content requirement conflicted with their investment operations in LDCs. However, not just developing countries use this. For example, the North American Free Trade Agreement (NAFTA), which consists of the US, Mexico and Canada, and the EU also have rules on origin on some products, which are essentially local content requirements (Ado, 2013).

With a welfare analysis of LCR, there will be an increase in the price of input production, however the cost is bigger than that benefit (Hoekman and Kostecki, 2009). With introduction of local content requirement, domestic prices tend to be higher than international prices. A reason for this is inferior technology (Ado, 2013). The introduction of local content requirement will have effects on supply and demand of domestic inputs, and with that prices and quantity. Figure 2 shows these changes on domestic supply and demand for inputs, as well as changes in the price.

Figure 2: Model of local content requirement in an input market



Source: Vousden, 1990

Figure 2 shows how domestic producers are required to use locally produced inputs, assumed that the goods that are imported or produced domestically are perfect substitutes. The figure is based on volume of inputs. Some of the inputs should be bought locally Q_{dom} , is the amount from domestic market, which means $(1-Q_{dom})$ is imported. P_{dom} is the price for domestically produced inputs, whereas P_m is the price for imported goods. $D(P_{dom})$ represents the demand for domestically produced goods. $D(P_{lcr})$ represents the demand for domestically produced goods where there is LCR, thus price is average between domestic price and imports price, which is calculated $P_{avg} = Q_{dom} * P_{dom} + (1-Q_{dom}) * P_m$. The equilibrium is found where the supply curve meets the $D(P_{dom})$, there the price is P_{dom} . In this LCR situation there is however possibilities to import, the equilibrium is found where $D(P_{lcr})$ meets the previous equilibrium quantity and total quantity amount is $Q_{tot,LCR}$, at price P_{avg} (Vousden, 1990).

Compared to a situation with free trade deadweight loss is the areas $A+B+C+D$. domestic producers will however gain the area $A+B+C$ due to higher domestic quantity. There are two prices, the average price is now higher than in a situation with free trade. The domestic

consumer will gain market share, while the importing one will lose. The producers that are buying the inputs will lose due to higher prices compared to a situation with free trade (Vousden, 1990).

3.3.1.2 Subsidy

A subsidy is a financial contribution given from the government to the producers of a good, with the objective to change the production of that good. A reason is that they want to see more production from that company, or perhaps change their production towards a more environmentally-friendly manner. A subsidy is not necessarily a direct income transfer. It can be tax concessions, a government guaranteed soft loans, which is a loan that is below market interest, or government buying shares in a company (Hoekman and Kostecki, 2013).

An export subsidy occurs when the government gives financial contribution to a domestic company, or an incentive to increase export (Krugman and Obstfeld, 2009). It is believed through governments that with an increase in exports and foreign investment will lead to externalities and spill-over effects and regarding technology and learning, that are positive for the country's economy (Rodrik, 2007). Melo (2001) divided this type of promotion into four categories:

- 1) provision of credit and other financial services to producers; 2) fiscal incentives to producers; 3) fiscal and credit incentives to producers in a particular sector; and 4) credit and fiscal incentives to producers in particular geographical areas (Melo, 2001, p.22).

Governments often give incentives to foreign direct investors who would like to establish themselves in a country. They give the foreign investors tax reductions and other subsidies. They might also receive trade protection (Rodrik, 2007). Investment policies that can be done either by increasing foreign direct investment, or through national development banks. National development banks' objectives are to provide loans to projects that do not receive financing from the private sector (Musacchio and Lazzarini, 2014). Quadros and Consoni (2009) argues that there is connection between increased local Research and Development (R&D), specializing in manufacturing as well as increase in export. Thus, the increase in domestic R&D will lead to beneficial repercussions for the industry.

3.3.2 Trade policy

Trade policy complements import-substituting industrialization. Tariffs and quotas on the imports of similar final products or subsidies on imported inputs are critical for production of

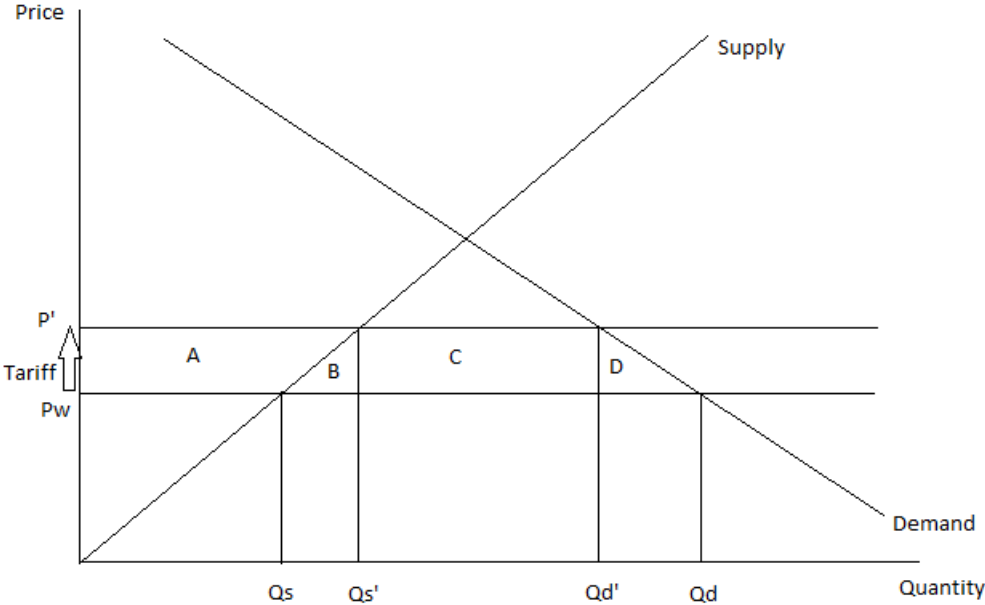
the final good. The desired outcome is for increased domestic production of the manufactured good. Restricting imports of manufactured goods allows domestic demand to be met by domestic production of that good. This can help the domestic industry of that good to grow (Krugman and Obstfeld, 2009), (Appleyard and Field, 2014).

Krueger (1997) stated that inward-oriented trade policies might lead to monopoly positions they conferred on domestic producers or high cost of doing business, rent-seeking and low quality of products.

3.3.2.1 Import tariff

An ad valorem tariff is a constant percentage of the monetary value of one unit of the imported good (Appleyard and Field, 2014). With an import tariff, this will add to the shipping cost into the country (Krugman and Obstfeld, 2009). A tariffs give a price advantage to locally produced goods over similar goods that are imported (WTO, 2015²).

Figure 3: Welfare effects of an import tariff



Source: Appleyard and Field, 2014

The effects of an import tariff are found by analysing the welfare effects. A tariff raises the price of a good in the importing country, like figure 3 shows from P_w which is the world price to P' which is the domestic price inclusive of the import tariff. Consumer surplus is reduced by the areas $A+B+C+D$ in figure 3, there is a shift on the demand curve with the tariff. Imports decline due to higher prices. Consumers lose in the importing country, because they have to pay a higher price for the imported good. Producer surplus represents the area A , which is increasing with the tariff, they will produce more goods and sell at a higher price.

Producers in the importing country will gain market share, however producers in the exporting country will lose market share in the importing country. The government gains revenue equivalent to the price of the tariff times the new quantity imported, in figure 3 this is represented by area C, and shows the excess demand that is to be imported times the difference the tariff represents between the domestic and world price (Krugman and Obstfeld, 2009).

Brazil is a large country, with this in mind, there are differences in how a big/small country affects international prices with the changes in tariffs. When a large country imposes a tariff, there will be changes in the import demands and export supply in the country. With an increase in the tariff in a big country, the country reduces its demand for imports on the international market, and reduce its supply of exports on the same market (Appleyard and Field, 2014).

3.3.3 Macroeconomic policy

The government is responsible for the nation's fiscal policy, and monetary policy is handled by the country's central bank. A central bank has the status in a country as the monetary authority which includes; issue and managing a country's currency, controlling monetary policies and supervising the money market operations, managing exchange and gold reserves, acting as a lender of last resort to commercial banks, and providing banking services to the government (Jahan, 2015). The central bank controls the money supply of a country, which can be used through monetary policy to affect the exchange rate. The central bank additionally controls the country's amount of foreign exchange as well as private banks checking deposits (Krugman and Obstfeld, 2009). What classifies an independent central bank is its ability to control the monetary policy independently from the Treasury, as well as ruling their policies towards own monetary goals (Luporini, 2000).

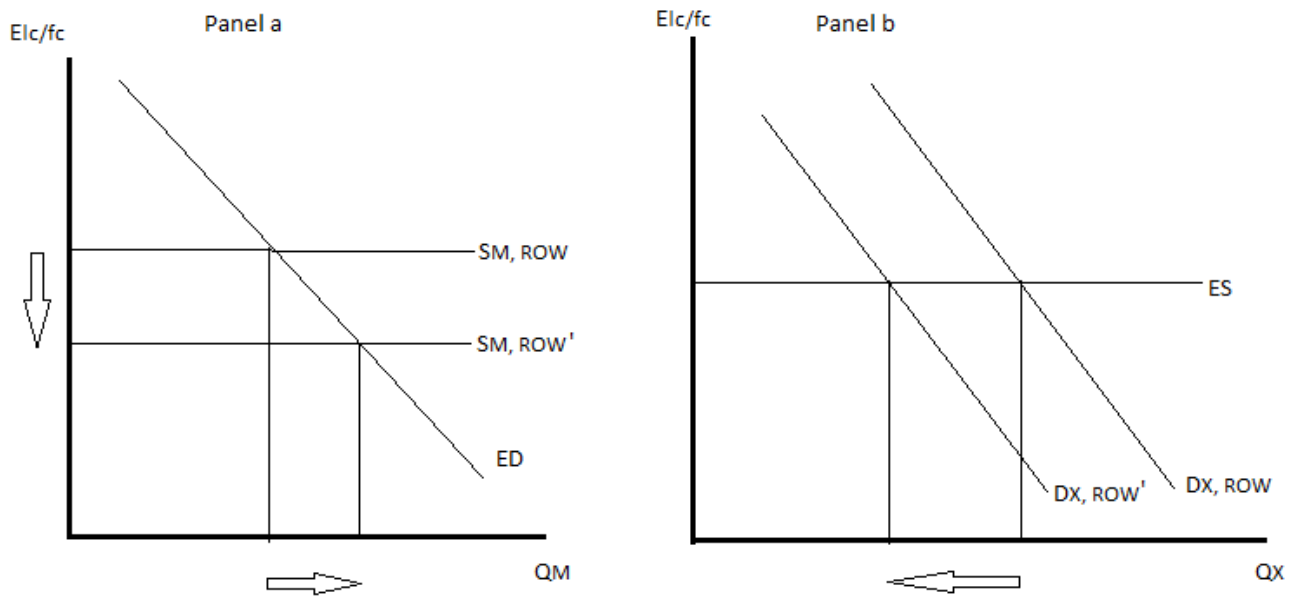
Balance of payment for a country consist of the balance of trade (exports - imports), the net capital account (capital outflow – capital inflow) and changes in reserves (Appleyard and Field, 2014). A way trade policy affects the macroeconomy is through changes in foreign reserves when there is a change in the amount of import being bought, this entails that the importing country needs foreign exchange to pay for the goods. Imports affects outputs in the way it is used as inputs in production. Hence, imports will also indirectly affect employment. The other way around, changes in macroeconomic policies will affect trade, in the way that macroeconomic policy changes aggregate spending on imports. Changes in trade will affect

the fiscal situation in the country in the way that it will bring with, increase in revenues from tariffs (WTO, 2004).

The exchange rate has the possibility to affect trade in the way it will move the balance of international trade, in both short and long run (Zhang and Pearse, 2011). What determines the balance of trade is the exchange rate, as well as disposable income in a country. Disposable income decides how much import consumers are able to buy, the exchange rate on the relative price level between the home country and trading partners (Krugman and Obstfeld, 2009). When the exchange rate depreciates, then that country's prices on goods and services are relatively cheaper than other countries. With this change, the current account will increase. Further repercussions after this gives a rise in aggregate demand, which constitutes of an economy's total demand for goods and services (FT¹, 2015). On the contrary, when the currency appreciates, the aggregated demand will decrease due to increasing relative prices on domestic imports (Krugman and Obstfeld, 2009). With an appreciation home currency price of foreign currency is decreasing, alternatively home currency is increasing in foreign currency prices. Domestic currency is relative more valuable than foreign currency than it was previously (Appleyard and Field, 2014). Overvaluation of the currency occurs when domestic goods are expensive relative to same goods in other countries due to the exchange rate (Krugman and Obstfeld, 2009).

The level of the foreign exchange rate reflects the supply or demand of that specific currency at a specific time, the level changes continuously. With those changes, there is also changes in demand for domestic traded goods, due to fluctuations on the currency (Appleyard and Field, 2014). Appreciation/depreciation of currencies depends as noted on the value of one country's currency, thus the demand for foreign exchange changes in pace with fluctuations in currency. Figure 4 shows the effects an appreciation of the currency has on trade for a country.

Figure 4: Changes in excess supply/demand with an appreciation of the currency



Source: Appleyard and Field, 2014

Figure 4 demonstrates changes in a country's excess supply and excess demand with an appreciation in the currency, i.e. domestic currency is relatively more expensive to foreign countries and foreign substitute goods. The changes are shown in with the assumption of constant prices. The prices are at a local currency perspective (Appleyard and Field, 2014).

Panel a represent how the changes in currency affects demand and supply of a country's import, in the event of the country being a net importer. The lowering on the axis Elc/fc shows the domestic countries SM, ROW represents the supply of export to the home country from rest of the world. With an appreciation of the currency, the supply from Rest of World (ROW) shifts vertically downwards. The domestic consumers demand a bigger quantity of goods from ROW exporters, i.e. there will be a new equilibrium on the ED, SM, ROW' lines (Appleyard and Field, 2014).

In Panel b, there is figures of how an appreciation of the currency affects the demand and supply of that country's exports in the event that country is a net exporter. ES demonstrates the excess supply on the international market in home currency terms, i.e. this shows no shift due to constant domestic price for domestic goods. The demand ROW has for domestic goods in lc/fc terms shifts inwards from DX, ROW to DX, ROW' , i.e. due to the relatively higher price of domestic goods compared to foreign, ROW demands a smaller quantity of domestic goods (Appleyard and Field, 2014).

3.3.4. WTO views on government invention policies

Industrial-, Trade- and Macroeconomic policy is conflicting with the WTO in some matters. WTO is allowing customs tariffs, however the tariff is not to increase the bound rate set by the country. Countries have however the possibility to introduce additional internal taxes when importing, those should not conflict with national treatment. Regarding subsidies, the WTO is quite liberal, however should not benefit only a specific firm, industry or group of industries. One measure that is prohibited from the WTO is the use of quantitative restrictions, however rule can be bend regarding agriculture or if a country uses quantitative restriction in order to fix balance of payment problems (Hoekman and Kostecki, 2009). WTO have prohibited the majority of TRIMS. The TRIMs agreement was developed, with the requirement of developing countries phase out local content programmes within five years, to the year of 2000. Article 5.3 of the agreement states that countries might apply for extension, individual countries should present why they want extension to the council for Trade in Goods, and the reason contains trade, financial and development needs. Developing counties argued that development benefits related to the use of TRIMs i.e. increase local production. In addition, developing countries have emphasized the necessity of discussing extensions between many countries (Hoekman and Kostecki, 2009).

3.4 The International automotive industry

The automobile industry is regarded as one of the most global of all industries. Its products have spread around the world, and is dominated by a small number of companies with worldwide recognition (Humphrey and Memedovic, 2003). The automotive industry consists of OEMs, which is in need of supplies from different geographical locations, in addition to distributors. Because of these necessities in the location of production, 90 percent of produced vehicles are sold the same place as they have been produced (Rugman and Collins, 2004). The value chain associated with the automotive industry can be global, regional or national. With a regional approach, the company has a better chance to achieve economies of scale (Schlie and Yip, 2000). A value chain is defined as “the activities, from receipt to raw materials to post-sales support that together create and increase the value of a product” (FT², 2015).

Production commonly is at a national or regional level. Auto parts can be produced locally or transported, but what is most common is that specific parts are produced close to the assembly plant. Cars and car parts are produced in areas where there is low labour costs and scale economics. Thus, the car-producing firms decides where producers are located (Sturgeon and Van Biesebroeck, 2009).

In the 1990s, there was a change in the international automobile industry. The reason for this was changes in investment and trade policies in the world. The value chains of automobile industry changed as well this period. The automobile industries in the Triad region were a mature in the 1990s. However, the industry in these countries was characterized by overcapacity, cost pressures and low profitability (Humphrey and Memedovic, 2003). For these reasons, there was movement to low cost countries, especially the markets of Mercosur, China, ASEAN (Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam) and India. Developed countries perceived these markets as markets with growth opportunities and low production costs. Mexico and Central and Eastern Europe had their production integrated with their more advanced neighbours (Humphrey, 2003).

3.5 Literature Review

3.5.1 Other countries experiences with import-substitution on the automotive industry

Countries other than Brazil have used import-substituting industrialization on their automotive industry with different result. The literature review presents how researchers have found the use of ISI in other countries have helped develop domestic car production in the respective countries.

Pursell (2001) studied the local content programme on cars led by the Australian government between 1948 and 1985, through historical analysis of the industry, as well as an economy-wide general equilibrium model to find out who took the costs of the policy. He emphasises on the negative effects this policy brought with it in Australia. This was because the Australian automotive industry did not manage to achieve economies of scale in their production. International producers kept production low, which again made the cost of local car parts high, the car parts sector could not achieve economies of scale and car parts were sold at high costs, compared to producers in other countries. Thus, the cost of protection affected the consumers and the entire Australian economy. The market structure in the country was fragmented, which means many companies are producing (FT, 2015⁶). In the case of Australia, the demand of local content led to production of domestic car parts that did not have to consider production costs. The import-substitution did not improve the technological status of the car industry, the local content requirement was too cost demanding, that there was no credit to improve productivity. Another negative effect he found, was that overall employment within the industry related to activities in addition to production declined. In exports, the local content requirement did not apply, thus producers found it profitable to

export at prices below production costs. Examples of interest groups that were in conflict during the time of import-substitution was car producer, car part producers as well as trade unions. Those same interest groups made it difficult to remove the local content requirement. The experience Purcell have described regarding Australia applies in the way that it describes the importance of big scale production, and having an efficient, integrated value chain within a region or country, which Brazil has managed to achieve. In addition, Brazil managed to improve technology which Australia did not. Moreover, the Brazilian government has included several interest groups in the elaboration of the policies, which might prevent conflict among them. Lastly, the Brazilian market includes big well-known companies that have been operating in the country for decades, which avoid the risk of a fragmented industry.

The automotive industry in Indonesia was protected by tariffs, non-tariff barriers, and local content rules for thirty years, starting in the 1960s. With the prohibition of imports, the price on importing went up, and international companies established production in Indonesia. A local content requirement was introduced as a mean to improve the domestic value chain. Regarding car part producers, these emerged as joint ventures between international- and local firms (Okamoto and Sjöholm, 1999). Okamoto and Sjöholm studied the productivity performance through data regarding the industry, though descriptive statistics was used to analyse changes though t-tests. In addition, numbers regarding total factor productivity was used in the analysis, in addition to key numbers of the industry. When it comes to evaluating the successfulness of import-substitution on the automotive industry in Indonesia, Okamoto and Sjöholm (1999) found negative and positive effects. As negative effects, they mentioned that there was decline in both labour productivity as well as total factor productivity. The development of the industry was overall weak. Foreign producers were good influences in the automobile industry in the way that they performed better than the domestic producers did, albeit they did not lead to any improvement in performance of the domestic firms. The fact that the market was closed for competition also made it inefficient. On positive notes, the authors emphasised the benefits of introducing foreign firms in the market, that these brought with modern technology and methods that improved the quality of cars produced. There was an increase in FDI to the country, with the repercussions of technological progress, improved management and new market information, these positive effects failed to kick of the industry due to the failure of domestic producers as well as narrow number of foreign companies (Okamoto and Sjöholm, 1999). The example of Indonesia is somewhat similar to the case of Australia. The industry failed to achieve economies of scale, the author argued that a reason

was that the industry was fragmented. In Brazil, the trend was that international companies established subsidiaries, not joint ventures with local companies. Brazil also managed to avoid that the automotive industry turned out fragmented, with the fact that big international firms established production in Brazil. The introduction of foreign firms, did not lead to the establishment of domestic production. The authors emphasised two reasons for why the industry did not succeed, first domestic firms did not manage the production equivalent to the level of foreign firms. Second, the lack of competition led to inefficient production (Okamoto and Sjöholm, 1999). What is similar is the way ISI led to improved technology through technology transfers from foreign subsidiaries.

Fujita (1998) studied the automobile industries in Thailand and Malaysia, and analysed the changes in the industries after government involvement, with a qualitative analysis of production numbers in the way to see changes with the involvement. In Thailand, the strategy was to attract foreign producers by giving those privileges and protection, as well as a domestic car parts industry. This led to producers from the US, Japan and Europe started assembling in the 1960s. The industry had become import-dependent and inefficient that led to trade deficit. In the late 1970s and 1980s, there was an increase in tariffs and local content requirement. Thailand wanted large-scale production, by prohibiting establishment of new models or series and just allowing existing plants to increase (Fujita, 1998). The government intervention led to establishment of automobile industry, however at low production and without achieving economies of scale and competitive industries (Fujita, 1998). The automobile industry in Thailand suffered the same fate as those in Indonesia and Australia with the use of ISI, with the results that are the biggest risks for introducing ISI, inefficient production, failure to achieve economies of scale and lack of competition on the domestic markets due to limitation of import. The fate that Brazil managed to avoid.

In Malaysia, the country was starting up an automobile industry during the country's second ISI period in the 1980s (Alavi, 1996). With the method of creating a national automobile company, Proton. That car was a picture of the industrialization happening in the country at that time. The company received financial support from the government. In addition, a prohibition of components that were used in inputs to foreign assemblers. The local content requirement on automobiles in Malaysia led to an increase in technological knowledge as well as the rate of domestically produced cars. Proton received special benefits from the government, one being while other assemblers had to pay import tariffs of up to 40% Proton was exempted from it. All these benefits led to that the "Saga", one of the models produced by

Proton, was cheaper on the market than similar cars from other producers. Proton eventually was included in the import tariffs on car parts, the reason for this was a wish to develop a domestic car parts industry (Fujita, 1998). A way in how this differs from Brazil is the focus on establishing a domestic, state-owned company rather than wanting international companies to establish domestic production. By focusing on one specific brand that had all possibilities to develop, which it did. This method however did not attract international producers to establish plants in the market, which was beneficial only for the brand of Proton.

Johnson (1967) studied the local content requirement policy implemented in the Chilean automobile industry in the 1960s, by conducting personal interviews of employees in automobile production in Chile. An aid to increase production of automobiles in the country was to have strict local content requirements. The governments believed that this demand of local input parts would rise the domestic value added to the production. His research concluded that the producers was not happy with the quality and production of car parts as well as costs. Johnson concluded his research with that Chile was missing managerial talent that would suffice in the car part production, skilled labour, organization of the production, and capital that would help with the quick regulations made. In case of trying to establish and develop an automotive industry in Chile, the protectionist policies were lacking the knowledge from the local people (Johnson, 1967). This is different from Brazil in the way that Brazil was focusing on making it attractive for international companies to establish plants, instead of focusing on local companies. In addition to focus on the human investment that is necessary to develop an industry linked to education that was problematic in the Chilean case. Brazilians also pushed international companies to integrate car part industries in Brazil, in Chile it was domestic car parts that was promoted. This example also shows the necessity of knowing the industry that the government is wishing to promote. In Brazil the automotive industry is a big well-known industry, whilst in Chile it was on the beginner stage. Thus, the requirement of success that includes a capable population to handle an automobile industry as Brazilian manages, became the pitfall for the Chilean one. Brazil also financially supported the car parts industry through governmental support to increase technology through the programme “Inovar-Auto parts”.

3.5.2 Other governmental strategies as to promote domestic automotive industry

Pavlinek (2014) studied the importance of state intervention in the development of the Slovakian automotive industry in the 1990s. The focus of the government was to attract FDI and to focus on export-oriented production. In 1999, several tax benefits were introduced for

FDI when they invested in the automobile industry in the country. These benefits included commitments regarding exports. To draw conclusions from his study, Pavlinek used secondary sources as well as empirical research from several Slovakian producers in addition to interviews. From the 1990s, the automobile industry experienced growth in FDI, production of passenger cars and employment. The growth of the industry also contributed to GDP growth of the country. Pavlinek further argues that the state was important in the case of developing the industry in the manner that they made the conditions favourable for FDI in the country. Eastern European countries are interesting for Western ones due to the case of low production costs, increasing domestic demand for cars, closeness to markets in Western Europe, members of the EU, labour prices are more flexible, and labour unions are weaker than in Western Europe. The result in Slovakia was an increase in production due to western companies using the advantages listed above. Research and development or other value-added actions, did not occur in Slovakia. The strategy of increased FDI is positive in the way that it contributes to economic growth and industrialization, according to the OECD economic growth rates and growth in FDI measured by the author, this argument was also the reason to introduce the policy by the government. However, as negative effects Pavlinek (2014) mentions foreign control and dependent development. Positive outcomes of the programme were increase in employment, investment and total output targets of passenger cars, Pavlinek states that the policy introduced by the state has been successful in contributing to the goals of the Transnational Corporations (TNCs), of higher production volumes and labour intensive assembly. He further states, "Superficially, state policies for the development of the automotive industry in Slovakia appears to be extremely successful" (Pavlinek, 2014, p.16). The situation in Slovakia has made the country dependent on FDI in the future of the industry. The success of the industry is a better reflection of the TNCs operating in Slovakia, not the domestic industry itself. The choice of policy the government made in Slovakia is the opposite of Brazil, where Brazil is focusing on protecting domestic market, Slovakia is focusing on attracting FDI. The main difference from Brazil is how Brazil has all steps in producing a car within the domestic borders, whilst Slovakia is a country where international firms keep production due to low costs and profitable geographical placement, thus Brazil has developed a better domestic or regional value chain within Mercosur than Slovakia. As in Brazil, employment in the industry in Slovakia grew as well as car production and increase in FDI, however negative repercussions in Slovakia were dependent development and foreign control.

Mukherjee and Sastry (1996) studied the developments of the automotive industries in South Korea, Brazil, China and India in relation to government involvement. The methodology was a qualitative comparison study of the different industries in regards to production and trade as well as trade restrictions. What was specific to these countries was their potential to become leading vehicle manufacturer countries, even though their relatively late establishment of automobile production. The government have introduced policies and regulations in all the countries. The strategy of South Korea was to establish a domestic brand, this strategy led to three big South Korean brands, which worked as joint ventures with international companies. The government promoted exports, through price controls and export targets, in addition there was trade protection for the industry. Imports led to technology transfers to the domestic companies. The authors argue that one of the reason for why the South Korean industry was successful was the close corporation with suppliers and assemblers, which made the industry more productive as well as integrated into designing domestically developed car parts. How the government focused on export promotion, the industry has become an internationalized one, however with domestic management control. This led to R&D investment with a focus on developing domestic products, and by that, the industry has managed to create the necessary capabilities to achieve fast growth and development. South Korea differs from Brazil in the way they focused on export promotion in addition to protection domestic market from import. The focus on export made South Korean cars more attractive on the international market, made production more efficient, and the South Korean produced cars became well known for foreigners to purchase.

The Chinese government equally as the Indian and Brazilian promoted “popular car”. In addition, the government wanted technology transfers through increase in foreign direct investment. The automotive industry became one of the leading industries in regards to economic development for the country. In China, international companies that kept managerial control outside China drove production, due to this reason the government increased local content requirement (Mukherjee and Sastry, 1996). The situation in China is similar to Brazil in the way of producing the segment “popular car”, however with national companies that did not occur in Brazil. China also managed to keep production costs down, which is different from Brazil, and which made Chinese cars preferable from Brazilian.

D’Costa (1995) studied the automobile industry in India, with respect to how it has changed and the role of the Indian State. In regards to analysing number in the industry regarding production, collaboration, market shares, trade as well as number of plants and international

interference. The start of the industry in India followed import-substitution, with a change in the 1980s towards economic liberalization. This was done to attract FDI due to an automotive industry consisting of inefficiency, oligopoly, stagnant regarding models and technology as well as bad quality and technology and high prices. With increased FDI, the government wanted improved competitiveness as well as technological status on Indian produced vehicles (Narayanan, 1998). The overall production of cars increased after the liberalization process. The Indian market became more attractive because of a growing middle class. Especially Japanese producers took advantage of the new liberal policy of the automotive industry. They had joint ventures with Indian companies, and with that increased technology and capital into these producers. India kept local content requirement in this period. The country promoted a domestically produced label called MUL, which was a joint venture between the government of India and Suzuki. The Japanese expansion in the country contributed to technological progress and the industry became more world- market oriented. However, exports from India were almost non-existent (1995) because of the relatively low quality compared to other nations. In addition, the industry is operating without economies of scale as well as operating below capacity. The loosening of import restrictions led to import of R&D from other nations, rather than increasing the domestic (Narayanan, 1998). How this differs from Brazil is the way the government created a domestic brand, Brazil focused on investment and subsidiaries rather than establishing a nationalized brand. The Indian industry is also different in the way that foreign producers see this as a market for only Indian sales, not export opportunities and is therefore accepting the inefficient production. This is different from Brazil although they do not export a lot there are important export destinations in Mercosur, Europe as well as in Asia, that makes the manufacturers change their strategies from the domestic market toward other more competitive markets (O'Keefe and Haar, 2001).

NAFTA and the EU have as mentioned rules of origin, which is similar to local content requirement, on cars that is produced within these regions. In addition, these areas use protection measures made in recent years on the automotive industry, especially in western countries is the use of Voluntary Export Restraints (VERs), which is an agreement that is not legally signed to limit export (FT³, 2015). That strategy has led to companies establishing domestic production within NAFTA, the authors found this out thorough a global value chain analysis. Within NAFTA cars are treated duty free if they contain 62,5 percent North American content (Sturgeon and Van Biesebroeck, 2010). The protection through VERs in the US have increased employment, however no local firms. The VERs in the US, in addition

to investment subsidies, made Japanese and Korean producers to shift production to countries in NAFTA. In the US, the cost of production is lower for foreign companies than domestic, in addition it is cheaper to employ people in the US due to lack of health care and pensions. The authors emphasise the importance of an automotive industry in a country, and compares protecting the automotive industry with industries as “agriculture, energy, steel, utilities, military equipment and commercial aircraft” (Sturgeon and Van Biesebroeck, 2010, p. 6). The importance of keeping a domestic automobile industry is the same in the US and Brazil. North American producers see the US as a beneficial market due to the low cost of production, which is definitely different from Brazil. The use of voluntary export restraints is a collaboration between the exporter and importer, thus the importer theoretically have something to say in the matter, which is different from the use of tariffs as Brazil does.

Chapter 4: Methodology

This chapter presents the methodology of the thesis. Starting with a theoretical description of a SWOT analysis. Following a literature review of scientist work on a SWOT analysis of other automobile industries. Ending with a presentation of a table including a SWOT analysis of the Brazilian automobile industry based on the background from chapter two and theory from chapter three.

4.1 SWOT analysis

A SWOT analysis is a tool that will help identify key factors when evaluating a strategy. Through a SWOT analysis, there is possibilities to identify internal and external factors. The reason for conducting a SWOT analysis is to identify if the strategy of the industry is attainable given the strengths and weaknesses of the industry, and if these qualities with the industry can be used to meet the opportunities and threats that is coming from external sources (Roos, 2010). Positive results of finding the opportunities and threats in the environment of an industry is that the industry can increase its volume, develop products, expand in new geographical areas (Andrews, 1971).

Choosing the right strategy is important for an industry, since having a non-relevant strategy can be a risk for any industry, no matter how secure it might seem (Andrews, 1971). The strengths and weaknesses are in relation to the resources of the industry, and the opportunities and threats are in relation to the environment surrounding the industry (Roos, 2010). In the case of the Brazilian automobile industry, there are internal strengths related to the further development of the industry after the introduction of import-substitution, in addition to weaknesses. Also, to external threats and opportunities, which will either conflict with the policies, or harmonize in the way of bringing further growth possibilities.

4.2 Literature review of a swot analysis

İncekara and Ustaoglu (2012) studied the effects on the automotive industries in Turkey and South Korea, with respect to new trade agreements done by the countries with the EU. With the theory backing this being that economic development, both internal and external, might be achieved through changes in tariff rates. The new trade agreements were a common union agreement between the EU and Turkey, as well as a free trade agreement between EU and South Korea. The authors emphasize the trade agreement's effects on the industries in these countries, as well as economic growth. The article uses the methodology of a SWOT analysis to analyse how the new trade blocks impacts the two automobile industries.

In Turkey, a strength was that political stability would be achieved with bettering of the domestic economy. The union with the EU would lead to harmonization of technical issues, other positive impact with corporation with the EU is the integration in the region. A strength that is for Turkey compared to the EU or South Korea is low cost of production. They also look at the Turkish work force functioning cooperation with international joint ventures. In addition, local companies entail experience as well as well-educated and qualified work force, which saves international firms costs on training.

In regards to weaknesses, they highlight the lack of financial support regarding research and development. The whole production process lacks domestic contribution in the way that there is no national brand as well as domestic raw material production, which makes production dependent on imported inputs. Education levels are not up to the level as in other producing countries. There is no investment in technology, which is necessary to increase capacity. With a Turkish currency appreciation, this makes imported goods preferable.

As opportunities, they have listed the geographical position of Turkey, that their placement makes the country a potential centre of production. There is an increasing consumption demand in the country related to political stabilization. The integration with the EU brings with it the willingness of foreigners to invest in the country. There is a growing worldwide demand from cars. There is a domestic focus on developing the automotive industry in the government as well as private actors.

Regarding threats, they mentioned problems in external markets for instance volatility in oil prices. Taxes on vehicles is a threat as well as the system of declining tax with age of the vehicle. In addition, fuel products also hold high taxes. Competition from other low cost producing countries as China, South Kora, India as well as other Ester European countries. Lastly, the sensitivity that the automotive industry is to economic recession.

The South Korean automotive industry have following SWOT analysis:

The strengths are that there are domestic brands, which is Hyundai, Kian and Daewoo, in addition to well-established joint ventures with foreign firms. The capacity of production is high, the domestic industry is strong and competitive on the international market. The work force is capable for working in the industry. The industry's reaction to the economic crisis in the 1990s proves the stability of the industry. Exports are divided to different areas of the world, which reduces dependency on specific markets.

Weaknesses are the increase in EU regulations on emissions, which makes the South Korean producers change production. Low-cost cars entail low profits. The South Korean market does not have integrated R&D activities as well as innovation. There are high transport costs to the EU. Changes in energy and oil prices affect production. Test centres are lacking in the integrated value chain of producing vehicles compared to the EU.

Opportunities are listed as increased demand after growing Asian markets. The free trade agreement with the EU benefits exports to that area with reduced costs that previously were related to tariffs. Economic recession in the EU leads to increase demand in South Korean produced low-cost vehicles. Fuel consumption standards introduced by the EU and the US are positive for South Korean production.

Threats are listed as a lack of competition compared to the EU when it comes to luxury cars. High volatility in oil prices pose a serious challenge, as well as increased domestic taxes. Increased competition from the Chinese market, which have producing complementary goods. Additionally, there could be increased competition in low-cost car parts from China, India and East European countries. The global economic recession lowers the overall demand of cars. The free trade agreement with the EU forced South Korean cars to change environmental and labour standards, which leads to costs in relation to changing production.

4.3 SWOT analysis of the automobile industry in Brazil

4.3.1 Internal factors

Internal strengths are among other things connected to financial improvements, this is visible in changes in investments or increase in output after the policy has been implemented (Roos, 2010). Financial resources are related to debt, equity, and retained earnings (Barney, 1995). In the case of Brazil, this will apply in the way import-substitution contributes to changes in the automobile industry in regarding financial improvements as revenue, investment, and sales. In addition, higher tariffs will reduce imports, which will give higher market share to domestic producers. This is because a higher tariff will increase producer surplus, which will bring more revenue to the car producers.

Physical resources are the machinery and buildings the organization uses for production. With productivity changes, this will be improved, which happens through research and development. In addition, the capacity that exists will improve (Barney, 1995). Import-substitution will lead to improvement in technology. The government offers tax reductions if the producers invest in research and development in Brazil, which would lead to technological

progress. In addition, when new plants are built as well as old ones being modernized, these will be equipped with up-to-date technology and improved management practices.

Different strengths are related to human resources, linked to the employers in either education, productivity or technological skills (Roos, 2010). Other human resource characteristics are experience and knowledge. (Barney, 1995). For industries to succeed domestically, the fact that the employees are capable is important. The literature review shows that the automotive industries in both Chile and Indonesia failed to succeed among other reason the capabilities of the local workers. Repercussions with investment in research and development is an increase in human resources in Brazil. Increase in research and development lead to higher demand for domestic labour regarding research and development in the industry. The employment level in Brazil also gives them an advantage in regards to the automobile industry, with the fact that the industry is well integrated within the country. In addition, with that the Brazilian population is educated in the case of producing cars. Moreover, there will be increase in demand for educated workforce, and the education level will have possibilities to improve.

When evaluating an industry, one should know what the requirements for success are. As mentioned, economies of scale are important for car producing countries. As well as an integrated value chain. A big opportunity for Brazil to achieve this is the size of the country, which is big, makes it easier to achieve economies of scale. In addition, there will be cheaper to transport car parts within Mercosur without any tariffs, as well as small transport costs within the same country, or continent.

The resources and capabilities for an industry is financial, physical, human and organizational assets of firm in an industry is using when they are developing, manufacturing their products, and deliver the product or service (Barney, 1995). The fact that the industry is well known and competitive on the international market as a definite strength. Investing in Brazil does not entail as much risk as in other newer automobile industries. Another sign of the strength of the industry is that it survived the economic crisis in the 1980s, as well as the financial crisis of 2008.

Both increase in tariffs as well as introducing local content requirement will lead to higher prices of cars and car parts, which is not beneficial for Brazilian consumers and are a distinct weakness of the use of import-substitution. Additionally, the consumers will lose some of their choice when it comes to cars, due to expensive imported models than Brazilian

produced. Overall, there are usually deadweight losses in the economy when there is a movement from free trade towards protectionism in the form of increased tariffs and local content requirement.

In a protected market, a possible pitfall is that too many firms establish production there, which leads to possible missed opportunities of achieving economies of scale (Krugman and Obstfeld, 2009). In addition to fragmented industry, where many companies produce inefficiently. Several automobile industries that have been protected suffered this fate of inefficient production and fragmented industry, example from chapter three with Australia and Indonesia among others. Which are weaknesses related to import-substitution.

Other internal influences are found related to the strategy of using import-substitution in the matter of higher tariffs, local content requirement and investment incentives in the form of tax relief will force international companies to invest in Brazil, in production as well as in R&D. For the Brazilian government, the tariff increase represents an opportunity for the government in revenue collected with the tariff. Local content requirements can have the effects of attracting investment and increase domestic production of car parts, which again enhances the domestic value chain of producing a car. This will promote domestic production in the country as well as increase domestic employment, strengthening domestic industry and will contribute to domestic economic growth (Ado, 2013).

4.3.2 External factors

When deciding on a strategy, an industry must evaluate the opportunities and risks of the environment. Environmental factors related to the economic situation is the global economic development, which in the case of the automobile industry includes rise of international and multinational corporations. Domestic economic factors can be changes in demand, as the GDP per capita is increasing, people will spend more money on goods that they did not before. In addition, there will be new relations between the public and private sector in pursuits of economic goals (Andrews, 1971). The environment around the industry can include the relationship it has to federal government agencies, associations, foundations, universities, money markets, markets for output; which include consumers, distributors, licensees, subsidiaries, joint ventures, and foreign importers, markets for material inputs; which includes suppliers, joint ventures, market for human service and competitors (Andrews, 1971).

Andrews (1971) notes to study the industry's technological characteristics and developments. In addition to trends related to future changes in the technology used. As well as market tidings, what is happening in the international market. In the case of Brazil, all this points suggest that Brazil have to look at the international automobile industry, how it is changing, developing as well as being run, which technological developments have characterized it. The industry is similar in other countries; therefore, it is important to see what automotive industries in other countries are doing. There are many steps related to producing a car, which is happening at different stages and geographically places. What characterizes a successful automotive industry is if the country has managed to achieve economies of scale. As well as building up a successful value chain within the country, alternatively within a regional trading block. To achieve this, it is important with investment in research and development within the region.

Other external influences are possibly changes in demand for the product or the industry as well as changes in the products. Additionally, influencing the product are government regulations (Andrews, 1971). The limitations related to the opportunities of an industry are research, how it develops and how fast, as well as the structure that characterizes the industry. The automotive industry is developing all the time, especially towards an environmental friendly industry. Countries tend to specialize in certain models, in the case of Brazil, they have focused on small cars the car segment "popular car". This gives Brazil an advantage on the international market as a comparative advantage and on the Brazilian market with a population with low purchasing power. The entire high-cost situation in Brazil is a threat. The expression "Brazilian Costs" demonstrates the view the rest of the world has with doing business in Brazil. Compared to other trading nation, Brazilian production is characterized by a high tax level, unions that have a big influences as well as bottlenecks when it comes to transportation, which all make Brazilian produced cars high in cost (Beck, 2015).

The competition faced by the industry, is another external aspect that Andrews (1971) highlights. In 2011 Brazil introduced a raise in tariffs again. The reason for this was due to uncontrolled imports from China, South Korea and Mexico. An evident threat for the Brazilian automotive production is the competition from low cost producers, as China, South Korea, Eastern Europe as well as Mexico. In other parts of the world, the automotive industry is becoming more divided into regional value chains, i.e. NAFTA and the EU, where the strategy is to move production to low-cost places as Mexico and Eastern European countries. This is a definite threat for Brazil, because they do not have the same opportunity to move

production to low-cost areas. In addition, the type of car that Brazil is producing is a low-cost, relatively cheap car, i.e. different car segments could bring more revenue.

Andrews (1971) further mentions than one should notice issues outside the industry i.e. economic problems or changes, for example related to macroeconomic changes. The demand for vehicles is cyclical to trends in private consumption, which again is affected by GDP growth (EIU, 2010). That is, there will be a reduction in the demand for cars in the event of economic downturn. Thus, a risk for the Brazilian automotive production is if there were to be macroeconomic problems in Brazil, which history shows has happened several times in the Brazilian economy. Additional threats are macroeconomic difficulties in trading partners, in the way that demand for cars is decreasing if they are experiencing macroeconomic problems. Other macroeconomic changes include the value of the exchange rate, which affects the demand for exports from Brazil with appreciation/depreciation of the currency. Other outside threats are conflicts with the trading agreements that Brazil have. This entails the agreement with Mercosur, the WTO as well as Mexico. Being a member of the WTO implies Brazil is obligated to sustain certain WTO commitments.

Lastly Andrews (1971) notes that one should look at previous strategies implemented by that or competitor's industries. Import-substitution have been used in many countries to develop automobile industries, with different results. The experience of Brazil has been that the use of import-substitution contributed to transforming the automobile industry into a successful one. However, other countries do not share the same experience as Brazil. Chapter 3 shows examples from Australia, Indonesia, India and Chile, which did not classify the use of import-substitution as successful, because of the inefficiency that characterized the respective automobile industries. Among other strategies are export promotion, which was the case of South Korea or FDI promotion that Slovakia promoted. These strategies proved successful towards establishing a modern and well-functioning industry in the two countries.

4.4.3 SWOT analysis of the Brazilian automobile industry

Table 6 presents a layout of the strengths, weaknesses, opportunities and threats that are related to the Brazilian automobile industry. With the background being introduction of import-substitution. In addition to other aspects characterizes the Brazilian automobile industry, and its surroundings.

Table 6: SWOT analysis of the Brazilian automobile industry

Strengths:	Weaknesses:
<ul style="list-style-type: none"> - Rise in tariff will lead to producer surplus - Brazil have a good, well educated, experienced work force in automobile production - The industry is strong and competitive on the international market - The industry survived economic crisis both in the 1980s and in 2008 - Local content requirement will promote domestic production - Increase in technological knowledge through foreign subsidiaries and R&D - Investment incentives will make international companies invest in R&D - Increase in FDI leads to technological progress, improved management and new market information - ISI will promote industrialization, as well as speed up the process - Protectionism will increase the possibility that the Brazilian market is profitable for investment - The fact that Brazil is a big market makes it easier to achieve economies of scale - Industrial policy contributes in creating a new comparative advantage - LCR will lead to increase in the domestic market, domestic employment, strengthening domestic industry as well as achieve economic growth 	<ul style="list-style-type: none"> - Increase in tariffs will lead to consumer deficit and efficiency loss, as well as increase in prices - There is no domestic brand which can lead to lack in investment in domestic R&D - Local content requirement can lead to inefficient production of auto parts - Production of low cost cars mean low profits compared to other car segments - Tax exemptions are a fiscal burden for the government, there is missing opportunity costs/potential revenue - Possibility of reduction of employment in areas in the industry that is not related to production - The employees are inferior in technical knowledge compared to other countries - Lack of competition with a closed market - LCR raises the domestic price in inputs as well as includes high economic cost - Inefficient allocation of resources - Wage drop for the employees - Limitation of growth of an industry due to lack of possibilities. - import-substitution can lead to high production costs - possibility of rent-seeking behaviour - there can be misallocation of resources by supporting the wrong industry - survival of inefficient firms

<ul style="list-style-type: none"> - LCR prevents negative repercussions that can happen with other strategies, in the case of being dependent on other countries - A growing middleclass in the country leads to increase in the demand for cars 	
<p>Opportunities:</p> <ul style="list-style-type: none"> - Increase in tariffs will lead to tax revenue for the government - The geographical placement makes it easy to export to counties in Latin America - The agreement with Mercosur will improve the integration within the region - The agreement with Mercosur is a security for investors - The integrated and stable collaboration between the public and private interests in the industry - Following a recession, the demand for low cost vehicles will increase - A growing automobile industry will improve the Brazilian economy - Trade agreement with Mercosur will reduce previous costs in tariffs - Increase trade of auto parts with Mercosur and Mexico with the LCR - Specialization in small cars makes Brazil well known in that car segment - ISI can contribute to fixing trade imbalances - With a big country, small transport costs make it easier to promote local suppliers - A growing international demand for cars 	<p>Threats:</p> <ul style="list-style-type: none"> - Currency appreciation with macroeconomic changes done by trading partners - Overvaluation of the currency - Problems in markets in trading partners that will change the demand for Brazilian exports - Dependent on few export markets - High taxation, “brazil cost” - Changes in the oil price or inputs necessary for production from external markets - Competition from low cost countries - The sensitivity the industry is to economic recession - Lack of competition of some specific car segments that is only imported - Conflict between domestic interest groups as trade unions, producers of cars as well as car parts - Conflict with trading partners in relation to trade agreements Brazil have with Mercosur, the WTO and Mexico - Mexico takes over as the main country for automobile production in Latin America

The following chapter will present an analysis of some of the aspects presented in table 6, in light of answering the objectives stated in chapter one. With the continuation of division of external and internal effects and influences. Followed by a comparison of the internal and external influences as a policy evaluation.

Chapter 5: Analysis

Chapter five presents an analysis of numbers in regards to the development of the Brazilian automobile industry. The chapter will analyse and discuss how it is visible in the industry with the measures regarding import-substitution. With the analysis answering the objectives from chapter one:

- Is there evidence of import-substitution have contributed to modernize, amplify and enhance the industry. If the measures have contributed to strengthen the Brazilian value chain of producing automobiles in the country.
- In what way are the policy coinciding with external influences? If external influences are threats or opportunities for the impacts of the policy.

The chapter will first answer the first objective in analysing the internal changes in the industry, further the second objective seen in light external influences. And ends with a comparison of the two, in order to evaluate the policy for the Brazilian automobile industry.

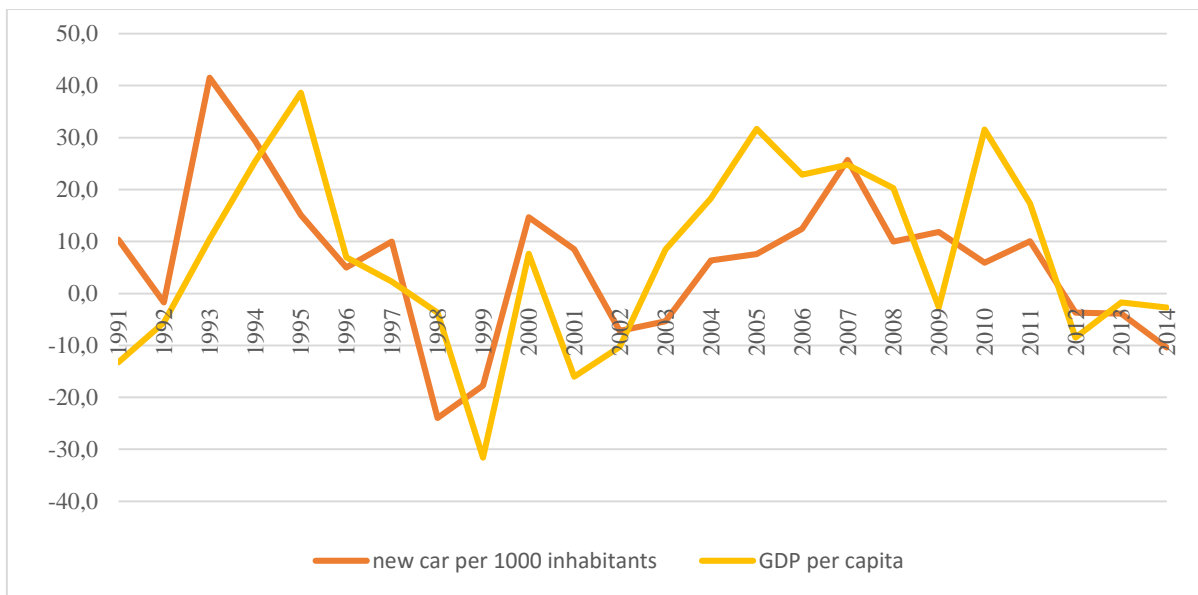
The SWOT analysis from chapter four will be used to divide the impacts. In regards to the SWOT analysis elaborated in chapter four, there is presented numbers regarding the different issues, however not all data was attainable. There are no data regarding the cost of consumers, in changes in prices. In addition, there are no numbers regarding the effectiveness of car- nor the car part production. Thereby, the negative impacts of the policy are not sufficiently represented in this analysis.

5.1 Internal changes in the industry

Internal changes include how import substitution affects the Brazilian automobile industry internally, in addition to aspects regarding a domestic value chain. First with an analysis of the future prospects of the industry, with a presentation of already established strengths regarding the automobile industry in Brazil.

The Economist Intelligent Unit characterizes the market in Brazil as an attractive market for car manufacturing companies. This is because it is a big market, and with increasing demand as the population gets richer. The car per person ownership still can increase in Brazil compared to other countries, number of cars per person is in the US 1,2 and in 2006 in Brazil it was 6,5 (EIU, 2010). GDP per capita in Brazil is rising at average of 7,1 % from 1991 until 2014, thus the average Brazilian keeps getting richer. What is attractive for producers about this is increase in GDP per capita leads to increase in demand for cars.

Figure 5: Growth in new car per 1000 inhabitant and GDP per capita



Source: Anfavea, 2015¹, World Bank, 2015

Figure 5 shows the connection between new car per inhabitant as well as growth in GDP per capita. The graphs definitely follow each other, thus the demand for new cars depend on the wealth of the population, or the average Brazilian. GDP per capita have had an annual average growth of 2,74% from 1990 until 2014, which contributes to possibilities for future sales.

The fact that the Brazilian production have managed to achieve economies of scale in the production of compact cars, makes it an attractive market compared to other in the same position. Big international companies established production in Brazil, which was beneficial for the Brazilian automobile industry in several ways. In one way, the industry avoided the risk of a fragmented industry. In another way, that the international companies are contributing to technology transfers to the Brazilian industry (Quadros and Consoni 2009).

5.1.1 Strengthen the industry

According to figure 3, chapter 3 the welfare analysis related to the tariff follows an increase in producer surplus, the producers should produce more at a higher price. Thus, there is expected an increases in both revenue and production for the Brazilian producers. Others expected visible effects is the market share, with a reduction of imported marked share, and increase in domestically produced cars. The reduction in consumer surplus should also exist, however this is not possible to analyse, due to lack of price data. Lastly, the government will earn the value of the tariff times quantity imported, thus there is expected to be increases in government revenue connected to the IPI tax.

Table 7 shows changes related to the tariff for the automobile producers as well as the government.

Table 7: Revenue, production, IPI revenue, number of imported vehicles and market share of the automobile industry 1990-2014

Year	Revenue US\$ millions	Production number of cars	IPI revenue Reales Millions	Imports	Market share domestic production
1990	28639	602532		115	1,00
1991	30042	615097		14820	0,98
1992	37191	667229	1	19659	0,97
1993	43079	859742	21	51499	0,94
1994	45723	1026827	486	151976	0,87
1995	43842	1087847	601	267968	0,80
1996	47361	1299191	991	159573	0,89
1997	51930	1496949	1 127	208621	0,87
1998	49807	1119550	875	244830	0,80
1999	41383	1050559	996	113263	0,89
2000	45063	1284944	2 375	100942	0,91
2001	45818	1376444	2 595	118539	0,91
2002	43402	1371013	2 664	75170	0,94
2003	42039	1374245	2 314	47219	0,96
2004	52009	1685818	2 965	32011	0,97
2005	56133	1869261	3 733	43849	0,97
2006	60110	1914918	4 290	83525	0,95
2007	71715	2270141	5 245	185306	0,91
2008	76245	2410201	5 998	230908	0,89
2009	77259	2487881	2 054	314343	0,87
2010	86066	2584690	5 672	431087	0,84
2011	84980	2703519	6 978	635169	0,78
2012	83676	2589236	4 126	536749	0,81
2013	87294	2722979	3 505	469369	0,83
2014		2314860	4 562	382229	0,85

Source: Anfavea, 2015¹, Anfavea, 2015², Ipedata, 2015

Table 7 confirms the theory regarding market share, just after the tariff increased in 1995 and 2011, market share of domestically produced cars increased. In regards to production, table 7 shows that increased market share does not mean increased production, periods with higher domestic market share does not coincide with increased production. Since revenue depends on production, this means that increased tariffs that leads to higher market share, do not benefit the profitability of the industry. With the increased market share, however the industry is protected from threats from foreign imports. the two years when new policies were introduced to the automobile industry 1995 and 2011, those years shows high imports compared to previous years, and the increase in tariffs managed to drop the high number the following

years. Thus, tariff increase will stop a possible risky future of the industry being more and more dominated by imports.

Regarding the tariff impact on the government, the IPI revenue, this number is not changes after the tariff changes. I.e. importers stop importing with the increase in tariff. See the IPI revenue compared to the market share, following the IPI is high the years imports takes a bigger share of the Brazilian market. The year 2011 shows the highest number of revenue from the IPI tax, this is due to the high value of imports that year, the following year shows downturn, and this is because the total value of imports decreased. The raise of the tax does not show changes in revenue for the government. Reasons for this is the incentives importers can do to avoid the tax as start production in Brazil, or lowering the quantity of imports gong to Brazil due to the high cost of importing.

The following table 8, concerns employment in the industry as well as investment.

Employment is analysed for the reason that it contributes to additional benefits for Brazil, in employ Brazilians.

Table 8: Employment and investment in the industry

Year	Employment, number of employees	Employment % growth	Investment US\$ millions
1990	117396	-0,82	790
1991	109428	-6,79	880
1992	105664	-3,44	908
1993	106738	1,02	886
1994	107134	0,37	1195
1995	104614	-2,35	1694
1996	101857	-2,64	2359
1997	104941	3,03	2092
1998	83049	-20,86	2335
1999	85100	2,47	1791
2000	89134	4,74	1651
2001	84834	-4,82	1750
2002	81737	-3,65	976
2003	79047	-3,29	673
2004	88783	12,32	739
2005	94206	6,11	1050
2006	93193	-1,08	1451
2007	104274	11,89	1965
2008	109848	5,35	2913
2009	109043	-0,73	2518

2010	117654	7,90	3654
2011	124647	5,94	4971
2012	132096	5,98	4692
2013	135343	2,46	-
2014	125977	-6,92	-

Source: Anfavea, 2014

Investment in the industry are highest in the periods around introduction of import-substitution, in the years around 1995 and 2011. I.e. when the market is closed for imports, there are increased investment in Brazilian production. This will also be shown later in this chapter, with a description from the different automakers.

The automobile industry in Brazil is strong because of the history of the industry, that the industry has been important by several governments. Thus, the country has educated people for the automobile industry for a long time, which means that the Brazilian population is capable of managing an automobile industry. From 1990 to 2002 the employment growth rate was negative, this is because when there was improvement in technology and production, the employees were redundant to cases that could be handled by machines (Quadros and Consoni, 2009). Employment shows an average annual growth of 2,7% from 2000 until 2014. With the average being -2,3%, the years before his, the fact that there was established more plants from the year 2000, benefited the Brazilian public in the way of creating more jobs.

The measures introduced by the government affect subsidiaries in Brazil, when giving tax exemptions are given to producers that move more production steps to the county. In case of measuring R&D, there is reports done by the government to measure total investment in the automotive industry, measured in millions Brazilian Reales, which is presented at table 9.

Table 9: Investment in research and development

Year	Investment in R&D
2000	549
2003	1363
2005	1900

Source: Quadros and Consoni, 2009

Table 9 shows an increase in the amount spend on research and development in the automobile industry. I.e. producers seem to have confidence in the industry in the future. For Brazil, the increase is beneficial into including several steps in relation to producing a car, it will strengthen the Brazilian domestic value chain. In addition, investment in research and

development will employ Brazilians in other areas than production. For example, engineers working with developing products and processes. Production in Brazil also will additionally benefit from technological capability accumulation (Quadros and Consoni 2009).

5.1.2 International companies establishing production plants and subsidiaries

As of 2014, the three biggest producers of automobiles were Volkswagen, General Motors and Fiat of respectively 20, 18 and 18 % of total Brazilian production, i.e. those three counts for 57% of the total production. However, it is 13 companies producing cars as of 2014 (Anfavea, 2015²). Several companies established subsidiaries in Brazil with the new automobile policy of 1995. An example of this is Renault started a subsidiary in Brazil in 1995, Nissan established a subsidiary in 2000, Peugeot Citroën in 1997 and Honda in 1996 (Bloomberg, 2015). For all those companies, import decreased after production in Brazil was established (Anfavea², 2015). The same happened in 2014 for the companies CAOA and Mitsubishi, with increase in production equivalent to a decrease in import (Anfavea², 2015).

In ANFAVEA (2014), it was announced that the following expansions in car production in Brazil would occur:

- Audi is going to establish their first assembly for producing cars.
- Fiat Chrysler is going to establish a new production unit for producing cars and light vehicles.
- Honda will expand its car production with one more industrial unit.
- Mercedes Benz will expand with an industrial unit for producing cars, this is due to open in 2016.
- Toyota will establish an industrial unit for producing engines.

The Chinese car manufacturing company Chery opened up their first passenger vehicle manufacture plant in Brazil, August 28, 2014. This was additionally the first Chinese car assembly to be established in Brazil. The plan will go through the processes of stamping, welding, coating and assembly. In addition, the plant will focus on Research and Development (Chery, 2015). Another Chinese producer, Jac motors also has a plant in motion. The plant will start producing vehicles in 2016, Jac announces that the plant will employ 3,500 people directly at the plant, and 10,000 people indirect relating to the production and sales of Jac vehicles (Jac, 2013). Jaguar Land Rover, who was sceptical to the Inovar-Auto programme in the beginning has also announced that they will establish a plant for producing vehicles, that will start production in 2016 (Pearson, 2012). The company with

the biggest share of imports, Kia will not establish an assembly plant in Brazil, and imports have decreased since the tax was put into order. They will however, establish a plant in Mexico (Courtenay, 2014). General motors have also announced investment plans in the future. From 2014, they plan to invest \$2,8 billion that is to extend over five years. They will not build a new plant; the focus of the investment is to develop new products, technologies, training and components localization (Henry, 2014).

This is evidence that import-substitution is contributing to a stronger investment in Brazil by international companies. The subsidiaries follow the measures by the government, and acts in the way that the government wants. There might however be other reasons that import-substitution for establishing production in the country, for example the growing demand in the market.

5.1.3 Developing a domestic car part industry

To avoid the trend in the international automobile industry regarding moving production to places with low operational costs, Brazil introduced local content requirement to enhance the car part industry in the country.

Table 10 shows changes in the auto part industry, as to development since 1990. The table shows changes in revenue, investment, value of import, value of export as well as how much of the production that goes to the Brazilian automobile production, rather than other directions as exports. Following the model of an input market with local content requirement regime, According to figure 2, page 33, what is to be expected after introducing local content requirement is a loss in consumer surplus i.e. car manufacturers demanding car parts due to increase in prices with requirement of domestic usage. In addition, there is also to be expected increase in producer surplus, i.e. car part producers, due to increase in domestic market share.

Table 10: Development of the car part industry

Year	Revenue US\$ millions	Investment US\$ millions	Imports US\$ millions	Exports US\$ millions	Percentage distribution to the Brazilian automobile industry
1990	12244	987	396	950	57,7
1991	9848	764	660	905	59,5
1992	10122	715	793	1547	60,1
1993	13222	702	1514	1560	61,6
1994	14376	883	2605	1628	60,4
1995	16584	1247	4533	1667	59,5
1996	16122	1296	3327	1925	59,5
1997	17458	1798	4260	2863	59,8

1998	14853	1580	4365	3049	58
1999	11213	1020	2780	2369	55,2
2000	13309	1100	2900	2978	56,8
2001	11903	798	2973	3128	57,8
2002	11309	260	2115	3170	54,9
2003	13330	532	2105	4152	55,6
2004	18548	843	2685	5333	58,5
2005	25263	1413	3323	6871	61,7
2006	28548	1300	4406	7570	61,5
2007	35064	1385	6438	7455	65,8
2008	40992	2104	10328	8426	66,3
2009	37895	631	9124	5662	68,8
2010	49767	2156	13240	7798	70,5
2011	54512	2418	18211	8363	70,8
2012	41818	1891	16338	7503	69,3
2013	39701	1927	17378	8791	70,1
2014			14819	5775	

Source: Anfavea, 2015², Comtrade, 2015

First, table 10 shows that the industry is more integrated into the car manufacturing process with increasing share going towards them. The overall growth in revenue and investment is respectively 6,87 and 16,93 %. Increase in investment follows new automobile regimes, as well as subsidiaries and international companies in addition to establish production plants, established production of car parts. The fact that the share going to Brazilian production is constantly increasing shows a more integrated car part industry in Brazil, with almost 70% going to the Brazilian market. The table also shows that in years with higher revenue, there is also increase percentage share going to the domestic automobile production. By that it can be said that the car part successfulness is affected by the demand from car production.

The car part industry, with revenue as well as import follows the overall production in cars, thus the situation of the car manufacturing industry seems to affect the car part industry more than local content requirement. According to figure 2, page 33, car part producers should experience an increase in market share with LCR, which they did. In addition, they should experience increase in production, and by that revenue. This is however stable, and as notes what is important is the overall demand from the manufacturing industry. When it comes to limit imports, the policy was only introduced in 2012, i.e. there are not enough evidence to show any effects.

What Brazil have managed to achieve in relation to for example Slovakia that is mentioned in the literature review in chapter 3, is an integrated industry within the country. Dependency theory is here a good description of the situation in the two countries. Where the automobile industry in Slovakia is theoretically successful, however DCs from Western Europe takes advantages of the situation in the country with flexible labour costs and weak labour unions. Slovakia have become a country of production nothing more, whereas Brazil have included all the steps of producing a car into the country. Slovakia focused on attracting FDI and was more export oriented than Brazil. Compared to Brazil, Brazil managed to establish domestic research and development with subsidies and restraints to get tax reductions. This led to what Brazil was aiming to achieve through their industrial policies, that there were to strengthen the Brazilian value chain, and prevent the industry from being dependent on foreign countries for inputs.

5.2 External factors

5.2.1 Impacts of trade agreements with Mercosur and Mexico

Following the previous argument, regarding the development of the car part industry, the argument cannot be made without including Mercosur, which is also a part of the local content requirement place of origin as well as Mexico. Thus, there is possibilities to establish and build an integrated car part industry within the trade block. This section first analyses the changes in trade between the countries with the respective trade agreements in table 11 and figure 6, followed by a presentation of changes in trade in car parts in table 12.

Table 11 shows the changes of growth in export and import from and to Brazil with the co-members of the Mercosur Automobile Policy, Argentina, Paraguay and Uruguay from 1991 until 2014.

Table 11: Percentage growth in value of trade in cars with Mercosur members 1991-2014

Year	Argentina		Paraguay		Uruguay	
	Imports	Exports	Imports	Exports	Imports	Exports
1991		688		0		44
1992	241	225		50		81
1993	56	-30	-100	167	600	6
1994	-3	-13		50	271	-25
1995	41	-27		92	19	-6
1996	270	85		-26	-100	-8
1997	76	101	-100	82		18
1998	12	-4		-26	83	-4
1999	-60	-47	-100	-61	-100	-65

2000	-1	24	56		22
2001	34	-45	-14	-59	-18
2002	-58	-52	-58	64	-72
2003	-38	300	0	-65	40
2004	4	114	60	-100	229
2005	50	31	38		74
2006	170	19	64		-3
2007	88	26	33		28
2008	45	37	33		52
2009	8	-32	-59		-33
2010	45	64	85	227	39
2011	15	26	25	-6	-10
2012	-9	-15	-10	-74	14
2013	2	56	30	844	30
2014	-26	-45	-6	34	-6

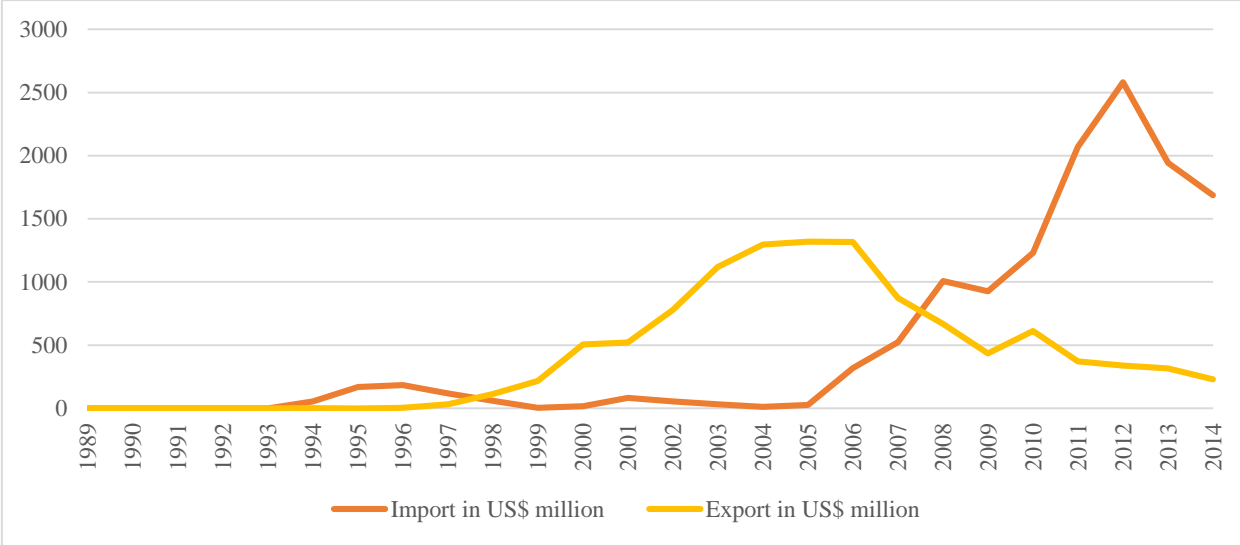
Source: Comtrade, 2015

In the case of Argentina, the agreement of 1994 regarding free circulation of vehicles led to an increase of imports to Brazil from Argentina in 1996. The other way around regarding export from Brazil kept stable until 03/04. With the elaboration of free trade between the member countries of 2006, trade between the two countries increased. Paraguay, do not have car production, thus only import is interesting regarding that country. With Paraguay, signing the Mercosur Automobile Policy in 2001, the value of export from that time until 2014 was 44% higher from 1989 until the signing. As for Uruguay, it is only a 9% change in the value of export from Brazil before and after the signing. With the free trade agreement of 2006, export increased. However, a new agreement of 2008 stated that Brazil had to import from Uruguay in order to export at zero tariff (AGN, 2009). This led to growth in import from Uruguay to Brazil from 2009, with 2014 when import exceeded export between the two countries. The overall trade from and to Brazil with the member countries have strengthened, especially after the free trade of 2006. Thus, the agreement suggests secure trade destinations for Brazil in the future.

Figure 6 shows the development of trade with Mexico, as can be seen on the figure, the trade agreement with Mexico have also introduced some problems for Brazil. After uncontrolled increase in imports from Mexico following the free trade agreement between the two countries in 2011, Brazil introduced a quota system of imported cars from the country. Figure 6 shows high increase in 2011 of 68% from the year before, which led to the quota regime

that brought down imports. Further, the other way around with export from Brazil to Mexico peaked in 2005, before the agreement and decreased after that.

Figure 6: Trade of cars with Mexico



Source: Comtrade, 2015

As of April 2015, the deal between the two countries was strengthened to continue the quota of duty-free trade between them, and the amount is going to increase by 3% each year until 2019, which is the year when there is aiming at free-trade of vehicles between the countries (Beck, 2015). Brazil viewed unrestrained free trade as a threat for the domestic industry, due to the potential for Mexican producers to produce at lower cost than in Brazil. In 2014, Mexico surpassed Brazil as the country in South America with the highest production of cars (EIU, 2015).

In the SIA research of 2007, they found out that the investments have occurred in the Mercosur common union, have made the products in this area favoured when it comes to specialization and the trade of both vehicles and auto parts (SIA, 2007). There is a common local content requirement from the member countries, this can lead to increased import to Brazil of car parts from the Mercosur countries, which table 12 shows the development of.

Table 12: Imports of car parts from Mercosur and Mexico

Year	Share of imports from Mercosur + Mexico	Market share Argentina	Market share Mexico
1990	0,13	0,90	0,08
1991	0,17	0,91	0,09
1992	0,28	0,95	0,04
1993	0,28	0,95	0,03

1994	0,22	0,83	0,12
1995	0,18	0,73	0,24
1996	0,39	0,81	0,16
1997	0,44	0,91	0,08
1998	0,44	0,94	0,05
1999	0,32	0,93	0,02
2000	0,32	0,90	0,06
2001	0,38	0,87	0,10
2002	0,29	0,82	0,14
2003	0,22	0,84	0,13
2004	0,21	0,92	0,07
2005	0,23	0,92	0,08
2006	0,38	0,78	0,21
2007	0,43	0,79	0,21
2008	0,41	0,74	0,26
2009	0,46	0,75	0,24
2010	0,45	0,76	0,23
2011	0,41	0,69	0,30
2012	0,47	0,62	0,38
2013	0,43	0,67	0,32
2014	0,41	0,61	0,36

Source: Comtrade, 2015

The following numbers shows how much of the import from Mercosur comes from Argentina and Mexico respectively since 1990. The year 1996 is a year where market share of import from Mercosur and Mexico increased from 18% to 39%, and kept at that level until the beginning of the 2000s. The share increased in 2006 after some years of lower market share. The development shows how Argentinian market share have decreased from being around 90% in the 1990s to being 61% in 2014. Mexico on the other hand shows conversely development, from being almost 0% towards reaching close to 40%. The numbers also show that those two countries together are the biggest importers from Latin America area, with their market shares combined reaching almost 100%.

The share of car parts that is produced in Mercosur or Mexico shows a steady growth from 1990, with averaging at around 43% since 2006, with the introduction of free trade. The immediate response after the introduction of local content requirement of 2011 shows higher share of car parts produced in Mercosur in 2012 and 2013. Thus, the integrated value chain of producing a car keeps getting stronger within Mercosur with the local content requirement. This is a possibility to establish a value chain of producing automobiles within Mercosur and Mexico, with free trade among these countries and local content requirement.

5.2.2 Export destinations and business cycles

A potential weakness for the industry is the destination of exports, that 70% of all exports goes within Mercosur and Mexico, i.e. Brazil is dependent on these markets. If demand in these markets goes down, Brazil is vulnerable and have to find new export destinations. Table 13 presents the export destinations from Brazil between 1995 and 2012. 5

Table 13: Largest export destination of Brazilian cars 1995-2012

Year	1st	2nd	3rd	4th	5th
1995	Argentina 33.77%	Italy 14.31%	Uruguay 12.02%	Venezuela 9.07%	Chile 7.48%
1996	Argentina 46.61%	Belgium- Luxembourg 11.29%	Uruguay 7.60%	Venezuela 6.48%	Chile 5.65%
1997	Argentina 48.52%	Italy 15.13%	Venezuela 9.96%	South Africa 5.63%	Uruguay 4.15%
1998	Argentina 42.03%	Italy 15.10%	Mexico 6.65%	Germany 6.55%	France 4.90%
1999	Argentina 28.04%	Mexico 19.77%	Italy 17.91%	Germany 6.98%	France 6.12%
2000	Mexico 28.37%	Argentina 24.47%	United States 14.42%	Italy 10.52%	Venezuela 5.86%
2001	United States 29.22%	Mexico 26.27%	Venezuela 12.46%	Argentina 11.44%	Canada 3.91%
2002	Mexico 37.47%	United States 31.12%	Argentina 5.81%	Venezuela 5.74%	Canada 4.10%
2003	Mexico 42.27%	United States 20.38%	Argentina 15.93%	Chile 4.53%	Canada 3.80%
2004	Mexico 38.56%	Argentina 28.81%	United States 6.73%	Chile 4.84%	Venezuela 4.48%
2005	Mexico 30.05%	Argentina 27.30%	Germany 12.53%	Venezuela 5.48%	United States 5.42%
2006	Argentina 31.97%	Mexico 28.62%	Germany 12.69%	Venezuela 7.06%	United States 4.43%
2007	Argentina 40.40%	Mexico 18.75%	Germany 15.68%	Venezuela 11.60%	Chile 2.70%
2008	Argentina 50.85%	Germany 21.79%	Mexico 13.05%	Venezuela 3.17%	Chile 2.14%
2009	Argentina 52.79%	Germany 20.92%	Mexico 13.58%	Canada 2.65%	Uruguay 1.88%
2010	Argentina 61.66%	Mexico 13.20%	Germany 11.14%	Nigeria 4.79%	Colombia 1.62%

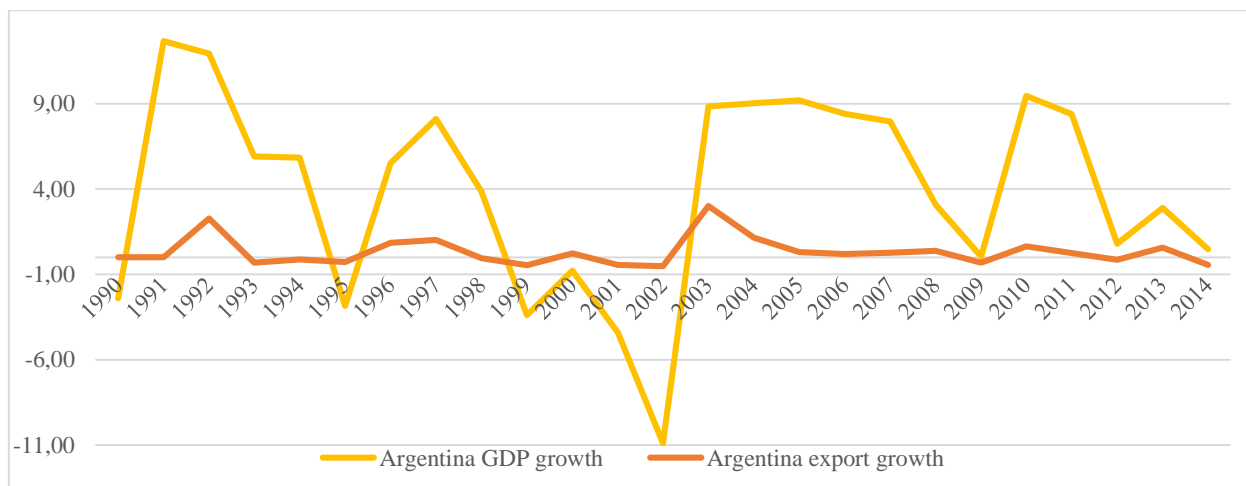
2011	Argentina 81.88%	Mexico 8.39%	Germany 2.25%	Colombia 1.52%	Uruguay 1.47%
2012	Argentina 74.36%	Nigeria 10.27%	Mexico 7.93%	Colombia 1.94%	Uruguay 1.84%

Source: OEC, 2015

Table 13 shows the consistency of Latin American countries being the main receivers of Brazilian exports. This threat is not prominent, due to the fact that the country exports only around 17% of produced cars, as an average since 2010 (Anfavea¹, 2015). According to the Economist Intelligent Unit of the Automobile industry in Brazil, international subsidiaries established in Brazil is mainly focusing on the domestic market, rather than expanding to export opportunities (EIU, 2010). However, the fact that there are few export markets, is the sensitivity the industry is known to have regarding economic recession, thus a threat is in the event of Brazil or other exporting destination of Brazilian produced cars suffers a recession. This is especially prominent in the case of Argentina, which is demonstrated in figure 7. That follows table 13, that shows that Argentina is definitely the most important export destination for Brazil.

Figure 7 shows the volatility of GDP growth in Argentina as well as the growth in exports from Brazil to Argentina, both between 1989 and 2014.

Figure 7: Connection between GDP growth and exports to Argentina



Source: World Bank, 2015, Comtrade, 2015,

The export growth to Argentina and Argentinian GDP growth seems to follow each other in increasing or decreasing. In the years of high GDP growth, export is increasing, and the other way around. Since Argentina is the biggest receiver of Brazilian exports of automobiles, the figure shows that a threat definitely is economic downturn in Argentina, since demand for

Brazilian products follows the situation of the domestic economy. Argentina also shows volatility in GDP, which marked them unreliable for Brazil, due to instability in the country.

The case of economic recession is also prominent in the case of Brazil, see figure 5 page 59, that when GDP per capita decreases the domestic demand for cars follows. For the automotive industry the effects of the macroeconomic situation in the country was noticed especially in 2014, being the year of low production as partly a consequence of low GDP growth. This follows the profitability of the car part industry, when the demand for car parts decreases.

5.2.3 Changes in the exchange rate

The argument regarding the exchange rate was one of the reasons for why the government increased tariffs in 2011. Table 14 gives the exchange rate of Brazilian Reales to the US Dollar from 1995. There is also presented trade data of automobile between the two nations, to show changes in trade with changes in the exchange rate. As to how the changes in the exchange rate represents either a threat or opportunity for Brazil in relation to trade in cars.

Table 14: Changes in the exchange rate BRL/USD and changes in trade between Brazil and the US

Year	Import value US\$ million	Export value US\$ million	Exchange rate BRL/USD
1995	361,71	0,49	0,96
1996	44,99	0,27	1,00
1997	165,28	0,20	1,08
1998	102,74	0,46	1,16
1999	27,47	0,27	1,81
2000	31,72	295,96	1,83
2001	39,16	574,80	2,33
2002	10,12	633,64	2,87
2003	12,57	548,31	3,04
2004	17,81	217,31	2,92
2005	20,69	257,91	2,43
2006	33,98	227,22	2,17
2007	49,59	51,47	1,95
2008	105,27	4,90	1,83
2009	77,04	1,67	1,99
2010	179,27	0,04	1,75
2011	184,58	1,10	1,67
2012	110,19	0,49	1,95
2013	186,33	1,06	2,15
2014	243,55	1,09	2,35

Source: Oanda, 2015, Comtrade, 2015

According to figure 4, page 38, table 14 shows the changes in value of trade coinciding with appreciation of the exchange rate. According to the figure, this situation is visible in the year 2006, when export drops, due to the unattractiveness of Brazilian goods. Additionally, imports increases due to higher demand from imports. A year of depreciation is in 1999, where there was a boom of export going from Brazil to the US, thus the Brazilian real was beneficial to US consumers. Additionally, imports decreases, i.e. the relatively more expensive US produced cars are non-preferable.

With a floating exchange rate like Brazil have, this will make them vulnerable to changes from trading partners. Floating meaning following the free supply and demand in the foreign exchange market (FT⁴, 2015). When there was an appreciation in 2011 due to the quantitative easing in the US, the counteraction Brazil introduced was an inverse in the tariff rates on automobiles. Thus, the external threat regarding an appreciation in the exchange rate makes the automobile industry vulnerable, due to the evident effect is has on the demand for Brazilian export on the international market, as well as the Brazilian demand on foreign automobiles.

5.2.4 Commitments with the WTO

As of the Brazilian protection of their automobile industry, trading partners have expressed discontent especially with the taxation rules introduced by the new regime of 2011. The EU started the process of requesting consultation on 19 December 2013. More countries that have joined the consultation is Japan, Argentina and the United States. The case developed into establishment of a panel, which Brazil first rejected (WTO, 2014).

The EU thinks that domestic producers have tax advantages when it comes to production of automobiles in the country. They further states that imported goods have a bigger tax burden as well as to promote Brazilian production. Japan has also requested consultation by the WTO regarding taxes on the automobile industry in Brazil, in the way that the taxes prefer domestic products to imported, in regards to cars as well as auto parts. They think that the way some producers that fulfil the local content requirements will get reduction in taxes counts as a subsidy that discriminated against imported cars. Lastly, Japan thinks that the regime benefits some WTO members above others, respectively those that are members of Mercosur (WTO, 2015⁸). Japan and the EU thinks that Brazil is, through these new measures regarding the automobile industry, violating the following commitments:

Article I:1 of the GATT 1994: General Most-Favoured-Nation Treatment, the WTO statement regarding most favoured nation says; “*That a product made in a member country be treated less favourable than a “like” good that originates in any other country*” (Hoekman and Kostecki, 2009, p.41).

Article III:2 of the GATT 1994: *The products of the territory of any contracting party imported into the territory of any other contracting party shall not be subject, directly or indirectly, to internal taxes or other internal charges of any kind in excess of those applied, directly or indirectly, to like domestic products. Moreover, no contracting party shall otherwise apply internal taxes or other internal charges to imported or domestic products in a manner contrary to the principles set forth in paragraph 1* (WTO, 2015⁴).

Article III:4 of the GATT 1994: *The products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favourable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase transportation, distribution or use. The provisions of this paragraph shall not prevent the application of differential internal transportation charges which are based exclusively on the economic operation of the means of transport and not on the nationality of the product* (WTO, 2015⁴).

Article III:5 of the GATT 1994: *No contracting party shall establish or maintain any internal quantitative regulation relating to the mixture, processing or use of products in specified amounts or proportion which requires, directly or indirectly, that any specified amount or proportion of any product which is the subject of the regulation must be supplied from domestic sources. Moreover, no contracting party shall otherwise apply internal quantitative regulations in a manner to the principles set forth in paragraph 1* (WTO, 2015⁴)

Article 2.1 of the TRIMs agreement: *Without prejudice to other rights and obligations under GATT 1994, no member shall apply any TRIM that is inconsistent with the provision of article III or Article XI of GATT 1994* (WTO, 2015⁵).

Article 3.1 (b) and 3.2 of the Subsidies and Countervailing Measures agreement: *Except as provided in the Agreement on Agriculture, the following subsidies, within the meaning of Article 1, shall be prohibited: subsidies contingent, whether solely or as one of several other conditions, upon the use of domestic over imported goods.*

A member shall neither grant nor maintain subsidies referred to in paragraph 1 (WTO, 2015⁷).

Brazil defends the introduction of the taxation benefits for domestic producers as to improve productivity and technological performance in addition to attract innovation and workforce capacity. Brazil stated that European companies benefited from the programmes as well, these measures was not for domestic investment only. Brazil also denied discrimination of imported goods (WTO, 2014). As of today (September 2015), the case is stated as in consultation with a date to be decided (WTO, 2015⁸).

Some of the external impacts are either threats or opportunities, the macroeconomic situation in either Brazil or trading partners are threats in low times of economic downturn or opportunities in times of cyclical upturn, import-substitution is overpowered by the macroeconomic situations impact on demand for cars. Changes in the exchange rate also represents opportunities and threats, threats when the real appreciates, and opportunities when it depreciates. Considering objective two regarding external influences impacts on the policy this is applies different to the external effects. However, there is the threat of Mexico taking over as the lead producer for automobiles in Latin America. The measures fits in with the Mercosur and Mexican trade agreements, and the external influences related to those trade agreements can be seen as benefits, in the way that they secure export destinations in the future in addition to establish a regional production. In the case of appreciation of the exchange rate, higher tariff was used to adjust the effects to not have as big impact on trade, i.e. import-substitution can lessen the threat, however not remove it. The one external influence that is a consistent threat is the WTO commitments, the policy as clearly coinciding with the external influence being WTO commitments.

5.3. Internal vs. External effects

Visible internal evidence of the contribution that import-substitution have on the development of the Brazilian automobile industry is increased investment in research and development as well as the establishment of plants, test centres etc. that contributes to a stronger domestic industry. This is what stands out compared to industries in other countries shown in the literature review in chapter 3. How the use of import-substitution has forced the companies to invest in the Brazilian market, compare the industry would suffer the same fate as other LDCs, where it became a place of production and nothing more.

As to external threats that conflict with import-substitution, the strongest being that Brazil is a member of the WTO, and by that is conflicting with their commitments to the organization. Even though the WTO cannot make Brazil drop local content requirement or lower the tariffs again, trading nations can take actions. The exchange rate is another threats, however it is also an opportunity where the Brazilian real is beneficial for foreign consumers. External opportunities are the regional value chain in production of car part that Mercosur have managed to establish. With an increase in inputs from producer located in Mercosur as well as Mexico, following the local content requirement. As to the profitability of the industry, there are other forces that interact with that issue, as GDP per capita, the business cycle of the Brazilian economy as well as trading partners, and Brazilian demand for cars. The fluctuation in GDP influences the demand for cars and by that production and profitability for the industry. Even though Brazilian producers mainly target the domestic market, Brazil is a trading nation when it comes to automobiles as well, and decrease in demand due to recession in trading partners is a threat.

When comparing the internal and external influences, the internal changes regarding increase in investment and development of new production plants as well as increase in research and development and the car par industry is influencing the industry less than the external influences. Especially how an appreciation of the exchange rate as well as cheaper imports led to a boom of imports, describing how the Brazilian industry in unable to compete without being protected by the government. Additionally, what decides the profitability of the industry is demand, and what decides demand is among other things GDP per capita, i.e. the macroeconomic situation decides more than tariff increases on the successfulness on the industry. The measures included in the program regarding import-substitution neutralizes the effects from appreciation of the Real. Brazil seem to have avoided the threats regarding dependency theory, and have established a modern industry with many production steps in Brazil, however the way they managed to do that was with measures that is prohibited by the WTO.

Regarding policy evaluation of import-substitution, the same measures that were used in earlier decades affect the industry and its surroundings different today. There are more car producing countries, and the producers are looking for places with the lowest production costs. Because of the high cost in Brazil, the industry is less attractive for production than other countries. However, import-substitution have made producers invest more heavily in the industry, which secures them production in the future. Since the local content requirement

also included the Mercosur members and Mexico, this gives a good prospect for developing a regional value chain within Latin America. According to the numbers that are collected, there are however not possible to fine negative repercussions regarding production in form of effectiveness of the industry. Thus, this does not cover the whole picture that is necessary to evaluate the policy.

Chapter 6: Conclusion

For Brazil, the automobile industry is important. The industry was emphasised in the time Brazil transformed into an industrial country from an agricultural based one. Measures done by the government has been many throughout since the beginning of governmental interference in 1956, with the strategy of import-substitution recurs. From the 1950, there is no doubt that the interference done by the government contributed to the development of the industry. Where it could grow behind protected trade walls, and with an increasing population and geographical placement making it attractive for foreign companies.

This study has through a SWOT analysis looked at the development of the industry since the 1990s with respect to import-substitution. How the government intervention has further developed the industry, in a time where countries are more connected, and issues related to that. With two objectives, the first one to analyse the impact the measures have made on modernizing, amplifying as and enhancing the industry, with a special focus on the task of strengthening the domestic value chain. The other objective was to analyse the use of import-substitution in light external impacts, in if these are considered threats or opportunities related to the policy.

To answer objective number one, visible strengthening of the industry is in increased investment in production as well as in research and development. The increase in tariff led to an increased market share of Brazilian produced cars, as well as to manage the uncontrolled imports. In regards to the autonomy of the industry, the local content requirement has increased the share of inputs needed in automobile production from domestic producers. In addition, international companies will establish car part production in the country. Thus, the policy has strengthened the domestic value chain, and managed the increase the autonomy of the industry. And by that, possibly avoided the industry to suffer the same fate as in Slovakia, being a place only for production.

As to objective number two, how the measures are either conflicting with or benefiting from external influences, this applies in different issues. First, the Mercosur agreement provides Brazil is secure export market. As well as building up a regional value chain, in the way that inputs used in production from Mercosur countries and Mexico is growing. Business cycles in the economy contributes to both opportunities in periods of boom, and threat in periods of recession, due to the fact that demand for cars is affected by the economic situation. This also

applies to trading partners, in greater extent Argentina. Changes in the exchange rate also is related to opportunities and threats. Opportunities in the event of depreciation, threat in the event of appreciation of the currency. In the cases of business cycles and changes in the currency the threat weight heavier than the opportunity, thus this external influences conflict with the production of cars as well as the competitiveness of the Brazilian industry. The most significant threat in regards to the policies being used are the commitments Brazil have made with the WTO, which they are violating. The status of this case has not yet reached as verdict, but will have repercussions for Brazil in the future.

In evaluating the industry in light of the policy of import-substitution, the fact that Brazil is a part of its surroundings makes those surroundings outweigh the internal progresses.

Regarding the profitability of the industry, this is determined by the domestic demand.

However, the policy managed to limit the import entering to the country with an appreciated currency and lower tariffs. As well as strengthen the investment and focus in the industry for international companies. The Mercosur and Mexican agreement strengthens the cooperation within the region, with that there is however the threat of Mexico taking over as the biggest car producing country in Latin America.

6.1 Limitations of the thesis

A limitation of this study is that there are several missing numbers that could have been included especially regarding prices in Brazil and regarding the cost of consumers. In addition, there could be included numbers regarding the efficiency of production of cars as well as car parts. The thesis is very broad, especially the choice of methodology makes the thesis cover many issues superficially rather than studying one issue in depth. The literature review contains research other than the methodology of this thesis, in addition to lacking studies that have the same objectives as this thesis.

6.2 Recommendations for further study

Following this study there could be made a comparison study of the automotive industries in Slovakia and Brazil, in the way of arguing that import-substitution will prevent the industry to suffer from dependency, compare numerically the successfulness and development between the industries with the different approaches as to enhance the industry. Another study is to analyse the Mexican versus the Brazilian automotive industries, in the way Mexico has taken over as the biggest car producing country in Latin America. Further, there could be a study analysing the Mercosur Automobile Policy in the different countries involved. Finally, there could be a study that analyses just the car part industry with the local content requirement, in terms of efficiency in production and development of the car part industry.

Bibliography

Ado, R. (2013) 'Local content policy and the WTO rules of trade related investment measures (TRIMS): The pros and cons'. *International Journal of Business and Management Studies*. Volume 2(1) pp. 137-146. The Robert Gordon University. Available from: <http://localcontentsolutions.com/pdf/Rabiu_Ado.pdf>. [7. Aug. 2015].

AGN (2009) *Investment opportunities in Uruguay – Automobile and Auto Parts Industry*. Available from: <http://www.agn-csa.org/csa_publications/0909_Automotive_Auto_Parts-UruguayXXI-ENG.pdf>. [5. Sep. 2015].

Alavi, R. (1996) *Industrialisation in Malaysia: import substitution and infant industry performance*. London: Routledge.

Andrews, K. (1971) *The concepts of corporate strategy*. Homewood, Ill: Dow Jones-Irwin.

Anfavea (2014) *Brazilian automobile industry yearbook*. Sao Paulo, Brazil. Available from: <<http://www.virapagina.com.br/anfavea2014/#IV/z>>. [3. Feb. 2015]

Anfavea¹ (2015). *Produção, vendas e exportação de autoveículos*. Available from: <<http://www.anfavea.com.br/tabelas.html>>. [20. Dec. 2015].

Anfavea². (2015) *Brazilian automobile industry yearbook*. Sao Paulo, Brazil. Available from: <<http://www.virapagina.com.br/anfavea2015/>>. [4. Feb. 2015]

Appleyard, D and Field, A. (2014) *International Economics*. 8th edition. New York: McGraw-Hill/Irwin.

Arza, V. (2011) 'Mercosur as an export platform for the automotive industry'. *Cepal Review*. Vol. 103, April 2011, pp. 129-152. Available from: <<http://www.cepal.org/publicaciones/xml/4/44064/RVI103Arza.pdf>>. [5. Sep. 2015].

Baer, W. (2008) *The Brazilian economy: growth and development*. 6th edition. Boulder, Colo: L. Rienner Publ.

Banco Central do Brasil. (2015) *Balance of Payments*. Available from: <<http://www.bcb.gov.br/?BALANCESPECIAL>>. [5. May 2015].

Barbosa, F. (1998) 'Economic development: The Brazilian experience'. *Getulio Vargas Foundation Graduate School of Economics*. available from: <http://www.fgv.br/professor/fholanda/Arquivo/Economicdevelop.pdf>. [1. Dec. 2014].

Barney, J. (1995) 'Looking Inside for a Comparative Advantage'. *The Academy of Management Executive*. Vol. 9, No. 4, pp. 49-61. Available from: <<http://www.jstor.org/stable/4165288>>. [31. Jan. 2015].

Bauer, P, Meier, G and Seers, D. (1984) *Pioneers in development*. New York: Oxford University Press

BBC (2012) 'Profile: Mercosur – Common Market of the South.' *BBC news*. 15. Feb. 2012. Available from: <<http://news.bbc.co.uk/2/hi/americas/5195834.stm>>. [20. Dec. 2014].

- Beck, T. (2015) 'Brazil and Mexico Postpone Free Trade Agreement until 2019'. *GlobalEDGE*. 24. Mar. 2015. Available from: <<http://globaledge.msu.edu/blog/post/20893/brazil-and-mexico-postpone-free-trade-agreement-until-2019>>. [22. May. 2015].
- Bloomberg (2015) *Company Overview of Peugeot Citroën do Brasil Automóveis Ltda*. Available from: <<http://www.bloomberg.com/research/stocks/private/snapshot.asp?privcapId=22700603>>.
- Chenery, H. (1982) 'Industrialization and growth, the experience of large countries'. *World Bank Staff working papers*. Available <<http://documents.worldbank.org/curated/en/1982/01/1554895/industrialization-growth-experience-large-countries>>. [20. Nov 2014]
- Chery (2015) *Chery's Largest Overseas Plant Inaugurated in Brazil*. Available from: <<http://www.cheryinternational.com/news/20140902032.html>>. [17. Feb. 2015]
- Cimoli, M, Dosi, G and Stiglitz, J. (2009) *Industrial Policy and Development*. New York: Oxford University Press.
- Comtrade (2008) *International Merchandise Trade Statistics: Supplement to the Compilers Manual*. New York: Department of Economic and Social Affairs Statistics Division. Available from: <<http://unstats.un.org/unsd/trade/IMTS%20Supplement%20to%20the%20Compilers%20Manual,%20final%2031%20Aug%2009.pdf>>. [5. Nov. 2015].
- Comtrade (2015). *UN Comtrade Database*. Available from: <<http://comtrade.un.org/>>
- Courtenay, V. (2014) 'New Kia Plant in Mexico Aimed at Bolstering U.S. Suppliers'. *Wards Auto*. 29. Aug. 2014. Available from: <<http://wardsauto.com/plants-production/new-kia-plant-mexico-aimed-bolstering-us-supplies>>. [4. Feb. 2015].
- Cross, B. (2013) 'Brazil aims to stimulate auto parts sector'. *Automotive Logistics Magazine*. 11. Sep. 2013. Available from: <<http://www.automotivelogisticsmagazine.com/news/brazil-aims-to-stimulate-auto-parts-sector>>. [22. Feb. 2015].
- D'Costa, A. (1995) 'The restructuring of the Indian automobile industry: Indian state and Japanese capital'. *World Development*. Volume 23, issue 3, pp.485-502. Available from: <<http://www.sciencedirect.com/science/article/pii/0305750X9400135L>>. [1. Jun. 2015].
- EIU (2010) *Industry Report: Automotive – Brazil*. London: Economist Intelligent Unit. Available from: <www.eiu.com>. [8. Apr. 2015].
- EIU (2015). Mexico's car production exceeds Brazil's. Economist Intelligent Unit. 31. Jan. 2015. Available from: <<http://country.eiu.com/article.aspx?articleid=1662687150&Country=Brazil&topic=Economy&subtopic=Forecast&trackid=43&alert=90b792bb-0d07-4088-9b77-2efb49339e85>>. [5. Aug. 2015].
- FT¹. (2015) *Definition of Aggregate demand*. Financial Times Lexicon. Available from: <<http://lexicon.ft.com/Term?term=aggregate-demand>>. [22. Jul. 2015].

- FT². (2015) *Definition of value chain*. Financial Times Lexicon. Available from: <<http://lexicon.ft.com/Term?term=value-chain>>. [4. Nov. 2014].
- FT³ (2015) *Definition of voluntary restraint agreement*. Financial Times Lexicon. Available from: <<http://lexicon.ft.com/Term?term=voluntary-restraint-agreement>>. [4. May. 2015].
- FT⁴ (2015) *Definition of floating exchange rate*. Financial Times Lexicon. Available from: <<http://lexicon.ft.com/Term?term=floating-exchange-rate>>. [2. Nov. 2015].
- FT⁵ (2015) *Definition of trade deficit*. Financial Times Lexicon. Available from: <<http://lexicon.ft.com/Term?term=trade-surplus%2Fdeficit>>. [20. Jan. 2015].
- FT⁶ (2015) *Definition of fragmented*. Financial Times Lexicon. Available from: <<http://lexicon.ft.com/Term?term=fragmented>>. [5. Jul. 2015].
- Fujita, M. (1998) 'Industrial Policy and Trade liberalization –the automobile industry in Thailand and Malaysia-'. *APEC study Centre institute of developing economies*. Available from: <http://www.ide.go.jp/English/Publish/Download/Apec/pdf/1997_06.pdf>. [4. May 2015].
- Ghosh, B. (2001) *Dependency theory revised*. Aldershot: Ashgate.
- Henry, I. (2014) 'Lusting after Latin America'. *Automotive Manufacturing Solutions*. 1. Oct. 2014. Available from: <<http://www.automotivemanufacturingsolutions.com/focus/lusting-after-latin-america>>. [17. Feb. 2015].
- Hoekman, B. and Kostecki, M. (2009) *The Political Economy of the World Trading System – the WTO and Beyond*. 3rd edition. Oxford: Oxford University Press
- Humphrey, J. (2003) 'Globalization and supply chain networks: the auto industry in Brazil and India'. *Global Networks*. Vol. 3, No. 2, pp. 121-141. Available from: <<http://onlinelibrary.wiley.com/doi/10.1111/1471-0374.00053/epdf> >. [5. Nov. 2014]
- Humphrey, J. and Memedovic, O. (2003) 'The Global Automotive Industry Value Chain: What Prospects for Upgrading by Developing Countries?' *United nations industrial development organization*. Available: <<http://www.ids.ac.uk/ids/global/pdfs/AutomotiveF.pdf>>. [13. May 2015].
- İncekara, A. and Ustaoglu, M. (2012) 'European Union's Multilateralism on Trade Policies, Custom Unions and Free Trade Agreements: Comparative SWOT Analysis of Turkey and South Korea's Automotive Industries'. *Procedia-Social and Behavioural Science*. Vol. 58, pp. 464-473. Available from: <<http://www.sciencedirect.com/science/article/pii/S1877042812044850>>. [20. May 2015].
- Ipeadata (2015) *Institute for Applied Economic Research*. Available from: <<http://www.ipeadata.gov.br/>>.
- Jac (2013) 'JAC makes Big Leap into South American Market in 2012.' *JAC News*. 1. Jul. 2013. Available from: <<http://jacen.jac.com.cn/article/20130107/75164339.html>>. [17. Feb. 2015].
- Jahan, S. (n.d) 'Inflation Targeting: Holding the line'. *International monetary fund*. available: <<http://www.imf.org/external/pubs/ft/fandd/basics/target.htm>>. [20. Feb 2015].

- Jelmayer, R. and Althaus, D. (2015) 'Brazil, Mexico Agree to Extend Auto Trade Agreement'. *The Wall Street Journal* 9. March 2015. Available from: <<http://www.wsj.com/articles/brazil-mexico-to-renew-auto-trade-agreement-1425899470>>. [22. Jun. 2015].
- Johnson, L.J. (1967) 'Problems of Import Substitution: The Chilean Automobile Industry'. *Economic development and Cultural Change*. Vol. 15, No. 2, Part 1, pp202-221. The University of Chicago. Available from: <<http://www.jstor.org/stable/1152368>>. [3. Feb. 2015].
- Krueger, A. (1997) 'Trade policy and economic development: How we learn'. *The American Economic Review*. Mar 1997. Available at https://media.law.wisc.edu/s/c_360/dvkmz/trade_recommended.pdf. [Read January 8th 2015].
- Kruger, A. (1995) *Trade policies and developing nations*. Washington, D.C: Brookings Institution.
- Krugman, P. and Obstfeld, M. (2009) *International Economics – Theory and Policy*. 8th edition. Boston: Pearson.
- Kudryavtseva, E. (2012) 'Automotive industry and the integration process within Mercosur: Visible potential and concealed problems'. *Saint-Petersburg State University of Aerospace Instrumentation*. Available from: <http://guap.ru/guap/nids/pdf_2012/kudryavtseva.pdf> [20. May 2015].
- Kupfer, D. (2012) *Case Studies of Successful and Unsuccessful Industrial Policies: The Case of Brazil*. International Economic Association. World Bank Roundtable. Available from: <<http://www.iea-world.org/docs/Kupfer1.pdf>>. [12. Dec. 2014].
- Leathy, J. (2012) 'Brazil admits tight hold over exchange rate' *Financial Times*. 24. Oct. 2012. Available from: <<http://www.ft.com/intl/cms/s/0/3185f656-1dfa-11e2-8e1d-00144feabdc0.html#axzz3Sf1zixha>>. [5. Mar. 2015].
- Luporini, V. (2000) 'Sustainability of the Brazilian fiscal policy and central bank independence.' *Revista Brasileira de Economia*. Vol. 54, No. 2, pp. 201-226. Available from: <<http://www.scielo.br/pdf/rbe/v54n2/a04v54n2.pdf>>. [28. Jan. 2015].
- Melink, H. (1982) 'The effects of import-substitution: the case of Kenya's manufacturing sector'. *Institute for Development Studies University of Nairobi*. Available <https://openaccess.leidenuniv.nl/bitstream/handle/1887/8957/asc_1241607_005.pdf?sequence=1>. [10 Feb. 2015].
- Melo, A. (2001) 'Industrial Policy in Latin America and the Caribbean at the Turn of the Century'. *Intern- American Development Bank, research department*. Available from: <<http://www10.iadb.org/intal/intalcdi/PE/2010/07003.pdf>>. [5. Dec. 2014].
- Mera, M. L. (2007) 'Macroeconomic Concerns and Intrastate Bargains: Explaining Illiberal Policies in the Brazilian Automobile Sector'. *Latin American Policies and Society*. Vol. 49, no 1, pp. 113-140. Available at: <<http://onlinelibrary.wiley.com/doi/10.1111/j.1548-2456.2007.tb00376.x/abstract>>. [4. Nov. 2015].
- Ministry of Development, Industry and Foreign Trade (2014) *Plano Brasil Maior 2011/2014*. Available from:

<<http://www.brasilmaior.mdic.gov.br/images/data/201205/ac36870491379be10d85230b0a3bf526.pdf>>. [5. Nov. 2014].

Mukherjee, A. and Sastry, T. (1996) 'The automotive Industry in Emerging Economies: A Comparison of Korea, Brazil, China and India'. *Economic and Political Weekly*. Vol. 31, No. 48, pp.M75-M78. Available from <<http://www.jstor.org/stable/4404826>>. [7. Jun. 2015].

Mukherjee, A. and Sastry, T. (1996) 'The automotive Industry in Emerging Economies: A comparison of Korea, Brazil, China and India'. *Economic and Political weekly*. Vol. 31, No. 48, pp.75-78. Available from: <<http://www.jstor.org/stable/4404826>>. [5. Apr. 2015].

Musacchio, A and Lazzarini, S. (2014) *Reinventing state capitalism: Leviathan in business, Brazil and beyond*. Cambridge, Mass: Harvard University Press.

Narayanan, K. (1998) 'Technology acquisition, de-regulation and competitiveness: a study of Indian automobile industry'. *Research Policy*. Vol. 27, no. 2, pp.215-228. Available from: <<http://www.sciencedirect.com/science/article/pii/S0048733398000377>>. [5. May 2015].

O'Keefe, T. and Haar, J. (2001) 'The Impact of Mercosur on the Automobile Industry'. *North-South Agenda Papers*. No. 50. Available from: <<http://ciaonet.org/catalog/13665>>. [27. May. 2015].

Oanda (2015) *Historical exchange rates*. Available from: <<http://www.oanda.com/currency/historical-rates/>>. [15. Feb. 2015].

Observatory of Economic Complexity (OEC) (2015) *Brazil*. Available from: <<https://atlas.media.mit.edu/en/profile/country/bra/>>. [5. Jan. 2015].

Okamoto, Y. and Sjöholm, F. (1999) 'Protection and the Dynamics of Productivity Growth: The case of Automobile industries in Indonesia'. *Working paper series in Economic and Finance*. No. 324 June 1999. Available from: <<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.199.8096&rep=rep1&type=pdf>>. [23. May 2015].

O'Keefe, T. (2009) *Latin American and Caribbean Trade Agreements: Keys to a Prosperous Community of the America*. Google Books: Brill. Available from: Google books. [4. Jun. 2015].

Organisation for Economic Co-operation and Development, Data (OECD) (2015) Available from: <<https://data.oecd.org/>>.

Pavlinek, P. (2014) 'Whose success? The state-foreign capital nexus and the development of the automotive industry in Slovakia'. *European Urban and Regional Studies*. Available from: <<http://eur.sagepub.com/content/early/2014/12/09/0969776414557965.full.pdf+html>>. [1. Jun. 2015].

Pazos, F. (1985) 'Have Import Substitution Policies Either Precipitates or Aggravated the Debt Crisis?' *Journal of interamerican Studies and World Affairs*. Vol. 27, no. 4, pp. 57-73. Centre for Latin American Studies at the University of Miami. Available from: <<http://www.jstor.org/stable/165568>>. [5. Mar. 2015].

- Pearson, S. (2012) 'Carmakers warn on Brazil's import tax'. *Financial Times*. 28. Oct. 2012. Available from: <<http://www.ft.com/intl/cms/s/0/c2e906a8-1f92-11e2-841c-00144feabdc0.html?siteedition=intl#axzz3SD4ijTG6>>. [4. Oct. 2014].
- Pereira, J.M., Marcelino, G.F. and Kruglianskas, I. (2006) 'Brazilian new patterns of an industrial, technological and foreign trade policy'. *Journal of Technology, Management and Innovation*. volume 1 issue 3. Available <http://www.jotmi.org/index.php/GT/article/viewFile/art7/346> [23 Nov. 2014]
- Pitre, V. (1979) 'Import Substitution in Machinery and Transport Equipment Sector'. *Economic and Political Weekly*. Vol. 14, No. 29, pp. 1212-1216. Available from: <<http://www.jstor.org/stable/4367808>>. [7. Jan. 2015].
- Pursell, G. (2001) 'Australia's experience with Local Content Programs – lessons for India and other developing countries'. *The World Bank Development Research Group*. Available at: <http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2001/07/27/000094946_0107180403293/Rendered/PDF/multi0page.pdf>. [4. Feb. 2015].
- Quadros, R. and Consoni, F. (2009) 'Innovation capabilities in the Brazilian automobile industry: a study of vehicle assemblers' technological strategies and policy recommendations'. *International Journal of Technological learning, Innovation and Development*. Vol. 2, No. 1/2, 2009. Available from: <http://www.extecamp.unicamp.br/gestaodainovacao/biblioteca/IJTLID201-203_Quadros.pdf>. [20>. Mar. 2015].
- Rodrik, D. (2007) *One Economies Many Recipes – Globalization, Institutions, and Economic Growth*. Princeton and Oxford: Princeton University Press.
- Roos, G. and Boldt-Christmas, L. (2010) *Strategi: en innføring*. 5th edition. Bergen: Fagbokforlaget.
- Rugman, A. and Collins, S. (2004) 'The Regional Nature of the World's Automotive Sector'. *European Management Journal*. Vol. 22, No. 5, pp. 471-482. Available from: <<http://www.sciencedirect.com/science/article/pii/S026323730400088X>>. [14. May 2015].
- Schlie, E. and Yip, G. (2000) 'Regional Follows Global: Strategy Mixes in the World Automotive Industry'. *European Management Journal*. Vol. 18, No. 4, pp. 343-354. Available from: <<http://www.sciencedirect.com/science/article/pii/S0263237300000190>>. 15. May. 2015].
- Serrano, F. and Summa, R. (2011) 'Macroeconomic policy, Growth and Income Distribution in the Brazilian economy in the 2000s'. *Centre for Economic and Policy Research*. Washington. Available <http://www.cepr.net/documents/publications/brazil-2011-06.pdf> [13 Nov 2014].
- Shapiro, H. (1989) 'State Intervention and Industrialization: The Origins of the Brazilian Automotive Industry'. *The Journal of Economic History*. Vol. 49, no. 2, pp. 448-450. Available from: <<http://www.jstor.org/stable/2124075>>. [4. Oct. 2014].

Shapiro, H. (1991) 'Determinants of Firm Entry into the Brazilian Automobile Manufacturing industry'. *The Business History Review*. Vol. 65, no. 4, pp. 876-947. Available from: <<http://www.jstor.org/stable/3117267>>. [25. Sep. 2014].

Shapiro, H. (1994) *Engines of Growth*. Google Books: Cambridge university press. Available from:

<<https://www.google.no/search?tbm=bks&hl=no&q=Engines+of+Growth%3A+The+State+and+Transnational+Auto+Companies+in+Brazil>>. [25. Nov. 214].

Shapiro, H. (1996) 'The Mechanics of Brazil's Auto Industry'. *Nacla*. Jan/Feb 1996.

Available from: <<https://nacla.org/article/mechanics-brazils-auto-industry>>. [3. Feb. 2015]

SIA (2007) 'Trade SIA of the association agreement under negotiation between the European community and Mercosur: automobile sector study'. *Commission of the European Communities*. Available from: <

http://trade.ec.europa.eu/doclib/docs/2006/december/tradoc_131427.pdf>. [3. Jun. 2015].

Spence, M. (2008) *The Growth Report: Strategies for Sustained Growth and Inclusive Development*. World Bank. Available from: <

http://siteresources.worldbank.org/EXTPREMNET/Resources/489960-1338997241035/Growth_Commission_Final_Report.pdf>. [5. Sep. 2014].

Stansfield, R. (2014) 'Brazil: Stimulating or stifling automotive?' *Automotive manufacturing solutions* 9. Sep. 2014. Available from:

<<http://www.automotivemanufacturingsolutions.com/focus/brazil-stimulating-or-stifling-automotive>>. [4. Mar. 2015]

Sturgeon, T. and Van Biesebroeck, J. (2010) 'Crisis and Protection in the Automobile Industry: A Global Value Chain Perspective'. *The World Bank*. Available from: <

[http://mdgs.un.org/unsd/trade/s_geneva2011/refdocs/RDs/Automotive%20Industry%20and%20Crisis%20\(Sturgeon%20-%20Jun%202010\).pdf](http://mdgs.un.org/unsd/trade/s_geneva2011/refdocs/RDs/Automotive%20Industry%20and%20Crisis%20(Sturgeon%20-%20Jun%202010).pdf)>. [3. Jun. 2015].

Suranvic, S. (2010) *International Trade: Theory and Policy*. Flat World Knowledge, Inc.

Szirmai, A, Naudé, W. and Alcorta, L. (2013) *Pathways to industrialization in the Twenty-First century: new challenges and emerging paradigms*. Oxford: Oxford University Press.

The Brazilian Business (2015) *what is IPI?* Available from:

<<http://thebrazilbusiness.com/qa/what-is-ipi>>. [15. Jan. 2015].

The Economist (2013) 'Why is Brazil so expensive?' *The Economist*. 30. Sep. 2013.

Available from: <<http://www.economist.com/blogs/economist-explains/2013/09/economist-explains-15>>. [6. Jul. 2015]

The Offshore Group (2012) '*The Mexican Automotive Industry: Mexico, Mercosur and ACE 55*'. Tucson, Arizona. 8. Aug. 2012. Available from: <

<http://offshoregroup.com/2012/08/08/the-mexican-automotive-industry-mexico-mercotur-and-ace-55/>>. [23. May. 2015].

Troyjo, M (2012) '12 for 2012: Brazil's Import Substitution Industrialization 2.0'. *Financial Times*. 2. Jan. 2012. Available from: <<http://blogs.ft.com/beyond-brics/2012/01/02/12-for-2012-brazils-import-substitution-2-0/>>. [20. Sep. 2014].

Vousden, N. (1990) *The Economies of Trade Protection*. Cambridge: Cambridge University Press.

World Bank (2015) *GDP growth annual*. Available from: <<http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG>>. [4. Feb. 2015].

WTO (1997) *Mercosur: Objectives and Achievements*. Geneva: World Trade Organization. Available from: <https://www.wto.org/english/res_e/reser_e/ptpr9702.pdf>. [5. May. 2015].

WTO (2004) *International trade and macroeconomic policy*. Geneva: World Trade Organization. *World Trade Report 2004*. Pp. 90-101. Available from: <https://www.wto.org/english/res_e/booksp_e/anrep_e/wtr04_2a_e.pdf>. [22. Jul. 2015].

WTO (2014) Brazil rejects panel requested by the EU over tax measures. World Trade Organization. *WTO: 2014 news items*. 18. Nov. 2014. Available from: <https://www.wto.org/english/news_e/news14_e/dsb_18nov14_e.htm>. [8.sep. 2015].

WTO¹ (2015) *Brazil and the WTO*. Geneva: World Trade Organization. Available from: <https://www.wto.org/english/thewto_e/countries_e/brazil_e.htm>. [2. Aug. 2015].

WTO² (2015) *Tariffs*. Geneva: World Trade Organization. Available from: <https://www.wto.org/english/tratop_e/tariffs_e/tariffs_e.htm>. (20. Dec. 2014).

WTO³ (2015) *Get tariff data*. Geneva: World Trade Organization. Available from <https://www.wto.org/english/tratop_e/tariffs_e/tariff_data_e.htm>. {5. Jul. 2015}.

WTO⁴ (2015) *The General Agreement on Tariffs and Trade*. Geneva: World Trade Organization. Available from: <https://www.wto.org/english/docs_e/legal_e/gatt47_01_e.htm#>. [4. Feb. 2015].

WTO⁵ (2015) *Agreement on Trade-Related Investment Measures*. Geneva: World Trade Organization. Available from: <https://www.wto.org/english/res_e/booksp_e/analytic_index_e/trims_e.htm>. [4. Feb. 2015].

WTO⁶. (2015) *Understanding the WTO: settling disputes*. Geneva: World Trade Organization. Available from: <https://www.wto.org/english/thewto_e/whatis_e/tif_e/disp1_e.htm>. [15.aug. 2015].

WTO⁷ (2015) *Agreement on Subsidies and Countervailing Measures*. Geneva: World Trade Organization. Available from: <https://www.wto.org/english/docs_e/legal_e/24-scm_01_e.htm>. [4. Feb. 2015].

WTO⁸ (2015) *Brazil - certain measures concerning taxations and charges*. Geneva: World Trade Organization. Available from: <https://www.wto.org/english/news_e/news13_e/ds472rfc_19dec13_e.htm>. [6. Sep. 2015]

Zhang, D. and Pearse, P. (2011) *Forest Economics*. Google Books: UBC Press. Available from: Google Books. [4. Aug. 2015].



Norwegian University
of Life Sciences

Postboks 5003
NO-1432 Ås, Norway
+47 67 23 00 00
www.nmbu.no