

Creating a Dynamic Model for the Car Aftersales Market

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Abstract. Today, the majority of profit of car aftersales companies is generated by aftersales services. Therefore, it is of significant importance to research the Latvian aftersales market, to compare it with the markets of the other European countries, and to develop the methods for the future aftermarket analyses as well as to project its future demand.

Comparing the markets of Latvia and the developed Western countries, the authors noticed that there was a remarkably larger share of independent aftermarket companies in Latvia. There is only one mechanical workshop concept chain in Latvia comprised of quite a small number of companies, while in Germany, 62% of all the independent mechanical automotive workshops are a part of workshop concept chains.

As a major instrument for analysis, the authors have used the software Powersim Studio to make a dynamic aftermarket module, which is developed from the aftermarket, car park, economic and society modules. The aftermarket module was divided into the independent aftermarket, which was further separated in 5 levels, and the aftermarket - dependent from car manufacturers, subdivided in 3 levels.

The aftermarket module will provide an instrument to forecast its future volume and structure including its specifics by the regions of Latvia. It will give statistical information and proposals for performance improvement, thus, increasing the competitiveness of industry companies and facilitating regional development.

Key words: regional development, automotive workshops, car aftermarket.

JEL code: R11

Introduction

The car is not only providing comfortable everyday transportation but has also become a part of one's lifestyle and often of the social status. For a successful car industry, the technical maintenance of vehicles is necessary, which requires spare parts and services, which is to say that a car aftermarket is needed.

Car aftermarket includes:

- automotive workshop services (technical maintenance, diagnostics, repairs);
- car spare parts sales.

In Latvia, in the quite recent past, up to 2009, the majority of aftermarket companies' profit came from car and spare parts sales. Currently, it is made by the turnover of aftermarket services. Therefore, it is important to study the Latvian aftermarket and to develop the methods to project the future aftermarket volume demand. The advancement of the car aftermarket in the regions of Latvia will have a positive effect on the development of regions, reduce the level of unemployment and increase the competitiveness of companies.

The aim of the research is to create an instrument for analyses of demand and supply of the aftermarket in the regions of Latvia within an overall context of its development.

The following tasks were set in order to achieve the aim of the research:

- to describe the passenger car aftermarket in Europe and Latvia, to characterise their main differences, and to outline the aftermarket development opportunities in the regions of Latvia;

- to create and to describe basic modules of the Latvian aftermarket dynamic model.

The research has applied methods of description, analyses, graphic depiction, and mathematical statistics modelling (dynamic model).

The data of the Road Traffic Safety Department (CSDD), the Central Statistical Bureau (CSB), special theoretical and methodical literature, and Wolk & Partner Car Consult GmbH and Wolk After Sales Experts GmbH publications/database are used as a basis for this information.

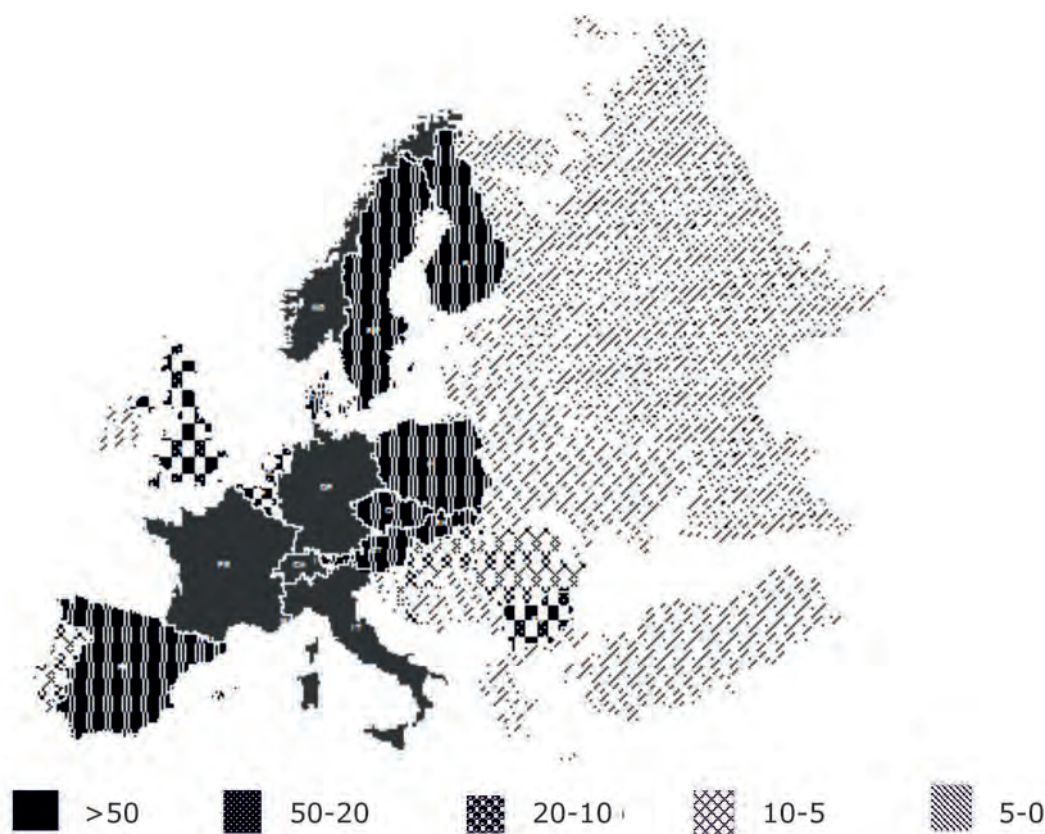
Research results and discussion Characteristics of the Latvian and European car aftermarket

In the Baltic States, the car industry aftermarket is comprised of 4850 companies. The majority of them are small and medium size, with about 26900 total employees. The aftermarket volume is almost EUR 800 million (Wolk, Nikolic, Aboltins, 2010).

Historically, Latvian car industry companies were focused on car and spare parts sales, and not on servicing. In addition, car industry companies are concentrated in Riga city instead of having authorised workshop chains in the regions of Latvia. For example, some of the most popular car brands (Audi and BMW) have authorised workshops only in Riga. As a result, the Latvian aftermarket is dominated by independent companies. In accordance with "Wolk After Sales Experts" research in Latvia, totally 93% of all passenger car workshops are independent from car manufacturers;

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Source: authors' construction based on "Wolk After Sales Experts" database

Fig. 1. Share of mechanical workshop concepts in % of total independent garages in the country in 2011

by comparison, in Germany, 44 % of all workshops are part of manufacturers' dealership networks.

The largest problem facing independent repair shops is the lack of the newest technical information, tools, and qualified workforce. As a result, car workshops, particularly in the regions of Latvia, are not able to service qualitatively modern contemporary cars. Car manufacturer representatives creating a dealer network would be one of the solutions. However, in many cases, the car servicing in an authorised (dealer) workshop will be 50% more expensive than the same repair in an independent workshop. As previously noted, in the more affluent Germany, 66% of all the workshops are independent from the manufacturers.

To summarise, currently, a manufacturers' authorised dealers' network has not been established in the regions of Latvia but there is a large number of small repair shops, which, in accordance with the authors' observations, are often not able to provide to a consumer the desirable repair quality.

In the Western Europe, this problem is solved by developing independent garage marketing systems or garage concept chains, which can provide the repair quality and servicing comparable with that of manufacturers' authorised workshops. At the same time, the workshop concept chain garages maintain the service providing a price at the level of a regular independent repair shop, and usually use spare parts supplied by independent spare parts wholesalers. Workshops' concept chain garages

are partner systems based on partnership contracts with large distributors or spare parts producers. In literature, workshops concept chain garages are usually divided in three following groups:

- full service workshop systems for mechanical repairs, which offer the complete service for all car brands;
- workshop concept chains specialised in a single product group such as paint and body, tires, auto glass, air conditioning;
- distance retail brands of the parts industry - workshop concept chains, which specialise at retail in a single spare part brand (for example, Bosch Diesel Centre).

Latvia, as opposed to the Western Europe (Figure 1), has a very low (< 5%) share of workshop concept chain garages. Specialised concept chains of body and paint workshops, and concept chains of auto glass garages, do not exist in Latvia. By comparison, in the German car aftermarket, the majority (62%) of mechanical garages independent from manufacturers are a part of some of the workshop concepts. In Europe, as a whole, about 27% of all independent mechanical garages are partners of one of the mechanical workshop concepts (Wolk, Nikolic, Aboltins, Frolich, 2011). For Latvia, only seven mechanical workshops were a part of service concepts in 2011. In Europe, in total, there are 130 concepts of mechanical workshops. In Latvia, there is only one of them - Bosch Car Service.

In Europe, about 60000 mechanical garages are a part of workshop concepts (Wolk, Nikolic, Aboltins,

Table 1

Major mechanical workshop concepts in Europe in 2011, by numbers of outlets

Concept name	Driven by
Bosch Car Service	Bosch
Checkstar	Magneti Marelli
Eurogarage	Groupauto International
Ad Garage	Ad International
Point Service	IDIA / Temot International
Autofit	Trost SE / PV Automotive / Temot International
Eurorepair	Citroen
Meisterhaft	ATR international
1a Autoservice	Centro / Trost SE
A Posto	Rhiag

Source: *Wolk After Sales Experts database*

Frolich, 2011). Concept chains are usually created by spare parts manufacturers and wholesalers, providing to the garages training, information, and equipment. The garage, being a part of concept, uses spare parts of a specific manufacturer (for example, Bosch) or wholesalers' supplied spare parts.

In the Western Europe, the majority of workshops included in garage concept chains are small companies, which successfully advance by this approach. In the authors' opinion, the creation of exactly this type of garage concept chains in the regions of Latvia is one of the opportunities for small companies to grow. Workshops would attract car drivers who right now are forced to repair cars either in the capital city Riga, or in neighbouring countries. Thus, the creation of garage concept chains would facilitate the regional development and reduce unemployment in the regions of Latvia. A part of some of the manufacturers' authorised workshop network would be another opportunity for advancement. However, creating authorised workshops requires large investment – and, thus, only a small part of the largest car repair workshops would be able to use this opportunity.

Major mechanical workshop concept chains in Europe and leading companies of concept chains are shown in Table 1. There are more than 5000 independent workshops in each of Bosch Car Service and Checkstar workshop concept chains. The 10 concepts shown in Table 1 total to 30000 workshops, which is exactly half of all concept workshops in Europe.

Advantages from the concept chains:

- the workshop obtains trained employees, information, and equipment;
- the spare part manufacturer or wholesaler has clients (workshops being a part of a concept chain);
- the vehicle driver obtains a higher quality of service.

In addition, in accordance with the authors' observations, independent workshops in Latvia are not sufficiently using opportunities set forth by the European Union Regulation No. 461/2010. Among other provisions, the Regulation No. 461/2010 sets forth a new definition for original spare parts, and an opportunity is provided to service and repair cars also during the warranty period in independent workshop without losing the warranty.

According to the European Union Regulation No. 461/2010, original spare parts are *not* only spare parts with the trademark of the cars producers. Spare parts produced by independent producers, which are technically identical to car manufacturers' component parts (without car producer's trademark) are also considered as original spare parts.

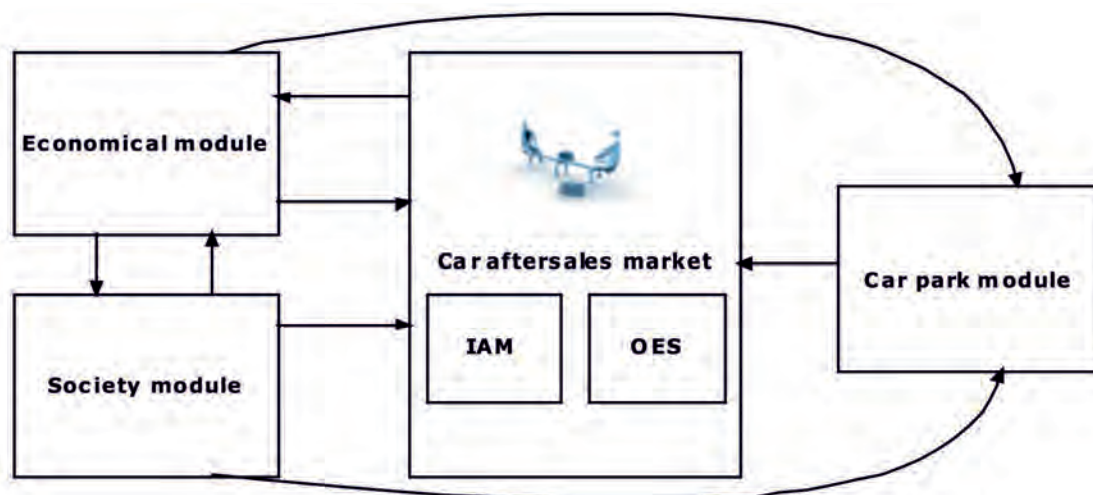
For the successful development of small companies in the regions of Latvia, independent spare parts distributors and workshops should create garage concept chains and use the term "original spare parts" in their marketing activities and explanations to car drivers.

Latvian car aftermarket model

The European car aftermarket has been studied and statistics have been mostly provided to large European industry companies by independent expert companies, such as, for example, Wolk after sales experts, Datamonitor, Polk etc. However, notwithstanding the fact that the Baltic States aftermarket has about 26900 employees, the car aftermarket itself, its development trends, and opportunities in the regions of Latvia are not sufficiently researched.

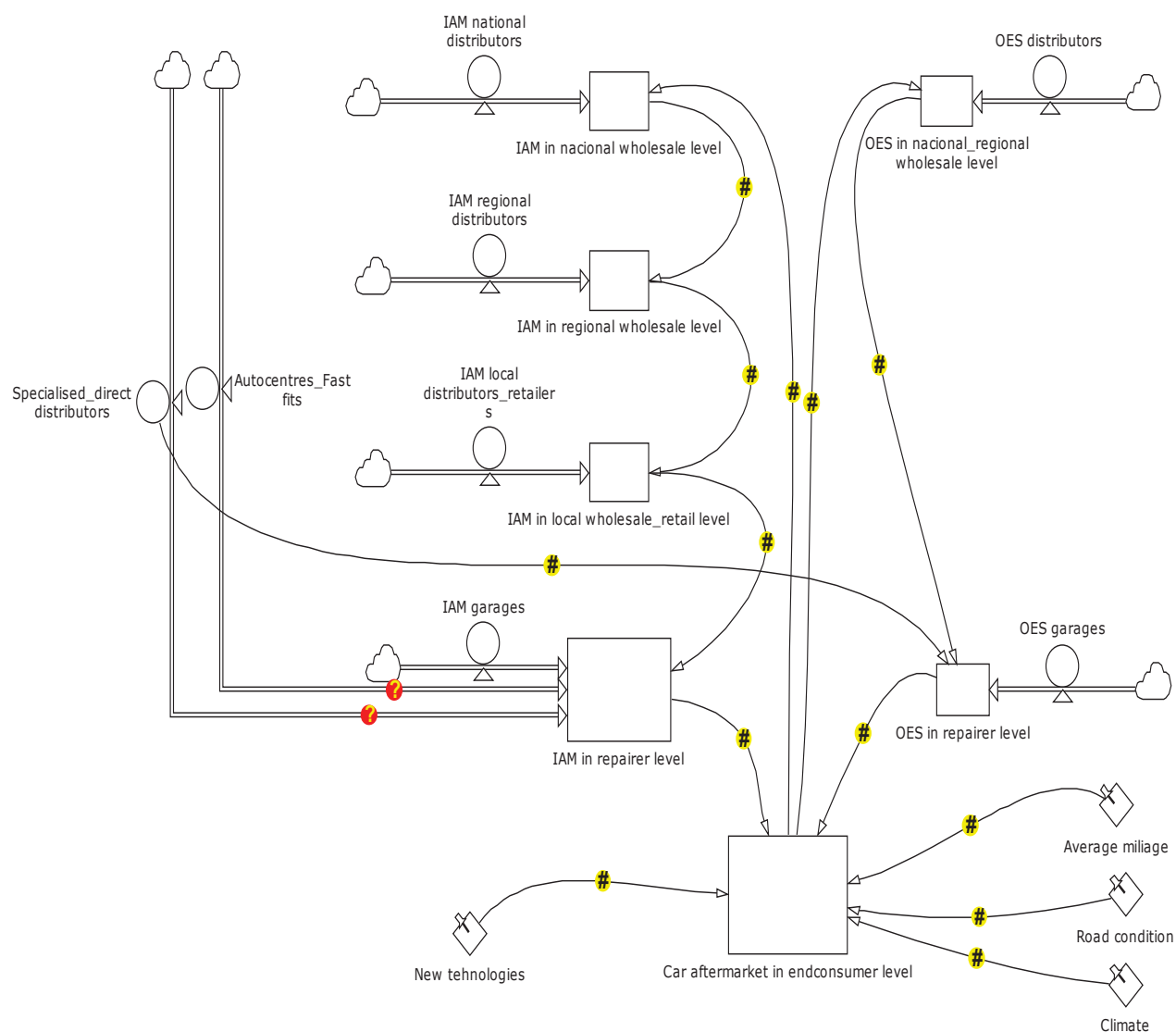
None of the European leading aftermarket expert companies had deeply studied the car aftermarket of the regions of Latvia. Analytical instruments for analyses of aftermarket and statistics are not available. Currently, the aftermarket of the regions of Latvia, which is mostly comprised of small companies, is developing chaotically, not analysing aftermarket tendencies. By developing the aftermarket model, the industry companies would be provided with statistics, information on aftermarket tendencies, and opportunities for its growth in the regions of Latvia, which would subsequently reduce the unemployment and would generate regional growth.

As noted by the authors, for a successful aftermarket in the regions of Latvia, first, it is necessary to create methods for projection of future aftermarket demand volume and tendencies. In designing the Latvia aftermarket model, the corresponding author has applied his experience in one of the leading German aftermarket companies and used software Powersim Studio. In addition, the authors would like to outline that until now, none of the leading



Source: authors' construction

Fig. 2. Main modules of car after sales market model



Source: authors' construction

Fig. 3. Car aftersales model market distribution flow

European aftermarket expert companies had created a dynamic model of the aftermarket. This model will be also applicable for analyses of the aftermarket of other European countries.

When working on the dynamic model, the following factors affecting it were selected and divided in modules (Figure 2):

1. Economical module:
 - GDP;
 - GDP growth rate;
 - GDP per capita;
 - unemployment;
 - inflation.
2. Car park module:
 - number of cars;
 - car division by age;
 - car engine volume;
 - car division by class;
 - number of cars per 1000 residents;
 - registration of new cars;
 - first registration of used cars;
 - car export, write off.
3. Society module:
 - number of residents;
 - residents by age;
 - residents by gender.

As additional factors affecting car aftermarket, and to compare it to other European countries, the authors selected:

- road condition;
- climate;
- average passenger car mileage;
- new technologies.

The authors divided the car aftermarket into two basic groups:

- OES (original equipment sales);
- IAM (independent aftermarket).

In the module flow portion of the car aftermarket model, the independent car aftermarket was divided in national wholesale, regional wholesale, and local wholesale levels (Figure 3). The number of wholesale companies in each level and division of spare parts flow from higher to lower levels and average profits in each level were considered in model design.

Similarly, as with wholesale companies, also in the repairer level, the number of workshops, profit and spare parts, and material purchase sources division were included in designing the module. In addition, in the independent aftermarket module, specialised distributors, autocentres and fast fitters were addressed, because the division of purchasing sources for spare parts and materials usually differs for the noted companies.

In car aftermarket model flows, the IAM model was separated only in two levels. In designing the model, the spare parts flow to authorised car workshops from independent wholesalers, and also from OES distributors to independent spare parts distributors and independent workshops.

Car park module calculations considered only Latvian car park in technical order and the economic factors affecting it, such as GDP, inflation, unemployment, and car park division by Latvia regions.

By designing the car aftermarket model, the instrument will be created for projection of future aftermarket volume and its structure, including its specifics by the regions of Latvia. It will provide statistical information and proposals for performance advancement and development for car aftermarket companies in the regions of Latvia, thus, increasing the competitiveness for industry companies in the regions of Latvia and facilitating regional development.

Conclusions, proposals, recommendations

1. The aftermarket of Latvia regions is dominated by workshops, which are independent from car manufacturers. The network of car manufacturers' authorised workshops is not sufficiently developed in Latvia.
2. Latvia has a very low share of car workshop concept chain garages, and small independent car workshops are not able to qualitatively service modern contemporary cars. For the successful advancement of small workshops in the regions of Latvia, independent spare parts distributors and associations should create new garage concept chains.
3. The authors, designing a car aftermarket model, will create a practical instrument for projecting future car aftermarket volume and structure including its specifics by regions of Latvia. It will provide industry companies with statistical information and proposals for the performance advancement and development, thus, increasing competitiveness and facilitating regional development.

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