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THE EMERGENCE OF PRODUCT CERTIFICATION SYSTEMS AS TRADE

BARRIERS: FORECASTING CHANGES IN THE AUTOMOTIVE SECTOR BASED ON

AN ANALYSIS OF KEY DRIVERS

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Abstract:

This paper addresses the growing difficulties automobile manufacturers face within their after sales business: an increasing number of trade obstacles set up by import countries discriminates against the foreign suppliers and impedes the international sales of genuine parts.

The purpose of the study is to explore the emergence of trade restrictive product certification systems, which affect spare parts exports of automobile manufacturers. The methodology used includes review of the literature and an empirical study based on qualitative interviews with representatives of major stakeholders of the automotive after sales business. Relevant key drivers, which initiate the introduction of technical regulations in importing countries, are identified and analysed to evaluate their effect on the emerging trade policy.

The analysis of the key drivers outlines that several interacting components, such as the global competitiveness of the country, macroeconomic and microeconomic factors, and certain country-specific variables induce trade restrictive product certification systems. The findings allow for an early detection of the emergence of product certification systems and provide a means to early recognise the risks and opportunities for the sales of automotive spare parts in the automakers' target markets. This allows the manufacturers to react immediately and adapt in time to the upcoming changes.

CONTENTS

1. Introduction

The economic upturn in Europe, the United States and Asia after the Second World War was achieved not least because of the increasing links of the national economies. The General Agreement on Tariffs and Trade (GATT), founded in 1947, intended to reduce tariffs between trading partners in order to facilitate trade. The foundation of the World Trade Organisation (WTO), which replaced the GATT in 1994, aimed at the removal of trade obstacles to promote trade liberalisation and economic cooperation. Since the early 1990s the number of free trade agreements (FTAs) has grown rapidly (Postigo, 2014), promoting the opening of the markets (European Commission [EC], 2015).

Despite the trade policy rules and the progressive vertical fragmentation of supply chains across countries, the threat of trade wars is not banned (Georgiadis & Gräb, 2013). The progressive dismantling of tariffs increases the importance of Non-Tariff Barriers (NTBs)[1] instead, providing protection for the domestic economy, while discriminating against importers (Bussière, Pérez-Barreiro, Straub, & Taglioni, 2001). Given that 90% of world demand will be generated outside Europe over the next ten to 15 years (EC, 2015), overcoming the trade barriers to take the opportunities of foreign markets is decisive for European entrepreneurs.

The automotive sector is one of the most protected industries in many countries (Postigo, 2014). The increasing isolation of international markets through technical regulations hinders the after sales (AS) business of automotive original equipment manufacturers (OEMs). Trade barriers, such as product certification systems (PCSs) impede the export of automotive spare parts and frequently result in sales losses (Munich Consulting Group [MCG], 2015).

Munich Consulting Group GmbH (MCG), a technical consulting firm headquartered in Munich, Germany, provides services to large and medium-sized companies. The service range

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[1] Non-Tariff Barriers (NTBs) limit to measures, which are imposed explicitly to protect the domestic industry by the restriction of import demand, whereas Non-Tariff Measures (NTMs) refer to any measures others than tariffs, which cause a trade distortion, whilst the distortion can be intentional or result as a side effect of any legitimate regulatory measure (Carrère & de Melo, 2001).

draws on expertise such as quality management, project management, lean management, supply chain management and process design. The International Product Certification (IPC) services comprise global research, law analyses and interpretation, analyses of the clients' export product ranges and required certification thereof, as well as the implementation, monitoring and support of recommended action. Since the area of IPC has an impact on multiple levels of the clients' business, the timely recognition of legal changes in the target markets, such as the emergence of PCSs, is decisive in order to support the clients' export business effectively.

Yet there are few studies on the roots and causes of PCSs. The few existing analyses of the emergence of trade barriers are rather general in nature, treating the causes of protectionism (Abboushi, 2010; Nishiwaki, 2007; Senti, 1986). The present study seeks to fill this gap by identifying the relevant factors, which initiate the introduction of technical regulations in importing countries. The analysis of key drivers aims to provide prevision of the implementation of PCSs in order to reduce the negative impact of the regulations on the OEMs' business.

The remainder of this paper is organised as follows: section 2 outlines the aims and objectives of the study and section 3 provides theoretical background. Section 4 represents the methodological approach of the research. Section 5 outlines the results, while the final section concludes and provides further recommendations.

2. Aims and Objectives

The growing number of cars worldwide and the increasing average fleet age boosts the volume of the automotive AS market, which is generating a higher return on sales compared to the new car business (Arthur D. Little, 2008). The highest growth of the global automotive market is expected to stem from non-traditional markets (PWC, 2015). The unpredictable origin of growth requires a flexible strategy of OEMs, in order to respond quickly to growth when and wherever it develops. Hence, a global view on the target markets is decisive in order to react to opportunities and threats for the business in time.

By identifying the key drivers for PCSs, the emerging trade obstacles can be recognised in advance, allowing manufacturers to transform the risks for their export business into opportunities for growth in the target markets. The drivers identified in the further course of this paper enable OEMs to evaluate critical markets, based on the assessment of the indicators outlined. This allows for the identification of the markets that are most likely to implement PCSs.

The timely notice of PCSs allows for an early adaptation of product development, procurement, production and logistic processes, and information technology, according to the product and production requirements for imported goods. This results in an increased turnover, and improves the overall parts availability and competitive advantage of the OEMs in the target markets. Besides, the anticipation of changes enables automakers to act proactively. OEMs or associations of parties concerned may carry out lobbying activities in time, which may minimise the trade restrictive effects of the emerging PCSs.

3. Theoretical Framework

This chapter provides an introduction into the field of NTBs and outlines the challenges for the automotive AS business due to Technical Barriers to Trade (TBTs). It serves as a basis for the identification of key drivers for PCSs, carried out in the remainder of the paper.

3.1. Analytical Overview of the Role of NTBs for International Trade

In contrast to the original intention of multiple international agreements and organisations, liberalisation of trade is not necessarily promoted. International trade nowadays seems to be rather a managed trade, driven by regulation through the agreements and monitored by politicians within the international organisations (Jora & Butiseacă, 2014). According to a study of Rose (2004) on trade policies and the levels of trade liberalisation of different countries, member states of GATT and WTO do not pursue more liberal trade policies than non-members, nor is there any significant reduction of NTBs.

Trade restrictive measures prevent the optimum distribution of resources, produce serious distortions in trading markets and reduce the maximum attainable welfare gains (Schumacher, 1984). The regulation of imports is of particular importance for external trade policy, helping the domestic industry to maintain or increase market share, whilst discriminating against foreign competitors, who lose market share and sales revenues (Abboushi, 2010).

The legitimate national regulation interest of countries on the one hand and the interest of entrepreneurs in market access and non-discrimination on the other hand make up a dynamic area of tension for regulatory policy (Schorkopf, 2012). Some policies are discriminatory trade barriers, which primarily aim at the protection of less competitive domestic sectors. These measures can increase price for importers, lower cost for domestic producers or restrict the importers' market access (Abboushi, 2010), such as by means of contingents, i.e. anti-dumping, countervailing duties and emergency safeguard protection, import bans, tax benefits and financial assistance to domestic companies. Other trade barriers arise in consequence of any primary legitimate goal, but yet may be used as lever to promote protectionism (Senti, 1986). Structural and regional aid, state monopolies, national units for measurements and weights, the regulation of certain markets and TBTs are examples for this (Schorkopf, 2012).

3.2. The Nature and Challenges of TBTs in the Automotive Sector

TBTs comprise regulations, standards and conformity assessment procedures, which may aim at the protection of human safety or health, animal and plant life or health, or the environment, serve the prevention of deceptive practices, or result from reasons related to national security (WTO, 2015a). The policies can determine size, shape, design, function or performance of a product, and may involve labelling, marking and packaging, and production or post-production requirements (United Nations Conference on Trade and Development, 2012).

The considerable amount of market specific differences is challenging producers, who export to different markets. Manufacturers must adapt their products and processes, to meet the

applicable requirements of the country of import (MCG, 2015). Compliance of the import goods with the legal regulations is assured by means of conformity assessment procedures, which may vary depending on the country. Only if the conformity with the applicable requirements is verified, the import products are released for the market.

As well as NTBs, TBTs tread a fine line between legitimate aims and discriminatory objectives against foreign producers. The assessment of the legitimacy of a regulation is difficult, since the welfare reducing, protectionist intent is not easy to detect (Carrère & de Melo, 2001). Yet, it can be assumed that the non-conformity with subsisting international standards and the non-recognition of foreign standards is indicative of protectionist objectives. Non-transparency of measures (WTO, 2015b) and the absence of any technical or security-related added value (Maskus & Wilson, 2001) are further signs of protectionism. Foreign suppliers are discriminated if they need greater effort to comply with standards than domestic firms.

In 1995, WTO members adopted an international Agreement on TBTs, which, apart from non-discrimination obligations, promotes harmonisation of regulations and standards. WTO members have agreed on the mutual recognition of conformity assessment procedures and ensure that measures are transparent, not unnecessarily trade restrictive and serve a legitimate objective (WTO, 1995). But countries may circumvent the stipulations and justify the adoption of trade restrictive measures by country-specific necessities, or argue with environmental or consumer protection (MCG, 2015). The number of regulations is still on the increase, which impedes the worldwide distribution of products.[2]

The growing number of regulations is also noticeable in the automotive sector, where – aside from protectionist motivated regulations – an increasingly diverse range of consumer preferences and a growing demand on quality, safety and environmental aspects lead to new regulations. Environmental protection measures tackle primarily emission control and fuel

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[2] According to the WTO (2015b) members have made a total of 18,886 notifications, 4,379 addenda and corrigenda, and 148 revisions since the entry into force of the agreement until the end of 2014.

economy, and represent an obstacle to the export of whole vehicles primarily (KPMG International, 2010). Regulatory policy, which aims at consumer protection involves compulsory requirements for complete vehicles and spare parts, such as for safety belts and glass, seat and head restraints, interior trimming material, devices for indirect vision, breaks and parts thereof, wheels and retro-reflecting markings, for instance (MCG, 2015).

3.3. The Economic Impact of TBTs on the Business of Automotive OEMs

Exporters are challenged to constantly adapt their product portfolios and manufacturing processes according to the growing number of frequently changing market-specific regulations (KPMG International, 2010). This increases costs, expenditure of time and complexity of the production processes, and can restrain competition on the markets (Sturm, 2001).

The compliance with TBTs has – unlike tariffs – an important fixed cost share (Maskus & Wilson, 2001). Producers face one-time costs for product re-design (Ganslandt & Markusen, 2001), the implementation of an administrative system (Maskus & Wilson, 2001) and the adaptation of production facilities (MCG, 2015) in order to comply with foreign requirements. The translation and interpretation of foreign regulations, and services provided by technical experts cause additional costs to exporters (WTO, 2015b). There are recurring costs for the conformity assessment (MCG, 2015). Importing countries may not recognise conformity assessments performed by foreign authorities and insist in performing their own tests (Maskus & Wilson, 2001), which impedes import processes and increases costs.

Time delays occur through the adaption to different national requirements and protracted conformity approval and customs processes (MCG, 2015), increasing time-to-market. According to Hummels and Schaur (2012) each day in transit is comparable to a tariff of 0.6 to 2.3 per cent of the value of the product, with parts and components trade being most time-sensitive compared to other goods. Further costs may occur due to non-compliant products. Non-compliance with the requirements may involve different kinds of risks and sanctions

(MCG, 2015). Shipments may be banned or scrapped, and importing countries may impose monetary fines. Finally, increasing import issues may cause image problems, and the insufficient market supply due to non-compliant products may result in customer dissatisfaction.

The broad range of cost raising factors may raise barriers to entry, in terms of higher up-front costs, and decrease competitiveness through higher marginal costs (Maskus & Wilson, 2001). The regulations are likely to decrease the probability of firms to export, have an impact on the product values and quantities imported, and raise the exit rates from the regulated markets (Fernandes, Ferro, & Wilson, 2015). A timely recognition of the legal changes is therefore imperative to automotive OEMs in order to keep the impact to a minimum.

4. Research Methodology

This chapter outlines the major objectives of the research on the emergence of PCSs, and represents the research design and procedure.

4.1. Research Objectives

To effectively identify and assess the relevant indicators, which lead to the introduction of PCSs, and under consideration of factors that are both relevant for the domestic economy in general and for the automotive AS business in particular, the following goals are set:

a)   To identify for what reasons trade restrictive measures are used. This implies the determination of situations or conditions, which the measures are meant to prevent, to counteract or to minimise.

b)   To determine external conditions, which may influence on the implementation of the trade policies. This includes the determination of factors, which may facilitate or hinder the successful introduction and enforcement of the trade measures.

c)   To detect why the PCSs is chosen as protectionist means, including the reasoning, why any other alternative trade barrier is not or cannot be chosen.

4.2. Research Design

The methods used to meet above-stated objectives are a preliminary literature review and semi-structured interviews. The analysis by the existing literature aims at the deduction of ex ante hypotheses on the potential causes and objectives of trade restrictive policy. A more detailed study of the emergence of PCSs would not be feasible, due to the low amount of theoretical information available on different certification systems worldwide. Yet, the available literature provides enough information for the preliminary analysis of potential key drivers.

In order to verify the hypotheses' relevance and to complement the results, expert interviews are conducted. A target sample size of seven individuals is defined purposefully, providing complex political and economic expert knowledge, and market and industry-specific insights. To achieve the above-stated goals of research, opinions and experiences of the experts are collected. A semi-structured interview approach is used, leaving the participants the opportunity to explore issues they consider important, while assuring that relevant topics and questions would be addressed.

Four experts of the target group are representatives of worldwide leading automotive OEMs, providing AS services within different markets worldwide. Among them are experts in the areas of trade policy and economics, legislation, external affairs, after sales, environmental policy and genuine parts. A participant from the German Chamber of Industry and Commerce provides insights into foreign trade and European policy, while an expert from a German certification body offers an enterprise-focused view. One interviewee provides insights into the field of market intelligence with a focus on the global automotive aftermarket. Due to the heterogeneity of the group, the risk of a biased view on the topic is minimised.

Drawing from a pool of questions, guiding frames for the interviews are set up according to each expert's area of expertise.[3] Notes are taken during the interviews and verbatim records

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[3] For the complete pool of questions refer to optional appendix 1.

are prepared afterwards.[4] The data sample is analysed according to the qualitative content analysis methodology.[5] Based on the material obtained through preliminary research and interviews, categories are defined, consisting of different indicators for the emergence of PCSs.

5. Discussion: Key Drivers for the Introduction of PCSs

The study undertaken has shown that several interacting components may cause the emergence of PCSs. The key drivers identified include both drivers for primarily protectionist regulations and drivers for legitimate social regulations with trade restrictions originated as a side effect. Besides, the political and legal environment has shown to have an impact on the adoption of the trade measures, as outlined in the following.

5.1. Global Competitiveness

Countries, which face problems in global competition, are likely to shelter the non-competitive sectors from foreign competition through protectionist policies (Interview No. 1, 3 & 4). In particular in emerging markets, which are less competitive than industrialised countries, the number of TBTs is on the increase, providing protection against global competitors (Interview No. 1). Especially for infant industries of less competitive countries the protection through import restrictive PCSs plays a decisive role (see chapter 5.3.2).

The competitiveness of the economy can be assessed through the Global Competitiveness Index (GCI) and the World Competitiveness Yearbook (WCY), measurements encompassing multiple variables. The GCI assesses the competitiveness of 144 economies, based on infrastructure, health, education, goods market and labour market efficiency, and the level of technological development (World Economic Forum, 2015). The WCY benchmarks the competitiveness of 61 countries, assessing economic performance, government and business efficiency, and economic infrastructure (International Institute of Management Development, 2015).

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[4] For the summarized translations of the verbatim records into the English language refer to optional appendix 2.
[5] The methodological approach draws on Schreier (2014).

Although the indexes are useful indicators, it is recommendable to assess the variables, which are decisive in the context of the study, separately, as it is done in the subsequent chapters.

5.2. Macroeconomics: the Domestic Economic Climate

Some economists, such as Rose (2012), question that protectionism is counter-cyclic, or refer to adverse effects on the economy (Guasch & Hahn, 1999). However, there is evidence that a link exists between the state of the domestic economy and the level of protectionism of a country (Georgiadis & Gräb, 2013): trade regulations are likely to increase in times of economic downturn (Interview No. 1, 2, 3 & 4). This chapter outlines the correlation between the domestic economic climate and protectionist policy.

5.2.1. Economic Performance: Exchange Rate and Gross Domestic Product

Protectionism is linked to exchange rate movements (Martijn, 1989). Shatz and Tarr (2000) point out that trade control measures are a common lever to address an overvaluation of the exchange rate, which hurts the economic prosperity of a country. However, the authors note that the measures slow down economic growth and entail the retardation of the country's integration into the global trading community. By means of a theoretical model, Oatley (2010) provides evidence that, if the real exchange rate appreciates, firms that are internationally competitive at the equilibrium exchange rate are priced out at foreign markets and face increased competition from import products in the domestic market. In times of over-valued exchange rate these firms prefer protectionist trade policies.[6]

The GDP is a major indicator for the economic performance of a country. Weak domestic growth or an economic decline in terms of GDP may induce trade regulations (Interview No. 1). Georgiadis & Gräb (2013) determine that governments pursue more trade restrictive policies in periods of recession. By the examination of a broad range of protectionist trade

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[6] Oatley (2010) refers to tariffs as protectionist means. Notwithstanding, considering the tariff constraints in the current era by the WTO and within the scope of multiple FTAs, other trade restrictive measures are likely to gain in importance for his hypothesis.

measures and the performance of the economies, they provide evidence that a relationship exists between economic growth and protectionism. They note that the longer it takes the economy to recover, the more difficult it is to resist the demand for protectionism.

As source of revenue, the PCS infrastructure development, and fees for certification and recognition of foreign certificates are important for the domestic economy (Interview No. 1, 2, 4 & 5). Besides, the introduction of PCSs is likely to promote foreign direct investments (FDIs) of firms, which establish within the regulating country to circumvent import barriers and prevent the loss of the market (Interview No. 2; Bianchi & Barral, 2013), which in turn creates state revenue.[7]

5.2.2. External Trade

International trade is one of the key drivers of macroeconomic success of a country. Bianchi and Barral (2013) note that reciprocity of trade requires equal access to the markets of trading partners. Although a trade deficit is not *per se* harmful to the economy, Abboushi (2010) asserts that a persisting or growing trade deficit could be perceived as an indication of unequal access to the market of a trading partner. Import barriers may serve the elimination of a trade deficit or the increase of a trade surplus (Interview No. 1; Bianchi & Barral, 2013).

A mercantilist view of trade is common among individuals, whose revenues are affected by trade liberalisation. Bussière, Pérez-Barreiro, Straub and Taglioni (2001) point to the varying support for globalisation in different countries. They state that political and societal concerns about the consequences of trade liberalisation, such as wage inequalities or job losses, can lead to protectionist pressure. Concordantly, Melgar, Milgram-Baleix and Rossi (2013) suggest that people strengthen their support for protectionism when imports increase and positively value exports, particularly in small countries. Accordingly, a persisting or burgeoning growth of imports may induce import restrictions (Abboushi, 2010).

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[7] It is noted that any FDI depends on the attractiveness and economic potential of the economy, including factors such as access to financing, infrastructure, business environment, legal environment and labour market.

5.2.3. Overall Protectionism

The limited cooperation and de-linking from the world economy through a high amount of trade measures, including tariffs and NTBs, point out the protectionist tendency of a country (Interview No. 1 & 7). The number of trade measures in force indicates the degree of protectionism of a country and is accessible through Global Trade Alert (2015).[8]

Protectionism is enforced preferably by means of tariffs (Interview No. 4). But due to the accession terms of the WTO and obligations under different FTAs, the tariff policies of the contracting parties are changing (Meier, 2009) and the importance of PCSs as alternative lever for protectionism is increasing (Interview No. 1, 3, 4, 6 & 7). The People's Republic of China, for instance, was using tariff barriers to protect its young automotive industry. But with the reduction of tariffs in the course of the WTO membership, the popularity of NTBs is increasing (Meier, 2009) and the China Compulsory Certification for vehicles and parts was introduced in 2002. Similar could be observed in South Korea. The FTA of the European Union and South Korea in 2011 aimed at tariff reductions. But the same year the South Korean certification system was introduced (Interview No. 4). Since its implementation, the scope of the compulsory marking for import goods to South Korea was gradually increased, covering twelve automotive parts by now (Interview No. 1).

Countries may impose trade restrictions as retaliation against trading partners that hinder the country's foreign trade objectives through high trade barriers (Interview No. 1; Abboushi, 2010).[9] Governments may only allow foreign firms the same access to the domestic market, as domestic firms have to the foreign market. In an economic environment, where countries retaliate against each other, the risk exists of ever more threatening restrictions and tensions (Bussière, Pérez-Barreiro, Straub, & Taglioni, 2001), which in turn hinders bilateral trade.

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[8] The Global Trade Alert (GTA) is an independent source of information on state measures that are likely to discriminate against foreign commerce. The GTA draws upon expertise and analysis from seven independent research institutions around the world. The GTA identifies the trading partners that are likely to be affected by the measures. The Internet address of the GTA is http://www.globaltradealert.org/.
[9] The number of trade measures implemented by a jurisdiction may be assessed through GTA.

5.3. Microeconomics: the State of the Domestic Industry[10]

Some industry-specific factors induce the protection for domestic firms. The domestic value creation is improved at the expense of foreign OEMs, affecting their development and production costs, market accessibility and growth in the import country (Interview No. 7).

5.3.1. Importance of the Sector for the Domestic Economy

The importance of the industry for the domestic economy has an impact on government protection (Interview No. 3 & 7). Governments are more likely to closely monitor and protect the industries, which are essential for the economy's performance, by import regulations.

Government intervention may primarily aim at the protection of large industries, which are important for the economic performance due to the taxation revenue (Interview No. 7) or the creation of jobs (see chapter 5.2.3) for instance. Besides, the future potential of an industry may influence on the degree of state investment in it, and consequently may induce the government to protect the sector. Consequently, yet uncompetitive sectors with potential for development are likely to be protected through trade measures (Interview No. 7). This argument particularly applies to industries that are in the early stages of development, as explained in the subsequent chapter.

5.3.2. Stage of Development of the Industrial Structure

Countries within the process of transformation are likely to reinforce trade restrictive PCSs. For the course of industrialisation of a developing country, where domestic firms are not competitive on world markets yet, import regulations may support the stabilisation and growth of the domestic industries (Interview No. 1, 3, 4 & 6; Bianchi & Barral, 2013).

Countries in the early stages of industrialisation face a disadvantage to already industrialised countries. Firms within the infant industries are at a disadvantage compared to foreign

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[10] This chapter is provided that a domestic industry for automotive spare parts exists or is about to develop in the respective country.

competitors that have been operating long enough to exploit economies of scale and develop innovative technologies (Abboushi, 2010). The newly established firms cannot enjoy the advantage of such cost and production efficiencies and lack competitiveness. Accordingly, the number of TBTs is growing particularly in emerging markets, which are in the process of transformation (Interview No. 1 & 3). Domestic manufacturers are protected through trade measures until they have moved along the learning curve, achieved efficiency gains from economies of scale and consequently have become competitive enough to face foreign competition by the end of protection (Nishiwaki, 2007). Nonetheless, industries might enforce the prolongation of the protection after the actually necessary time (Abboushi, 2010).

5.3.3. Unemployment Rate

The unemployment rate of an industry has an impact on the country's trade policy. By merging an unemployment model with a trade policy model, Bradford (2006) provides evidence of the effect of job losses on protectionism. The analysis implies that the level of protection of an industry increases with the number of unemployed labour.

Industries that face problems of employment may exert strong pressure on politicians and lobby the governments in order to enforce protection (Interview No. 1), particularly if there is a high number of import-competing workers (Bradford, 2006). The domestic firms within the import-competing industry face the risk of losing market shares to foreign competitors, which is likely to entail the decrease of production and job cuts (Abboushi, 2010). Accordingly, the majority of the experts interviewed (Interview No. 1, 3, 4 & 5) agree that the implementation of PCSs represents an efficient measure to tackle unemployment through the generation and preservation of local jobs. Government intervention by means of import barriers may increase domestic firms' market shares and allow international division of labour only up to a certain limit (Schumacher, 1984), while the FDIs in terms of the establishment of foreign firms and the PCS infrastructures may generate local jobs (Interview No. 1, 3, 4 & 5).

5.3.4. Threat of Substitution

The global automotive aftermarket is constituted by original spare parts provided by international operating OEMs and the Independent After Market (IAM), shaped by international spare parts manufacturers and small and medium-sized local firms, which offer spare parts of varying quality (Interview No. 7). A growing number of imports increases the threat of substitution of domestic supply and hinders less competitive domestic industries to grow (Interview No. 6 & 7). Strategic trade policy may be preferred to free trade in order to remedy the threats of foreign competition in the market (Bianchi & Barral, 2013) by supporting domestic incumbents, who run the risk of significantly losing market shares (Interview No. 3, 4 & 5).

PCSs may decrease the risk of substitution of domestic products by increasing the costs for importers. This may outweigh an existing cost advantage of importers or limit their market access (Interview No. 1 & 6; Meier, 2009). Consequently, the number of foreign competitors may be reduced, while increasing demand for domestic products (Interview No. 3).

5.4. Country-specific Requirements

Certain country-specific factors may give rise to or have an impact on the development of national regulations. They may arise from the need and demand for consumer protection, or result from certain cultural or religious reasons, depending on the country in question.

5.4.1. Need and Demand for Consumer Protection

Although the protection of human health or safety may serve the official justification of disguised barriers to trade, some PCSs indeed target legitimate objectives, such as the minimisation of potential hazard through the assurance of product quality and safety requirements (Interview No. 4 & 6; Sturm, 2001).

While social awareness of and demand for consumer protection through safety standards is increasing (Guasch & Hahn, 1999), the assessment of quality and security of automotive

parts remains often opaque for customers (Interview No. 7). Governments regulate the market in order to prevent the sale of parts on the automotive aftermarket, which are of lower standards than the minimum required standard applicable in the importing country (Sturm, 2001).

The introduction or reinforcement of technical requirements for vehicles and parts thereof often arises from a security-related problem, which becomes visible through road accidents and increases the demand for quality and safety (Interview No. 4 & 7). Car accident statistics and analyses may indicate regulatory PCSs, lever to prevent the incidents (Interview No. 4). Statistical offices provide data on the number of accidents per total amount of vehicles registered, or the share of accidents caused by technical deficiencies.[11] The World Health Organisation (WHO) in turn provides statistics on road traffic deaths by country or area.

Low and middle-income countries have only half of the world's vehicles, but suffer 90% of the world's traffic deaths (WHO, 2015). The demand for and willingness to spend on higher quality increases with income and wealth of consumers (Interview No. 4 & 7; Guasch & Hahn, 1999). The fleet turnover ratio decreases because old and unsecure vehicles are replaced earlier (Interview No. 4). The income per capita may serve the estimation of the average per-person income, but does not account for income distribution. The Gini coefficient in turn represents the income distribution of a country, taking into account the inequality of income within the country, and may represent a more adequate indicator for emerging PCSs.

5.4.2. Cultural and Religious Background

National disparities of product requirements may result from cultural differences among countries. While the intensity of consumer protection measures may depend on the prosperity of the country, national content-related differences of the regulations may originate from traditionally pursued definitions of protection and safety (Interview No. 3). Insecurities, the ab-

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[11] The Federal Statistical Office of Germany collects, processes, presents and analyses statistical information concerning economy, society and environment. The Internet address of the German Federal Statistical Office is https://www.destatis.de/DE/ZahlenFakten/Wirtschaftsbereiche/TransportVerkehr/Verkehrsunfaelle/Verkehrsunfaelle.html.

sence of regional integration and intercultural mistrust is likely to complicate the disparities among countries, hindering harmonisation of technical regulations (Interview No. 3).

PCSs, which are motivated by religion, may pose considerable challenges to automotive OEMs (Interview No. 1 & 6). Religious believes in the import country may induce product requirements, according to which manufacturers have to adapt the products. However, the legitimate claim and the limits thereof are disputed in some cases (Interview No. 1, 3, 6 & 7).

5.5. Political and Legal Environment

Trade policy results from political decisions based on considerations relating to political expediency (Guasch & Hahn, 1999). This chapter outlines political and legal drivers, which have an impact on the formulation, external interference and implementation of PCSs.[12]

5.5.1. Ability of the Government

The government effectiveness is one of the key prerequisites for the successful formulation and adoption of any policy, and assesses the degree to which politicians achieve the objectives stated and the extent to which the problems are solved. This includes the quality of public services and the degree of its independence from political pressures (see chapter 5.5.2), the quality of policy formulation and implementation, and the credibility of the government's commitment to its stated policies (World Bank, 2015).

The implementation of trade policy depends on the control of corruption (Interview No. 5). This includes the extent, to which public power is exercised for private gain, as well as the interference of private interests (World Bank, 2015), which may drive or impede the adoption of trade measures, depending on the respective interests involved. The regulatory quality in

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[12] The factors largely draw on the Worldwide Governance Indicators (WGI) project, which reports aggregate and individual governance indicators for more than 215 economies. The indicators base on data provided by a variety of survey institutes, think tanks, non-governmental organisations and private sector firms, and represent the views of enterprises, citizens and experts in industrial and developing countries. The Internet address of the WGI is http://info.worldbank.org/governance/wgi/index.aspx#home.

turn indicates the ability of the government to formulate and implement sound policies and regulations (Interview No. 1). The rule of law comprises the quality of contract enforcement, the police and the courts, as well as the likelihood of crime and violence (World Bank, 2015), which is likely to promote or impede the implementation of the trade policy.

5.5.2. External Influence on Policy

The environment, in which the governmental infrastructure is embedded, has an influence on the government's ability to enforce the policies. Politically stable and non-violent surroundings are essential for the effective implementation of trade policies (Interview No. 3).

The voice and accountability of the government determines the possibilities of citizens to participate in and influence on trade policies (World Bank, 2015). Sturm (2001) models policy making according to the political agency literature, where political progress is based on incentives for politicians provided by their voters. In the principal-agent relationship, politicians are responsive to the demand of voters in terms of pressure groups, in exchange for political support (Interview No. 3; Guasch & Hahn, 1999; Sturm, 2001). The smaller the government majority, the stronger it depends on political support, whilst the need to attract voters makes governments most assailable to pressure groups prior to elections.

The protection of individual industries increases with its industry-level unionisation rate, as proved by the rigorous model of Bradford (2006). The closer and more homogeneous the interest group, the higher its bargaining power (Senti, 1986). Potential demanders for protection in terms of PCSs are the owners of production factors, seeking to maximise their real incomes (Martijn, 1989), and consumers, demanding quality and safety, as outlined before. A growing threat through foreign competition within import-competing industries may lead to increased calls for protection against imports from lobbies (Interview No. 1, 2, 4, 5 & 6; Shatz & Tarr, 2000). Interest groups, such as international associations of OEMs, may try and influence on the emerging PCSs, in order to prevent trade restrictions (Interview No. 4 & 6).

6. Conclusions and Recommendations

This paper has addressed the growing difficulties, which automotive OEMs face within their AS business due to the increasing number of trade obstacles. The key drivers, which influence on and lead to the introduction of import restrictive PCSs, have been outlined and analysed. The aim is to create an instrument for the IPC services of MCG, which allows to early recognise trade obstacles, risks and opportunities for international sales of vehicle spare parts in the clients' target markets, and thus minimising the negative impact on business.

The results of literature research and empirical study outline that several interacting components induce the introduction of PCSs with the aim to prevent, counteract or minimise certain situations or conditions. It was found that the country's competitiveness has an impact on the degree of its isolation from the global trading community. The state of the domestic economy is likely to affect foreign commerce, inducing protectionist trade measures in times of economic downturn. Particularly uncompetitive sectors are protected by PCSs from foreign competition through the improvement of the domestic value creation at the expense of foreign OEMs. Besides, country-specific factors, such as the need and demand for consumer protection, and cultural and religious circumstances, have turned out to give rise to or influence on the development of PCSs. The political and legal environment has an impact on the implementation of PCSs, as well as on the probability of external influence on the emerging policy.

The factors outlined allow for the risk assessment of new PCSs in the respective markets. But how can the identified key drivers be employed in order to create an early recognition system of PCSs? Further research on the different categories will shed light on this issue. An in-depth examination and analysis of the impact and relevance of the different indicators outlined in this paper is to be recommended. This would lead to the numerical assessment and weighting of the factors, leading to a thorough system of early recognition for potentially emerging PCSs in the relevant markets.

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8. Acronyms and Abbreviations

AS	After Sales
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
GATT	General Agreement on Tariffs and Trade
GCI	Global Competitiveness Index
GDP	Gross Domestic Product
GTA	Global Trade Alert
IAM	Independent After Market
IPC	International Product Certification
MCG	Munich Consulting Group
NTB	Non-Tariff Barrier to Trade
NTM	Non-Tariff Measure
OEM	Original Equipment Manufacturers
PCS	Product Certification System
TBT	Technical Barrier to Trade
WCY	World Competitiveness Yearbook
WGI	Worldwide Governance Indicator
WHO	World Health Organisation
WTO	World Trade Organisation