

# ZEW Economic Studies

Oliver Heneric · Georg Licht · Wolfgang Sofka (Eds.)

Vol. 32

## Europe's Automotive Industry on the Move



Competitiveness in a Changing World

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Oliver Heneric · Georg Licht  
Wolfgang Sofka (Eds.)

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Competitiveness in a Changing World

With 86 Figures  
and 81 Tables



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“An American can have a Ford in any color so long as it is black.”  
Henry Ford

## Preface

The automotive industry is a major pillar of the modern global economy and Europe is one of the key players. It has a unique role to play in Europe in employment, manufacturing, R&D, transportation and investment, and there are crucial challenges and opportunities ahead. We shed light on a broad range of issues – globalisation and restructuring, trade and foreign direct investment (notably in China and Russia), innovation, regulation, and industry policy – and put a special focus on the new member states. While change may be inevitable, progress is not. This book shall serve as a map to all stakeholders: business executives, policy makers, investors and scholars.

The contents originate from the 8<sup>th</sup> European Competitiveness Report 2004 project of the European Commission. They document the contribution made at the Zentrum für Europäische Wirtschaftsforschung (ZEW) – Centre for European Economic Research – in Mannheim, Germany, in cooperation with several external researchers. We as editors wish to mention and sincerely thank the many persons and institutions who have helped us in this effort. Special thanks go to the contributors: Thomas Cleff (Professor at the University of Applied Sciences in Pforzheim, Germany), Stefan Lutz (then researcher at the Centre for European Economic Research, Mannheim, Germany), Alfred Spielkamp (Professor at the University of Applied Sciences in Gelsenkirchen, Germany) and Waltraud Urban (Vienna Institute for International Economic Studies in Vienna, Austria). We are also grateful to Eva Anderson, Thomas Eckert, Martin Hoffmann, and Tzvetana Kaicheva for their assistance at every stage of producing this book.

Mannheim, Germany, March 2005

Oliver Heneric  
Georg Licht  
Wolfgang Sofka

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# 1 Introduction

*Oliver Heneric and Wolfgang Sofka*

Europe is on the move. Automotive mobility is part of European everyday life: on the job and during vacation, with friends or family, from Poland to Portugal. The importance of the European automotive industry runs much deeper. The automotive industry is one of Europe's key industries. There can hardly be any doubt about the important role of this sector as an engine for employment, growth and innovation in Europe. Given its importance, menaces and barriers to its competitiveness cannot be neglected. A number of challenges such as new technologies, overcapacity, the need for cost reductions and sluggish market growth are currently at the top of manufacturers' and suppliers' agendas. Besides, the industry has undergone major structural and organisational changes, most notably eye-catching mergers such as the one by DaimlerChrysler as well as the abortive acquisition of BMW and Rover. However, there are still a number of issues which need to be considered with regard to the present and future of the industry:

- What is the impact of reorganisation in the industry?
- What are the consequences of reorganising the value chain for the innovation capabilities in the automotive sector?
- Are there new players on the market or just new markets?
- What is the impact of the EU enlargement on the European automotive industry?

The purpose of this report is to draw a broad picture of the *European automotive industry – competitiveness, challenges and future strategies*. The intention is to offer an overview of the industry and its sources of competitiveness as well as the challenges it faces and to outline policy implications.

Today the term “competitiveness” is widely used in various contexts and with sometimes ambiguous definitions. In its most general form competitiveness is defined here as the ability to defend and/or gain market share in open, international markets by relying on the price and/or the quality of goods. This ability is affected by a wide range of factors, frameworks and conditions. Hence, one has to look at a multitude of indicators to assess competitiveness ranging from production costs to technological and organisational innovation, from the regulatory framework to macroeconomic conditions. Given this variety competitiveness cannot be expressed in a sole number or ranking. Instead, our approach is to compare a wide set of indicators internationally and assess their development over time, too.

The research framework, and subsequently methods and data, rests upon six chapters which determine the competitiveness of the European automotive industry. Following this introduction chapter the analysis sets the stage by presenting the economic importance, the industry structure and the major players in the automotive industry. Chapter 3 focuses both on international and domestic mar-

kets as an indicator and source of competitiveness. Chapter 4 pays closer attention to the innovation aspect of competitiveness while the following part highlights the same context with regard to the impact of regulation. Eventually, the report closes with a summary of major results and conclusions.

The new member states (NMS) are already an important part of Europe's automotive system. The report emphasises their special role wherever appropriate. Besides, for stylistic reasons the report occasionally uses the term "motor vehicle industry" instead of automotive industry<sup>1</sup>, both terms are considered synonyms and should not be interpreted as factually different.

The report comprises the following chapters:

### *The European Automotive Industry in a Global Context*

By means of a detailed analysis of different economic indicators the economic activity of the automotive industry is described. The report covers key data which highlights the importance of this industry and its dynamic developments. The chapter provides industry specific indicators such as value added, employment as well as capital stock and investment. The significance of the automotive industry indicators is emphasised by drawing comparisons with other sectors and countries dynamically over time. An industry profile carries the chapter forward. The purpose of this section is to present both the market players and the industry itself. The industry is divided into *car, truck and bus* segments. Each segment is analysed in a *global and a European context*. The underlying indicator of this analysis is the output of the manufacturers which is measured in terms of production units. The global view describes the distribution of output volume between America, Europe, Asia and Africa.

The European view covers the EU member states and as far as possible the new member states as well. A ranking of the leading manufacturers is given for each segment. The section also includes a description of the *supplier* industry and its important role for manufacturers. Different supplier strategies and a ranking of the top supplier firms highlight their crucial role in this industry. A deeper analysis of the suppliers is provided later in the report. Furthermore, the document contributes to discussion of the internationalisation strategy of the automotive companies. The

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<sup>1</sup> Passenger cars are motor vehicles with at least four wheels, used for the transport of passengers, and comprising no more than eight seats in addition to the driver's seat. Light commercial vehicles are motor vehicles with at least four wheels, used for the carriage of goods. Mass, given in tons (metric tons), is used as a limit between light commercial vehicles and heavy trucks. This limit depends on national and professional definitions and varies between 3.5 and 7 tons. Minibuses, derived from light commercial vehicles, are used for the carriage of passengers, comprising more than eight seats in addition to the drivers seat and having a maximum mass between 3.5 and 7 tons. Heavy trucks are vehicles intended for the carriage of goods. Maximum authorised mass is between 3.5 to 7 tons. They include tractor vehicles designed for towing semi-trailers. Buses and coaches are used for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum mass between 3.5 and 7 tons. The industry includes also component suppliers.

discussion points out the *globalisation* trend in the industry and the closely connected restructuring process among manufacturers and suppliers. Besides pointing out mergers and acquisitions, the demonstration of the spread of intra-industrial connections represents the current picture of the automotive industry. Finally, the chapter tackles the issue of capacity utilisation.

#### *Competitiveness: A Market Perspective*

This chapter starts by focusing on measuring competitiveness of the European automotive industry on international markets. World market shares and revealed comparative advantage (RCA) numbers are presented to assess competitive performance and potential. The subsequent section emphasises foreign direct investments (FDI) as the second major instrument in internationalisation strategies both on a country and firm level. Additionally, the chapter analyses two specific promising emerging markets, China and Russia, in more detail. Finally, the chapter turns to the European home market to identify sources of competitiveness from domestic demand. Apart from market size and growth special attention is paid to market segmentations and brand esteem in the passenger car and commercial vehicles segment.

#### *Innovation and Competitiveness*

Competitiveness can hardly be described as a static concept. Innovation and R&D activities pave the way for future success. Those projects reflect a company's assessment of its future prospects and its willingness to exploit market opportunities by investing in new technologies. Necessarily, the chapter starts with a broad examination of productivity. Subsequently, we focus on skilled labour, R&D expenditures as well as patents and emphasise the relevance of innovation patterns and research networks in the automotive sector. While innovation is often confined to technical innovations we extend this view towards organisational aspects especially in the automotive value chain.

#### *Regulation and Industrial Policy*

The automotive industry is more and more affected by regulation at the EU level. In general, this regulation can foster competitiveness on the one hand by increasing competition within the sector and may induce new innovation trajectories. On the other hand regulation also might pose a threat as it can be seen as a major driver of additional costs and may point innovation activities into dead ends where global demand will not follow. This chapter points out the importance of the transportation system as well as its social costs and the major elements of regulation initiatives which affect the automotive industry. This section highlights specific regulations e.g. Block Exemption or end of life vehicle as well as the efforts of the industry to take the environmental challenges into account. Therefore, the report provides a deeper look at the sustainability endeavours of the automotive industry.

*Challenges and Opportunities for the European Automotive Industry*

Consequently, the report reaches its final stage: the *SWOT Analysis*. The SWOT Analysis provides a systematic overview of strengths (S), weaknesses (W), opportunities (O) and threats (T). It is a well established and straightforward concept which is helpful in matching an industry's resources and capabilities to the competitive environment in which it operates. The aim is to conclude from each section mentioned above the strength, weaknesses, opportunities and threats of the European automotive industry. To extend the scope of this analysis into the future while still providing meaningful results an additional scenario analysis is conducted to highlight major connections and interactions among SWOT factors in a best and worst case scenario. These steps lay the groundwork for the formulation of implications and policy issues.

## 2 The European Automotive Industry in a Global Context

*Oliver Heneric, Georg Licht, Stefan Lutz, and Waltraud Urban*

### 2.1 Economic Importance

#### 2.1.1 Overview

The automotive industry is one of Europe's biggest industries. It contributes about 6% to total manufacturing employment and 7% to total manufacturing output in Europe making it a major driver of the European economy. Employment in the EU motor vehicle industry amounts to 1.9 million employees and annual value added produced is about EUR 114 bn. The US automotive industry produces about the same volume (in value added at current exchange rates). However, employment figures are only 60% of the European level thus exhibiting a significantly higher level of labour productivity per employee. Japan's automotive production volume is about 65% of that of the EU-15 or the US; with only 56% of the US employment level, the Japanese industry boasts even higher labour productivity levels than the US.<sup>2</sup> However, labour productivity growth has been consistently higher in the EU-15 since the early 1990s, so that European automotive manufacturing productivity is in a continuous process of catching up with the US and Japan. Catching up has continued since 1995, contrary to evidence about a relative European slowdown since the mid-90s in total manufacturing. However, the relative sizes of the three big regions of automotive production have not changed very much during the last decade or so.

In addition to its own size, the automotive industry generates more economic activity through various backward (to supplier industries) and forward linkages (to customers). A comparison of total production, value added, production volumes and imports for the EU-15, the USA and Japan, puts imports and value added, respectively, at roughly a quarter of total production. This is evidence for upstream inputs of up to two times the volume of value added in the automotive industries. Inspection of input-output tables supports these findings. E.g. in Ger-

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<sup>2</sup> Employment figures in automotive industry vary significantly according data source. E.g. OECD/STAN data reports about 950,000 employees for the USA whereas US BLS (the original data source) reports around 1.2 million employees. Similar differences can be found with respect to Japan. Even more, there seem to be differences with regard to the (detailed) definition of what belongs to the automotive sector, and it seems that in some countries different definitions of the sector are employed with regard to output figures (production value, value added, etc.) and labour input figures. Hence, one should be extremely cautious when comparing productivity figures (level) across countries.