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Public Support to the European Car Industry: The Impact of the Financial Crisis

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Abstract We provide a quantification of public support for the European car industry during the past decade. First, we identify the most relevant instruments of state aid and non-state aid public support. Second, we aim to estimate the amount of public support for European car manufacturers for each instrument and investigate its dynamics. Three factors complicate the overall quantification of public support for each instrument: (i) the Commission does not scrutinize, and hence does not quantify all public support measures; (ii) the available information depends on whether the state aid is granted to individual companies, or in the form of general schemes; and (iii) the available information depends on whether the aid is granted in the form of a grant, soft loan or guarantee. Our lower bound estimate of state aid suggests that the aid declined over the pre-crisis period, but peaked at €1.2 billion as a response to the last financial and economic crisis in 2009. Perhaps even more strikingly, this state aid was combined with an unprecedented amount of other public support: scrapping schemes of at least €4.0 billion, and loans from the European Investment Bank of €2.8 billion, or an equivalent of €400 million of "aid element" .

Keywords State aid · Scrapping policies · Car industry

JEL Classification L10 · L40 · L50 · L62

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1 Introduction

Public intervention in the automotive industry has a long and worldwide history. In Europe, this has translated into the transfer of public resources to the car industry, both from individual member states and from the European Union itself, through a wide variety of instruments and institutions. The willingness to support the automotive industry has become even more apparent during the last financial and economic crisis, which severely hit this sector. On the one hand, member states have heavily made use of the Temporary Framework, an emergency regulation enabling rapid additional state aid measures to address the exceptional difficulties companies have in obtaining and securing financing, especially for green investments. And they combined this with scrapping schemes to boost the local demand for cars. On the other, at European level, public support for the automobile sector mainly translated into large investments to develop cleaner cars through the European Investment Bank. Despite the severity of the crisis, no major car manufacturer exited, and no major restructuring through mergers and acquisitions took place, a fact which may be attributed to these interventions.[1]

We present an outline of public support to the European car industry, considering both state aid and non-state aid public support.[2] First, we identify nine major relevant instruments of public support to the European car industry. Second, we aim to quantify the amount of public support given to car manufacturers through these different instruments. For that purpose, we collected a unique dataset on public transfers to the car sector for the period 2000-2011 in Western European countries with a sizeable automotive industry, namely Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. On the supply side, these countries account for around 20 % of the worldwide production and 80 % of the European Union's production. On the demand side, sales in these nine European countries account for around 25 % of worldwide automobile sales and 90 % of the European Union's sales. Between 1998 and 2007, annual car sales in these European countries fluctuated within a relatively narrow margin, between 11.2 and 12.6 million. However, in 2008 new passenger car registrations fell to 8.7 million units.

Summary of the Findings Three major factors complicate the quantification of the state aid element for each channel of public support. First, only if the European Commission scrutinizes a public support measure, will it also clearly quantify the state aid element. Second, regarding the public support that is scrutinized by the Commission, the availability of information on the state aid element depends on whether this is an aid granted to individual companies (*ad hoc* aid), or an aid granted in the form of schemes to multiple companies. Accordingly, there are different sources of information that need to be analyzed and put together. Third, the quantification of the aid element depends to a considerable extent on whether the aid is granted in the form of a direct grant, soft loan or guarantee.

Because of these challenges, we first quantify the state aid element by the instrument of public support whenever this is possible. We then sum up those aid elements that we can

[1] In particular, following the last financial and economic crisis, only four assembly plants have been closed in Europe: GM Antwerp (Belgium, 2010), Fiat Termini Imerese (Italy, 2011), Saab Trollhaettan (Sweden, 2011), and Mitsubishi Born (Netherlands, 2012).

[2] We focus on public support directly granted to the car manufacturers, and exclude support to the upstream suppliers, the downstream distribution sector, the connected financial sector and other ancillary services.

estimate consistently to quantify the overall amount of state aid granted to the European car industry. We pursue this strategy for state aid support instruments, i.e. aid under General Block Exemption Regulation (GBER), regional aid, training aid, Research and Development and Investment (R&D&I) aid, Rescue and Restructuring (R&R) aid and aid to remedy a serious disturbance in the economy as approved under the Temporary Framework.

Non-state aid support instruments, such as loans of the European Investment Bank, social public support and scrapping programs, do not fall under the formal scrutiny of the European Commission. Hence, there is no economic compatibility assessment of those instruments as in the case of state aid support, and the aid element is not quantified. We therefore report the amounts of public support granted under each instrument of the non-state aid support separately.

As related to the state aid support, we find that regional aid was granted extensively to the European car industry over the decade prior to the crisis, followed by training aid. R&D&I aid and R&R aid were rarely granted to the car sector. None of those aid instruments were used extensively during the last financial and economic crisis: at that time the aid was primarily granted under the Temporary Framework. Our lower bound estimate of state aid shows that the state aid to the European car industry declined over the last decade, but peaked in response to the crisis under the Temporary Framework in 2009. The total state aid declined in 2010 and 2011 to an even lower level than the average pre-crisis level.

As related to the non-state aid support, we find the following. First, the loans of the European Investment Bank were granted in large amounts to the European car industry before the crisis and increased substantially during the crisis. Second, the amounts of social public support, in particular through the European Globalisation Adjustment Fund, went up during the crisis to ease the consequences of the restructuring process in the European car industry. Third, many European countries have introduced large-scale scrapping programs as an economic stimulus to increase market demand within the automotive sector during the crisis.

The state aid granted to the European car sector in the crisis peak of 2009 (€1.2 billion) is consequently much lower than the financial benefits received by the European car producers through the scrapping programs (at least €4.0 billion) and through the loans of the European Investment Bank (€2.8 billion of loans in each year of 2009 and 2010, which corresponds to an estimated €400 million of “aid element” in each year). In conclusion, quantifying and analyzing only the state aid measures would considerably underestimate the extent of public intervention in the European car industry during the last financial and economic crisis. Scrapping programs and loans of the European Investment Bank constitute a much larger part of the financial benefits to the industry.

While this conclusion is suggestive, we end with a cautionary note that the overall amount of public support to the car industry at the national or eventually at the European level remains difficult to quantify. This poses a great dilemma particularly if one aims to understand how much state aid the European carmakers receive in each country or in total across Europe, and how that aid has evolved over time, or if one wishes to infer whether some industries are favored over others and how a decade’s orientation towards horizontal aid is implemented in practice. We recognize that it is not the aim of the Commission to monitor every single aid granted to any company (which would pose a huge administrative burden). However, we recommend more transparency and clarity on the side of the Commission in the process of notifying (*ex ante*) and reporting/monitoring (*ex post*) the state aid and the existence of various sources of information on state aid support. Furthermore, it is necessary to consider non-state aid support to obtain a more complete picture of public interventions in any industry or sector of the economy, and to evaluate the extent of protectionism during economic recessions (which may be especially distortive as the necessary restructuring of the industry could potentially be held back).

Contribution to the Literature and Policy Debate Our overview of public support to the European car industry, and a subsequent attempt to quantify it, is timely for two related reasons. First, during the crisis every government and the European Union as a whole has intervened in the car market in some way. Subsequently, it is important to understand to what extent these clearly sectorial interventions have reversed a decade's orientation towards horizontal aid, i.e. to benefit all sectors of the economy. While state aid schemes under the Temporary Framework were formally compliant with the requirement of horizontal application, some member states have in practice used it to target solely the automotive sector (European Commission 2011).

Second, there is a handful of studies analyzing and quantifying the different instruments of public support available to the car industry, but these studies only focus on a selected number of instruments and cover a limited period without giving a complete overview. A few studies focus on the 2008 crisis and provide an overview of the different channels and levels of public support to the automotive sector, namely Eurofound (2009, 2010), European Commission (2011) and Copenhagen Economics (2011). Sturgeon and Van Biesebroeck (2009) also discuss governmental measures in the U.S. and Europe during the last financial and economic crisis, with a focus on the impact of these interventions on the evolution of the global structure of the automotive industry. Nicolini et al. (2013), whose paper is the closest one to our study, focus on state aid between 1990 and 2008, before the crisis. They find large and persistent disparities in expenditure levels across countries, which they conjecture could lead to possible subsidy races in recession periods, when public help is most needed. Compared to the latter study, we consider a more extensive set of public support instruments and analyze them at country and car manufacturer level. Our case study follows the economic framework of public supported granted to the European car industry described in detail by Grigolon et al. (2012).

The ultimate aim of this paper is to stimulate the academic interest in the subject of state aid, and, more generally, public transfers to companies. We would like to inform the debate about protectionism and subsidy wars among member countries: do some countries give more (relative to their production), or do some firms receive more than others (relative to sales)?

The paper is organized as follows. Section 2 provides an economic framework for the analysis of state aid and other instruments of public support. We first provide the legal definition of state aid and discuss its compatibility with the internal market. Then we overview the instruments of public support relevant to the car sector. Section 3 presents a detailed quantification of public transfers in the last decade. Conclusions then follow in Section 4.

2 Economic Framework for the Analysis of State Aid and Other Instruments of Public Support

2.1 Definition and Compatibility of State Aid

Definition Public support to companies is subject to legislative control. The European Union has established a set of rules to prevent public support to certain sectors and activities distorting competition and trade in the common market. According to article 107(1) of the

Treaty on the Functioning of the European Union (TFEU)[3], public support should meet four conditions to be classified as state aid and be subject to state aid control by the Commission:

1. *transfer of state resources to companies*: aid must be granted by national, regional, or local authorities, or by a private or public intermediary delegated by the state;
2. *granting of an economic advantage*: aid must favor certain economic sectors or companies;
3. *selectivity in eligibility criteria*: the aid must be available only to a particular firm or to firms that satisfy certain criteria regarding turnover, employment, ownership, etc.;
4. *impact on competition and trade*: the aid must be liable to potentially distort competition and affect trade.

If public support measures do not meet all four of the above conditions, they do not constitute state aid and article 107(1) does not prohibit them. For example, general measures that are open to all companies, such as scrapping schemes to stimulate car purchases, do not constitute state aid. In contrast, if public support measures meet all four of the above conditions, they constitute state aid and are, in principle, illegal and prohibited under article 107(1).

Compatibility Article 107(3) identifies a number of derogations under which state aid measures can be declared compatible at the discretion of the Commission. As related to the car sector, these derogations cover aid for economic development of areas with low standards/serious unemployment (article 107(3)(a)), projects of common European interest or to remedy a serious disturbance in the economy (article 107(3)(b)) and development of certain economic activities/areas (article 107(3)(c)). Generally article 107(3) constitutes the basis for soft law provisions that give a practical application to these general principles.[4] This secondary legislation is composed of the Notices, Communications, Guidelines and Frameworks regulating aid for regional, training, R&D&I, environmental and other purposes.

To assess the compatibility of state aid, the Commission carries out an economic assessment in which the beneficial effects of state aid are weighted against its adverse effects on competition and trade. This exercise has been formulated as a “balancing test”. The test involves three steps (European Commission 2008):

1. Does the state aid measure address a market failure or other objective of common interest (e.g. regional and social cohesion, employment, etc.)?
2. Is the aid measure well designed? In particular, is there an incentive effect, i.e. does the aid change the behavior of the recipient?
3. Are distortions of competition and trade limited so that the overall balance is positive?

The balancing test was first formalized as a conceptual framework to implement state aid control using a refined economic approach in the State Aid Action Plan of 2005.[5]

[3] Consolidated Version of the Treaty on the Functioning of the European Union art. 107, 2010 O.J. C 83/91.

[4] Soft law provisions are rules of conduct that are not legally binding, but which may have practical effects, for example in the court decisions (Cini 2000).

[5] State Aid Action Plan Less and better targeted state aid: a roadmap for state aid reform 2005–2009 Consultation document, 2005 COM (2005)107.

Later, the balancing test has been incorporated in the set of Community's soft law provisions to assess the compatibility of state aid. These provisions detail a set of conditions, for example in terms of eligible costs, aid intensity, or nature of the beneficiaries under which member states can grant state aid to companies. Consequently, in most cases the balancing test is not carried out explicitly, but in terms of the predefined criteria and the soft law provisions are applied in a rather strict formal way (Friederiszick et al. 2008, Neven and Verouden 2008).

2.2 Identification of State Aid Instruments for the European Car Industry

We identify nine major instruments of public support that are relevant to the European automotive sector:[6,7]

1. Aid granted under the General Block Exemption Regulation (GBER)
2. Aid granted under the Regional aid Guidelines
3. Aid granted under the Training aid Communication
4. Aid granted under the Research and Development and Innovation (R&D&I) Framework
5. Aid granted under the Rescue and Restructuring (R&R) Guidelines
6. Aid granted under the Temporary Framework
7. Support granted by the European Investment Bank (EIB)
8. Social public support granted by the European Social Fund (ESF) and the European Globalisation Adjustment Fund (EGF)
9. Support granted through scrapping schemes

Table 1 classifies these instruments according to several criteria. The second column distinguishes between public support measures that are granted at national (instruments 1 to 6 and 9) or European (instruments 7 and 8) level. The EGF funds are granted by the EU in co-financing with member states.

The third column reports whether those instruments constitute state aid according to article 107(1) of the TFEU. Instruments 1 to 6 constitute, strictly speaking, state aid since they fulfill all four definition requirements described in Section 2. EIB loans and social public support granted by the ESF and the EGF do not, strictly speaking, constitute state aid since they are granted at European level and they do not fulfill the requirement of state aid being a transfer of state resources to companies.[8] Scrapping schemes do not constitute state aid since ex-ante this measure is assumed not to be selective, i.e. it is granted without discrimination, for example, with regard to the origin of the product.

[6] We use the following three terms throughout the paper: (i) public support (or support) to denote all possible instruments of public support (which entails and does not entail state aid), (ii) state aid support (or state aid) to denote the public support that entails state aid and is subject to the formal scrutiny by the European Commission, and (iii) non-state aid support to denote the public support that does not entail state aid and is not subject to the formal scrutiny by the European Commission.

[7] We do not consider environmental aid granted under the Community Guidelines on State Aid for Environmental Protection (2008 O.J. C 82/1) as an instrument of public support explicitly in our analysis since we have not found any individual aid case in the state aid register of the European Commission related to the car sector. We identified one scheme directly related to the car industry (Commission Decision State aid No. NN 56/2005 - United Kingdom Low Carbon Research and Development Programme, 2006 O.J. C 002) that the Commission had assessed based on the R&D&I Framework.

[8] In particular, the EGF funds go directly to the employees and do not entail state aid since they do not provide an advantage to undertakings.

The fourth and the fifth columns summarize when the Commission carries out a substantial assessment, and which type of assessment is applicable for each instrument. Note that even instruments that do not constitute state aid according to article 107(1) of the TFEU can be subject to the assessment of the Commission. The depth of this assessment varies and we classify it by degree: no assessment, standard assessment, or detailed assessment. We distinguish three cases. First, when aid amount and/or intensity is very low, namely in cases falling under the GBER, the Commission does not carry out a substantial assessment according to the principle that distortions should be limited and the balancing test should implicitly be satisfied. Second, when the aid intensity is higher and the measure falls under the relevant Notices, Communications, Guidelines and Frameworks, state aid is to be notified, and can be subject to two types of substantial assessment: standard or detailed. If aid is granted through schemes and the aid amount or intensity is below a set of ceilings, the Commission carries out a standard assessment, which is a check on whether the aid measure meets the formal criteria set out in the relevant legislative text. Third, if aid is granted to individual firms and/or the amount or intensity is above a set of ceilings, the Commission carries out a detailed assessment, which generally follows the balancing test.

Table 1 Summary and categorization of public support instruments for the European car industry

Public support instrument	Level	State aid	Commission assessment	Assessment type
1. GBER	National	Yes	No	No
2. Regional aid	National	Yes	Yes	Standard/ Detailed
3. Training aid	National	Yes	Yes	Standard/ Detailed
4. R&D&I aid	National	Yes	Yes	Standard/ Detailed
5. R&R aid	National	Yes	Yes	Standard/ Detailed
6. Temporary Framework	National	Yes	Yes	Standard
7. EIB support	European	No	Yes	Opinion
8. Social public support	European/ National	No	Yes	No/Standard/ Detailed
9. Scrapping schemes	National	No	Yes	Technical

The table reports the nine instruments of public support for the European car industry, classified according to authority level, state aid element, applicability of Commission's assessment and assessment type

The Temporary Framework constitutes a derogation to the ceiling system described above. Aid granted under the Temporary Framework is always subject to a standard assessment independent of the amount of aid and whether it is granted in the form of schemes or as *ad hoc* aid. In the case of scheme, aid recipients are not known ex-ante, so a balancing test is not carried out. In cases of *ad hoc* aid notified to the Commission under the Temporary Framework, the Commission carries out only a standard assessment. During the crisis, the Commission often resorted to *ex-officio* investigations, thus reversing a decade of claims with regard to the need for transparency in the state aid control system.

In the fifth column of Table 1, note that social public support granted by the ESF can be subject to no assessment, a standard or a detailed assessment depending on the aid amount and intensity. Support granted by the European Investment Bank in the form of a loan is subject to the opinion of the Commission. The information on EIB projects before and after their approval is absent or limited. The substantial assessment of those projects is not published, and the Commission does not have the same power to request additional information from the granting authority, as in regular state aid cases. For these reasons, it is not clear to what extent the Commission has the possibility to apply the same principles of economic analysis expressed in its state aid decisions.

With regard to scrapping schemes, the Commission issues comments on their technical specifications where the fiscal and financial incentives can potentially hinder trade in the internal market.

The above instruments of state aid (i.e. GBER, regional, training, R&D&I and R&R) are granted under different soft law provisions. Since 1989, the car industry has been subject to the Community Framework for State aid to the motor vehicle industry[9], revised in 1997.[10] The 1997 Framework expired at the end of 2002. From 2002, the rules in the car sector were included into the Multisectoral framework on regional aid for large investment projects[11], replaced by the current Guidelines on national regional aid for 2007-2013.[12] Some sectors receive separate treatment under the guidelines, although the car industry now falls under the general horizontal legislation of state aid.

Readers wishing a more extensive elaboration on each instrument of public support, with a discussion on the main motivation, the effects (incentives and distortions of competition and trade) and the role of the economic assessment by the European Commission are referred to our working paper (Grigolon et al. 2012).

3 Quantification of Public Support to the European Car Industry

3.1 Quantification Challenges

We aim to quantify public support granted to the European car industry over the past decade. Ideally, we would like to estimate the state aid element, namely “the ultimate financial benefit contained in the nominal amount transferred to the beneficiary” for each instrument

[9] Community Framework for State aid to the motor vehicle industry, 1989 O.J. C 123.

[10] Community Framework for State aid to the motor vehicle industry, 1997 O.J. C 279.

[11] Multisectoral framework on regional aid for large investment projects, 2002 O.J. C 70/8.

[12] Guidelines on national regional aid for 2007-2013, 2007 O.J. C 54/08.

of public support.[13] We would then sum those aid elements up to obtain an overall quantification of state aid granted to the European car industry. After that, we could examine the dynamics of state aid at country and company level: in particular, we could check both which countries tend to grant more aid and which car producers benefit more relative to the others. However, such a quantification exercise is challenging in practice for three major reasons:

1. *the degree of scrutiny of public support by the Commission*. The availability of information on the state aid element of public support is dependent on whether a public support measure is scrutinized by the Commission or not. Public support that entails state aid according to article 107(1) of the TFEU raises competition policy concerns, and is subject to the state aid control by the Commission. The aid element is typically quantified and published by the Commission. But public support that does not entail state aid is not formally assessed by the Commission: the aid element is not quantified. The information on the nominal amounts of non-state aid support needs to be collected from the respective authorities that are responsible for the management of public funds. For instance, for the loans of the European Investment Bank, which are subject only to the opinion of the Commission that is not published, one needs to resort on the (scarce) information provided by the bank itself.
2. *procedural aspects linked to the instrument of support (denominated Case Type in the state aid register).*[14]

   Aid can be granted in the form of schemes, which are open to all firms of one or multiple sectors that meet certain requirements, or directly to individual companies (*ad hoc* aid). For *ad hoc* aid the aid element is quantified in the decisions of the Commission, while for schemes the extent of publicly available information on the aid element varies.

   We distinguish three types of schemes: (i) schemes that fall under the GBER, (ii) schemes exceeding the GBER aid thresholds, and (iii) schemes approved under the Temporary Framework. Schemes that fall under the GBER are not notified to the Commission: the aid element is not quantified. Schemes exceeding the GBER aid thresholds are notified and scrutinized by the Commission. The decision is published in the state aid register. The Commission does not usually quantify the aid element but reports the total budget of the scheme. The information on whether the budget has been exhausted or not is not published. Schemes approved under the Temporary Framework often do not even contain information on the total budget.

   Schemes can serve as a basis for granting aid to individual firms. Normally this aid is not individually notified. The names of individual aid recipients under a scheme are not known *a priori*. They become publicly known in three cases. First, when the scheme contains the requirement that individual aid needs to be notified or when the planned amounts of aid for individual projects exceed the thresholds specified in the scheme, then the aid is individually notified to the Commission. Individual state aid decisions are published in the state aid register of the Commission under the denomination of “individual application” . Second, the Commission has introduced a “Transparency system” under which member states submit information to the Commission *ex post* on large state aids (not individually notified) granted to individual companies under regional and R&D&I schemes. The Commission publishes this information on its webpage in a separate register.[15] Third, the information on individual aid beneficiaries under the

[13] See Scoreboard - Conceptual and methodological remarks: conceptual_remarks.html

approved schemes can be followed from the reports of the European Commission or other publicly available sources, as in the case of the Temporary Framework.

A distinction should be made between planned and actual aid amounts. The decisions of the Commission (regarding *ad hoc* aid and schemes) are always published in the state aid register and contain the planned amount of aid that the Commission authorizes. The planned amount may differ from the actual amount awarded to the companies by the member state. But the register of the "Transparency system" (regional and R&D&I schemes) reports the actual aid amount. Note that the state aid register and the register of the "Transparency system" give information on different cases of state aid: the extent and the direction of the difference between the planned and actual aid amounts cannot be inferred from the available information. Finally, member states submit annual reports to the Commission, in which they report on the actual aid expenditure. The Commission uses the information in those reports to analyze the state aid evolution in the Scoreboard reports.[16] The information contained in the Scoreboard is too aggregate (it is not published at industry level) and cannot be used in our quantification exercise.

1. *the form of state aid (denominated Aid Instrument in the state aid register)*.[17]

   The aid element depends on whether the aid is granted in the form of grant, soft loan or guarantee. The Commission adopts the following set of assumptions to quantify the aid element for each form of state aid:[18]

- grants: the aid element is equal to the nominal amount of aid granted. The same holds for debt write-offs, reduction of social security contributions, tax allowance and interest subsidies;
- soft loans, i.e. loans applied at advantageous conditions: the aid element is equal to the interest saved by the recipient during the period for which the loan is granted;
- guarantees: the aid element is lower than the nominal amount guaranteed. It is calculated as the difference between the market price of the guarantee and its reduced price. The aid is granted when a guarantee is given and not when the guarantee is invoked.[19]

In conclusion, the aid element is quantified in the following cases: (i) *ad hoc* aid (planned amount); (ii) individual applications within a scheme (planned amount); (iii) cases falling under the "Transparency system" (actual amount). When the aid element is quantified, we use the estimate of the Commission, but when the aid element is not quantified by the Commission, we adopt a set of assumptions summarized in Table 2 and detailed in the Appendix.

Our quantification exercise covers nine Western European countries with a sizable automotive industry, namely Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain,

[14] http://ec.europa.eu/competition/elojade/isef/index.cfm?clear=1&policy_area_id=3

[15] For regional aid: regional_transparency. For R&D&I projects: transparency.pdf

[16] See for instance Commission Staff Working Document - Facts and Figures on State aid in the Member States - Accompanying the Report from the Commission State Aid Scoreboard - Autumn 2010 Update (COM(2010) 701 final).

[17] http://ec.europa.eu/competition/elojade/isef/index.cfm?clear=1&policy_area_id=3

[18] See Scoreboard - Conceptual and methodological remarks at conceptual_remarks.html

[19] Commission Notice on the application of Articles 87 and 88 of the EC Treaty to State aid in the form of guarantees, 2008 O.J. C 155/10.

Table 2 Quantification assumptions for state aid support

Assumption 1	Cover *ad hoc* aid and no schemes unless individual applications of aid, "Transparency system" or Commission's reports
Assumption 2	Report actual and planned aid amounts separately
Assumption 3	Report the aid element based on Commission's assumptions for various instruments of state aid
Assumption 4	Split up aids for the same project based on the primary regulation under which economic compatibility of the aid is assessed
Assumption 5	Attribute the aid to the year of Commission's final decision
Assumption 6	Report the aid as gross grant equivalent in present value

Source: Own assumptions following the practice of the European Commission

Sweden and the United Kingdom for the period 2000-2011.[20] For each type of public support, we describe the data sources, we quantify or state the amount of the aid element, and we analyze the results. Following this, we give a summary of overall findings as related to the estimates of total state aid granted to the European car producers, and an overview of public support instruments granted at country level.

3.2 Aid Granted Under the General Block Exemption Regulation[21]

Ad hoc aid amounts and schemes that fall under the GBER are not notified to the Commission. It is only required that member states submit a summary description of the aid measure after its implementation. In the state aid register we identify several schemes under the GBER that are relevant to the car industry. The largest of those schemes is State aid No. X 59/2009 - Plan de Competitividad del Sector Automoción in Spain, with an overall budget of €800 million. We found only one ad hoc aid relevant to the European car industry approved under the GBER in the state aid register (granted with a regional objective). Table 3 reports both the gross grant equivalent in present value for this aid case and the amount relative to total production. Several training aid cases that fall under the Training Block Exemption, which is part of the GBER, are published in the state aid register. We consider those cases together with other training aid cases in Section 3.4.

[20]We consider nine countries in our analysis, but in the tables we refer only to the countries for which we find decisions in the state aid register of the Commission, or information reported under the "Transparency system" of the Commission, or information on other types of public support from various sources discussed below. If a country does not appear in the table, then no relevant public support was awarded to that country during the years of our sample.

[21]Commission Regulation (EC) No 800/2008 of 6 August 2008 declaring certain categories of aid compatible with the common market in application of Article 107 and 108 (ex Article 87 and 88) of the TFEU (General block exemption Regulation), 2008 O.J. L 214/3.

Table 3 Aid granted under the GBER

Year Country	Firm	2000 €mil.	2001 €mil.	2002 €mil.	2003 €mil.	2004 €mil.	2005 €mil.	2006 €mil.	2007 €mil.	2008 €mil.	2009 €mil.	2010 €mil.	2011 €mil.	Tot. €mil.
Spain	Ford										3.80			3.80
Tot. Spain											3.80			3.80
Per production (€)											1.76			0.12
Tot. by year											3.80			3.80
Per production (€)											0.33			0.02

Source: State aid register. This table reports the quantification of the aid element granted under the GBER related to the car sector for the period 2000-2011 in Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. Amounts are expressed as gross grant equivalent in present value and relative to the units of production

Apart from this *ad hoc* regional aid case approved under the GBER and training aid cases approved under the Training Block Exemption that are published in the state aid register, further information related to the GBER is made available under the "Transparency system" of the Commission as specified in article 9(4) of the GBER. The article states that member states have to provide summary information (i) on R&D&I aid whenever it is granted under an existing aid scheme for R&D&I projects covered by article 31 of the GBER and the individual aid exceeds €3 million and (ii) on regional aid whenever individual regional aid is granted under an existing scheme for large investment projects that are not notified individually according to article 6 of the GBER. We identified several cases of aid granted under the GBER schemes with regional and R&D&I objectives published under the "Transparency system" . We treat those cases together with regional aid granted under the Regional aid Guidelines and R&D&I aid granted under the R&D&I Framework that are published under the "Transparency system" analyzed in Section 3.3 and in Section 3.5, respectively.

3.3 Aid Granted Under the Regional Aid Guidelines[22]

We analyze the regional aid amounts published in the state aid register and under the "Transparency system" separately, since they report planned and actual aid amounts, respectively. [23]

Table 4 reports both the gross grant equivalent in present value by country and year and the amount relative to total production by country and year for regional aid published in the state aid register.[24] We analyze the figures over time and across countries and companies.

[22]Guidelines on national regional aid for 2007-2013, 2007 O.J. C 54/08. For the period 2000-2006 the applicable guidelines are the Guidelines on national regional aid, 1998 O.J. C 74/06.

[23]The "Transparency system" database is related to large investment projects granted under a scheme for which the individual notification is not required. Member states need to provide the information on these projects to the Commission under point 65 of the Regional aid Guidelines and under article 9(4) of the GBER. This database has been available since 2003.

[24]The regional aid amounts published in the state aid register are usually expressed as gross grant equivalent in present value. Whenever the information is available only in nominal value, we transform those nominal values into present values using the average discount rate calculated on the basis of the other regional aid cases.

Table 4 Aid granted under the Regional aid Guidelines

Year		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Tot.
Country	Firm	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.
Belgium	Ford				53.52									53.52
Tot. Belgium					53.52									53.52
Per production (€)					60.90									5.80
France	Fiat			3.72										3.72
	Peugeot			3.72										3.72
Tot. France				7.45										7.45
Per production (€)				2.04										0.22
Germany	BMW			484.18										484.18
	Daimler		76.29											76.29
	VW		98.84											98.84
Tot. Germany			175.13	484.18										659.32
Per production (€)			34.78	98.76										11.68
Italy	Fiat	36.95	46.59								37.35	15.82		136.72
	Tomaso						106.37							106.37
Tot. Italy		36.95	46.59				106.37				37.35	15.82		243.08
Per production (€)		21.71	30.37				106.89				45.71	19.80		18.70
Portugal	Opel			40.59										40.59
Tot. Portugal				40.59										40.59
Per production (€)				164.10										17.95
Spain	Ford			14.44							51.91		23.46	89.82
	Opel							7.40						7.40

Table 4 (continued)

Year		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Tot.
Country	Firm	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.
	Renault			23.88										23.88
	Santana		8.83											8.83
	VW				25.00									25.00
Tot. Spain			8.83	38.32	25.00			7.40			51.91		23.46	154.92
Per production (€)			3.19	13.86	8.56			2.77			24.05		9.86	4.86
UK	Jaguar												27.91	27.91
	Nissan	9.09	72.36											81.45
	Peugeot					26.54								26.54
	Vauxhall			19.57										19.57
Tot. UK		9.09	72.36	19.57		26.54							27.91	155.48
Per production (€)		5.10	43.51	10.90		14.46								
Tot. by year		46.04	302.92	590.12	78.52	26.54	106.37	7.40			89.27	15.82	51.37	1,314.36
Per production (€)		2.86	18.68	36.83	4.94	1.67	6.85	0.49			7.66	1.22	3.95	7.37

Source: State aid register. This table reports the quantification of the aid element granted under the Regional aid Guidelines related to the car sector for the period 2000-2011 in Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. Amounts are expressed as gross grant equivalent in present value and relative to the units of production

Over time, regional aid has declined. Most regional aid was granted in 2001 and 2002. This aid instrument was not used extensively during the last financial and economic crisis. Multiple explanations underlie the observed decrease in regional aid. First, as noticed by Nicolini et al. (2013), the decrease in regional aid (and aid in general) after 2002 can be linked to the effect of the Lisbon agenda, recommending "less aid, better aid". Another explanation, which holds in general for all types of aid and a fortiori for regional aid, lies in the higher levels of demand for cars over time, especially before the 2008 crisis.

Specifically on regional aid, a consideration on the nature of the instrument is in order: being commonly used in the form of investment aid to establish new car plants or to extend the existing ones, it is highly unstable over time. In fact, the large amounts in years 2002 and 2003 are mainly linked to a large investment aid granted to BMW for the construction of a new car plant in Leipzig. Finally, especially after the 2008 crisis, our data would suggest a shift from regional aid to EIB loans as the preferred instrument to subsidize new plants or revamp existing ones. EIB loans are used to complement regional aid (as in the case of the Leipzig project), or more often to substitute regional aid when granted with the same purpose. Those loans seem to be a preferred instrument to finance automotive projects not only by carmakers, but also by member states who have provided generous guarantees under the Temporary Framework to unlock EIB loans.

At country level, Germany is the largest granter of state aid. That is driven by a few large investment projects in 2001 and 2002. These projects are related to (i) BMW for the construction of a new car plant in Leipzig in 2002; (ii) Daimler for the establishment of a new greenfield engine production plant in Kölleda; (iii) VW for the production of a future D1-model in a new car plant in Dresden. All those investment projects are located in East Germany. Italy is the second largest aid granter in absolute terms and the largest granter of state aid relative to production. Aid is most frequently granted to the domestic company Fiat.

At company level, BMW has been the largest beneficiary of regional aid for the Leipzig project, for which it received a loan from the EIB as well.

Table 5 reports both the gross grant equivalent in present value by country and year and the amount relative to total production by country and year for regional aid published under the "Transparency system" .[25]

Over time, regional aid reported in the register of the "Transparency system" has also had a declining trend.

At country level, Spain has been the largest granter of regional aid since 2003, followed by Italy and Portugal. Spain has frequently granted aid to foreign car producers, especially to Peugeot and Renault. Relative to the size of production, Portugal has granted most regional aid, specifically to VW.

At company level, Renault, Fiat and VW are the largest beneficiaries of regional aid over time.

Overall, based on both tables, note that GM Europe and Ford have received regional aid in multiple European locations. Peugeot and Renault tend to receive more aid at their foreign locations (mostly in Spain) than at home. VW receives aid both at home and abroad,

[25]The regional aid amounts published under the "Transparency system" are expressed as discounted net (after taxation) grant equivalent before 2007 and as discounted gross (before taxation) grant equivalent after 2007. To convert those aid amounts from net to gross values, we assume that only corporate tax is paid on the aid granted, and use the average corporate tax for each country for our transformations. We also assume that the aid is fully subject to taxation in the year it is authorized.

namely in Portugal. Fiat gets aid only domestically. There is no clear evidence that European governments favor only domestic car producers. Governments support foreign car producers as well, most probably to influence their location choice and generate employment for weak or underperforming economic regions.

3.4 Aid Granted Under the Training Aid Communication[26]

Table 6 reports both the gross grant equivalent in present value by country and year and the amount relative to total production by country and year.

The biggest amount of training aid was approved in 2003, when the Commission authorized several training aid cases. No training aid was approved in 2009 or 2010. There may be several reasons for the decreasing trend in training aid granted to the car industry. First, it may be linked to the stricter approach of the Commission towards granting training aid to the car sector because of its negative effects on competition and trade. Second, this instrument may not have been attractive to the European governments for tackling the emergency of the economic situation during the crisis because of the formal control of training aid by the Commission and related long-lasting substantial assessment procedures.

At country level, both in nominal terms and relative to production, Italy is a major granter of training aid, followed by Belgium and the United Kingdom. The case of Belgium is interesting because the country does not have any domestic car production. The granting of aid to the foreign car producers may be motivated by employment issues.

At company level, the biggest share of training aid has been granted to (i) Fiat in Italy; (ii) Ford and GM Europe at various European locations.

3.5 Aid Granted Under the Research and Development and Investment Framework[27]

Table 7 reports both the gross grant equivalent in present value by country and year and the amount relative to total production by country and year.[28] Several relevant projects have been approved in Germany and Sweden. Those projects range from €3 million to €10 million in value. All the projects are aimed at the production of cleaner vehicles. There are no *ad hoc* R&D&I cases granted to the car producers published in the state aid register in the period between 2000 and 2011.

Given the scarcity of the available information, we cannot perform an evaluation over time or across countries. One may only argue that the R&D&I aid instrument is not extensively used by the car producers. While R&D&I is very important for the car sector, there are no cases of large individual R&D&I aid grants to car producers in the last decade. These

[26]Communication from the Commission - Criteria for the analysis of the compatibility of State aid for training subject to individual notification, 2009 O.J. C 188/01. For the period 2001-2008, Commission Regulation 68/2001/EC on the application of Articles 87 and 88 of the EC Treaty to training aid, 2001 O.J. L 10/20, the so called "Training Block Exemption Regulation (BER)" is applicable. This "Training BER" has been included into 2008 GBER.

[27]Community Framework for State aid for Research and Development and Innovation, 2006 O.J. C 323/01. For the period 2000-2006 the Community Framework for State Aid for Research and Development, 1996 O.J. C 45/06 is applicable.

[28]The "Transparency system" is related to R&D&I investment projects over €3 million, which are granted on the basis of existing aid schemes. Member states are required to provide the information on these projects to the Commission under article 10.1.3 of the R&D&I Framework. This information has been published since 2007.

Table 5 Regional aid reported under the Transparency system

Year		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Tot.
Country	Firm	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.
France	Renault									3.00	1.15			4.15
Tot. France										3.00	1.15			4.15
Per production (€)										1.19	0.57			0.12
Germany	BMW										6.25	6.25		12.50
	Ford									11.12				11.12
	Opel												20.02	20.02
Tot. Germany										11.12	6.25	6.25	20.02	43.64
Per production (€)										2.05	1.30	1.16	3.72	0.71
Italy	Fiat					116.81		26.78						143.59
Tot. Italy						116.81		26.78						143.59
Per production (€)						106.28		22.97						11.05
Portugal	VW				79.82			51.29						131.11
Tot. Portugal					79.82			51.29						131.11
Per production (€)					336.86			232.10						57.99
Spain	Ford					47.62								47.62
	Nissan							14.11						14.11
	Peugeot					25.27	25.27	25.27						75.80
	Renault				78.00	44.04	58.62	59.11				35.89		275.66
	VW							12.71						12.71
Tot. Spain					78.00	116.93	83.88	111.20				35.89		425.90
Per production (€)					26.70	40.05	31.68	41.68				15.09		13.35

Table 5 (continued)

Year		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Tot.
Country	Firm	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.
UK	BMW							6.19						6.19
	Ford					9.08	45.36			15.35				69.79
	Nissan						9.00							9.00
	Vauxhall							12.59						12.59
Tot. UK						9.08	54.36	18.78		15.35				97.56
Per production (€)						4.95	30.53	11.58		9.48				5.39
Tot. by year					157.82	242.82	138.25	208.04		29.47	7.40	42.14	20.02	845.96
Per production (€)					9.92	15.29	8.90	13.66		2.08	0.63	3.24	1.54	4.74

Source: "Transparency system" for large regional investment projects. This table reports the quantification of the aid element granted under the Regional aid Guidelines and GBER related to the car sector for the period 2000-2011 in Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. Amounts are expressed as gross grant equivalent in present value and relative to the units of production

Table 6 Aid granted under the Training aid Communication

Year		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Tot.
Country	Firm	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.
Belgium	Ford		6.84					5.55		1.54				13.93
	Opel				13.04				1.94					14.98
	Volvo				5.80					3.15				8.95
Tot. Belgium			6.84		18.84			5.55	1.94	4.69				37.86
Per production (€)			5.90		21.43			6.30	2.46	6.89				4.10
France	Matra				1.25									1.25
Tot. France					1.25									1.25
Per production (€)					0.35									0.04
Germany	BMW				0.45									0.45
Tot. Germany					0.45									0.45
Per production (€)					0.09									0.01
Italy	Fiat				34.03	4.57			21.25					59.85
	Tomaso												17.09	17.09
Tot. Italy					34.03	4.57			21.25				17.09	76.94
Per production (€)					26.59	4.16			17.13				21.39	5.58
Portugal	Opel			2.65										2.65
Tot. Portugal				2.65										2.65
Per production (€)				10.71										1.17
UK	Ford						14.22							14.22
	Nissan									0.11				0.11

Table 6 (continued)

Year		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Tot.
Country	Firm	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.
	Rover		12.88											12.88
	Toyota									0.06				0.06
	Vauxhall									9.82				9.82
Tot. UK			12.88				14.22			9.99				37.09
Per production (€)			7.74				7.99			6.17				2.05
Tot. by year			19.72	2.65	54.57	4.57	14.22	5.55	23.19	14.68			17.09	156.24
Per production (€)			1.22	0.17	3.43	0.29	0.92	0.36	1.48	1.04			1.32	0.88

Source: State aid register. This table reports the quantification of the aid element granted under the Training aid Communication related to the car sector for the period 2000-2011 in Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. Amounts are expressed as gross grant equivalent in present value and relative to the units of production

Table 7 Research and Development and Innovation aid reported under the Transparency system

Year Country	Firm	2000 €mil.	2001 €mil.	2002 €mil.	2003 €mil.	2004 €mil.	2005 €mil.	2006 €mil.	2007 €mil.	2008 €mil.	2009 €mil.	2010 €mil.	2011 €mil.	Tot. €mil.
Germany	BMW											7.50		7.50
	Ford											4.70		4.70
	Daimler											12.20		12.20
	Opel										4.50			4.50
	VW										9.30	9.50		18.80
Tot. Germany											13.80	33.90		47.70
Per production (€)											2.87	6.29		0.77
Sweden	Saab											5.60		5.60
	Volvo										7.40			7.40
Tot. Sweden											7.40	5.60		13.00
Per production (€)											57.48	31.48		4.68
Tot. by year											21.20	39.50		60.70
Per production (€)											1.82	3.04		0.34

Source: "Transparency system" for R&D&I projects. This table reports the quantification of the aid element granted under the R&D&I Framework and GBER related to the car sector for the period 2000-2011 in Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. Amounts are expressed as gross grant equivalent in present value and relative to the units of production

individual projects are rather financed by the European Investment Bank, which we will discuss in Section 3.8. There are several cases of R&D&I aid granted in the form of schemes targeting car companies (e.g. "R&D&I aid to the car manufacturing sector in the Community de Madrid" [29]). The lack of big R&D&I cases in the car industry may be attributed to the fact that the Commission favors approving aid for projects to fund fundamental research directed towards increasing scientific knowledge in a particular area while it disfavors granting aid for developing new products, when R&D gets closer to the market and may thus become particularly distortive for competition.

3.6 Aid Granted Under the Rescue and Restructuring Guidelines[30]

Since 2000 there has been only one instance of aid granted under the R&R Guidelines, in the form of soft loan. This is the rescue loan to MG Rover, granted for one week at a fixed annual interest rate of 7.5 %, which was higher than the reference rate for the United Kingdom of 5.81 %. As stated in the state aid decision, the loan was not repaid and the United Kingdom had to communicate the liquidation plan. To the best of our knowledge the loan has not been paid back, so we report the loan amount to be equal to the state aid amount in Table 8.

[29] Commission Decision State aid No. N 54/2008 - R&D&I aid to the car manufacturing sector in the Community de Madrid, 2008 O.J. C 264/2008.

[30] Community guidelines on State aid for rescuing and restructuring firms in difficulty, 2004 O.J. 244/02.

Table 8 Aid granted under the Rescue and Restructuring Guidelines

Year		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Tot.
Country	Firm	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.
UK	Rover						6.50							6.50
Tot. UK							6.50							6.50
Per production (€)							3.65							0.33
Tot. by year							6.50							6.50
Per production (€)							3.65							0.33

Source: State aid register. This table reports the quantification of the aid element granted under the R&R Guidelines related to the car sector for the period 2000-2011 in Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. Amounts are expressed as gross grant equivalent in present value and relative to the units of production

3.7 Aid Granted Under the Temporary Framework[31]

The Temporary Framework is open to all companies. The Commission acknowledges that even healthy companies may not be able to obtain the finance they need in the crisis circumstances. Thus, the temporary aid may ensure sufficient bank lending to those companies and also provide them with finance to continue their investment into a sustainable future, including the development of green products. Furthermore, the Framework can allow companies that face liquidity problems due to the crisis to benefit from the temporary relief in the form of aid. The Framework is, however, not applicable to firms that were in difficulty before 1 July 2008. Such firms can apply for aid under R&R Guidelines.

In the case of aid granted under the Temporary Framework for the development of green products, it may be treated as aid for R&D&I projects, usually subject to the rules of the R&D&I Framework. Aid under the Temporary Framework to firms in temporary difficulty due to the crisis can be read as a sort of R&R aid granted through a fast track in derogation of the R&R Guidelines. Since the firms did not need to present a restructuring plan, this aid could better be qualified as rescue aid. The Commission argues that “Despite that overcapacity, no major players exited the market during the crisis and no major restructuring case was notified to the Commission. That phenomenon may be due to the fact that the use of the Temporary Framework acted as a cushion in the most critical moments and the loans and guarantees granted under the Temporary Framework in fact allowed some restructuring to be initiated” (European Commission 2011).

[31]The Temporary Community framework for State aid measures to support access to finance in the current financial and economic crisis (hereinafter *Temporary Framework*) was adopted at the end of 2008 to address the consequences on the real economy of the global financial crisis that began in the summer of 2008 on the basis of paragraph (b) of article 107(3) of the TFEU. The Framework was preceded by the European Economic Recovery Plan in November 2008, which was already proposing a simplification package to allow state aid through horizontal schemes (Communication from the Commission - Temporary Community framework for State aid measures to support access to finance in the current financial and economic crisis, 2009 O.J. C 16/01). Given the exceptionality of the measures, the Framework was limited in time and was to expire at the end of 2010, but was prolonged until the end of 2011, subject to stricter conditions, in order to gradually phase-out the crisis support (Communication of the Commission - Temporary Union framework for State aid measures to support access to finance in the current financial and economic crisis, 2011 O.J. C 6/05.)

According to the European Commission (2011), member states committed €81 billion in schemes approved by the Commission, but only a quarter of that amount was effectively used. Although the Temporary Framework was implemented through horizontal schemes, some member states, namely France and Germany, have in practice used it to support their automotive sector.

In response to the last financial and economic crisis, European governments announced their intention to support domestic car industries either directly by approving car industry-targeted plans of support or by supporting their car industries within the broader plans to revive their national economies. The implementation of those plans included demand-side measures of public support (for example scrapping schemes and tax reductions), aid measures within the approved schemes under the horizontal aid legislation and aid measures within the approved schemes under the Temporary Framework. We inventory the relevant initiatives of the European governments that may have benefited car producers and point out both the approved general schemes and actual cases of individual state aid granted under the Temporary Framework for each country.

Belgium approved a general stimulus plan to revive the Belgian economy at the end of 2008.[32] It notified several schemes to the Commission under the Temporary Framework: guarantees, risk capital and export-credit insurance. Under the guarantees scheme the Flemish regional government approved a subsidized guarantee on the loan of ING Belgium to Volvo Cars Ghent plant equal to €198 million in 2010.[33] The loan had a duration of five years, with the objective of securing investments and jobs in the Ghent car plant.

The French program, denominated "Le pacte automobile" , was approved in February 2009 and contained: (i) a subsidized loan amounting to €6.5 billion to the domestic car producers Peugeot and Renault and other car companies to deal with the financial and industrial crisis and promote the development of green products; (ii) a subsidized loan of €2 billion to the internal banks of Peugeot and Renault; (iii) guarantees and funds for automobile suppliers.[34] France notified all schemes to the Commission under the Temporary Framework. The loans to Peugeot and Renault (each €3.0 billion) had a duration of 5 years with 6 % interest rate during the first two years, which could be raised to 9 % afterwards. In that period, the rather low credit rating of both companies (BB+) would have implied an interest rate of around 8 % for a loan with the same duration in the financial market.[35] In return, the car companies were required to maintain their employment levels in France, invest in green technology and not close any assembly plant in France for the duration of the loan. Peugeot and Renault received the loans in April 2009 but had already repaid them by April 2011, possibly due to the fact that the level of remuneration required was quite high and constituted an incentive to exit (European Commission 2011).

Support to the German car industry was included into the general economy stimulus programs of the German government, denominated "Konjunkturpaket I&II", that were approved in December 2008 and February 2009, respectively.[36] Germany notified all schemes to the Commission under the Temporary Framework. In particular, Opel received

[32] http://www.belgium.be/nl/binaries/herstelplan_tcm117-29600.pdf

[33] https://www.media.volvocars.com/global/enhanced/en-gb/media/preview.aspx?mediaid=35852

[34] http://www.gouvernement.fr/gouvernement/le-pacte-automobile

[35] Source: fair value corporate corporate curve (Industrial) by Bloomberg.

[36] http://www.bundesregierung.de

a bridging loan of €1.5 billion for six months at a 6.5 % interest rate in the context of the Temporary Framework (European Commission 2011) after the US parent company General Motors had already filed for bankruptcy. In those circumstances, the market would have been very reluctant to provide a loan to Opel. The loan allowed Opel to develop a restructuring plan. Eventually, Opel repaid the loan in November 2009.

The Italian plan to support the car industry as of February 2009 was included in a more general plan to support industrial sectors, denominated “Misure urgenti a sostegno dei settori industriali in crisi”. As related to the car industry, the plan included the introduction of a scrapping scheme to stimulate the demand for cars.[37] Italy notified all possible schemes to the Commission under the Temporary Framework, with the exception of the export-credit insurance scheme. Fiat or other car manufacturer did not benefit from any specific measures under the Temporary Framework.

The budget of the Spanish automotive competitiveness plan, denominated “Plan de Competitividad del Sector Automoción”, made up €800 million to support the optimization of production processes or reorientation of production in the car industry. That plan was officially approved by the European Commission under the GBER in 2009. Under the plan, Seat received a €100.7 million grant to build a new Audi model in Spain (Eurofound 2009). That plan and the fleet renewal scheme Plan VIVE were part of the more general plan of the Spanish government announced at the beginning of 2009, namely “Comprehensive Plan Automotive”.[38] Spain notified three schemes to the Commission under the Temporary Framework: limited amounts of aid, guarantees and subsidized loans for green products.

During the financial and economic crisis, the Swedish government approved a series of measures to support the automobile industry for the amount of €2.65 billion in the form of increased investment in research and development, rescue loans and state credit guarantees for raising EIB loans.[39] No scheme was notified to the Commission under the Temporary Framework except for the export-credit insurance scheme. The Swedish government issued two subsidized state guarantees on the EIB loans to Volvo and Saab that were notified to the Commission individually under the Temporary Framework. The guarantees raised criticisms: they were issued to firms that had not been profitable for years (Saab) or had been only marginally profitable (Volvo).

The UK “Automotive Assistance Programme” was approved in 2009 and envisaged a package of £2 billion of loans and guarantees to the automotive industry. The measures included guarantees to unlock up to £1.3 billion of the EIB loans for investment in lower carbon initiatives and loans or loan guarantees to support up to £1 billion of lending for other projects related to lower carbon initiatives. In particular, Jaguar Land Rover received an EIB loan for R&D which was part of the “Automotive Assistance Package” (Eurofound 2009). The UK notified three schemes to the Commission under the Temporary Framework: limited amounts of aid, subsidized interest rates and subsidized loans for green products.

Finally, in November 2008 the Dutch government approved a general stimulus package to support the national economy. Two schemes were notified to the Commission under the Temporary Framework: limited amounts of aid and export-credit insurance. In December 2008 Portugal approved a general stimulus package to support its national economy. One

[37] http://www.parlamento.it/parlam/leggi/09033l.htm

[38] The Comprehensive Plan Automotive has been approved within the set of policies approved under the Spanish Plan to Stimulate the Economy and Employment (www.sepe.es/).

[39] http://www.livemint.com

scheme related to limited amounts of aid was notified to the Commission under the Temporary Framework. But in both countries we have not individuated any aid granted to car producers under those schemes.

Table 9 reports both the gross grant equivalent in nominal value by country and year and the amount relative to total production by country and year for aid granted under the Temporary Framework.[40] Only Belgium, France, Germany and Sweden used the Temporary Framework to support their car industries. Although some schemes in Italy, Spain and the United Kingdom clearly targeted the car sectors, they were not used in practice by those member states. To calculate the aid element for subsidized loans and state guarantees, we used the assumptions stated in the Appendix. For the Swedish state guarantees case, we used the information on market and subsidized premia from the two state aid decisions of the Commission on Volvo and Saab. Based on all the assumptions, the total state aid to the European car producers granted under the Temporary Framework amounts to €1.2 billion.

3.8 Support Granted by the European Investment Bank[41]

The EIB has financed the automotive sector for projects located in less developed regions, for example, the BMW plant in Leipzig, which also benefited from regional aid granted by the German government. This and other EIB loans to finance the introduction of new models, or the establishment of new car plants resemble in their purpose regional aid granted under the *Regional aid Guidelines*. More recently, EIB loans are especially granted to finance R&D&I projects aimed at the transformation of the sector into a more sustainable one (European Investment Bank (2011)). The support granted under those projects resembles in its purpose R&D&I aid granted under the *R&D&I Framework*.

In addition, since 2009 the EIB has had a specialized lending instrument, namely the European Clean Transport Facility (ECTF), providing funding together with the European Commission. This Facility has been in effect throughout 2009-2012 and was approved by the Economic and Financial Affairs Council of the European Union in December 2008 to increase the lending to the transport industry in the economic crisis, and in particular to support R&D&I investments directed at emissions reduction and energy efficiency in the European transport industry. Its yearly budget is equal to €4 billion and its target is not only the automotive industry (manufacturers and suppliers), but also railroad, aircraft and shipping industries. Given their purpose, the ECTF loans bear a certain resemblance to the subsidized loans for green products under the Temporary Framework. The ECTF loans are, however, granted to individual automobile plants and for concrete investment projects.

Table 10 reports both the loans to the car industry approved by the EIB by country and year and the amount relative to total production by country and year. The EIB does not provide precise information on the interest rate applied to its loans. It can offer loans at

[40]The state aid register contains decisions on the general schemes notified by member states to the Commission under the Temporary Framework and two cases of *ad hoc* state aid to car producers in Sweden. To collect information on individual aid granted under those approved schemes, we rely on the studies of the European Commission related to the application of the Temporary Framework (European Commission 2009, 2010, 2011) and on the responses of member states to the questionnaire of the Commission on the application of the Temporary Framework (http://ec.europa.eu/competition/consultations/2010_temporary_framework/index.html).

[41]The European Investment Bank (EIB) is the European Union's long-term lending institution owned by the member states. The Bank uses its AAA credit rating to fund itself on the capital markets and finance its lending activities.

Table 9 Aid granted under the Temporary Framework

Year		Related scheme	Subsidized loans/ guarantees	Aid element			Tot.
				2009	2010	2011	
Country	Firm		€mil.	€mil.	€mil.	€mil.	€mil.
Belgium	Volvo	Guarantees	198.00		19.80		19.80
Tot. Belgium					19.80		19.80
Per production	(€)				38.10		2.03
France	Peugeot	Green products	3,000.00	450.00			450.00
	Renault	Green products	3,000.00	450.00			450.00
Tot. France				900.00			900.00
Per production	(€)			444.71			24.83
Germany	Opel	Subsidized loans	1,500.00	225.00			225.00
Tot. Germany				225.00			225.00
Per production	(€)			46.86			3.64
Sweden	Saab	Guarantees	400.00		29.00		29.00
	Volvo	Guarantees	500.00		48.00		48.00
Tot. Sweden					77.00		77.00
Per production	(€)				432.82		26.05
Tot. by year				1,125.00	96.80		1,221.80
Per production	(€)			96.51	7.45		6.85

Source: State aid register, European Commission (2009, 2010, 2011). This table reports the quantification of the aid element granted under the Temporary Framework related to the car sector for the period 2000-2011 in Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. Amounts are expressed as gross grant equivalent in nominal value and relative to the units of production

or even below Euribor or LIBOR base rates (plus customized credit risk margins) on a long-term basis without commitment or structuring fees.[42] The EIB loans are subject to the opinion of the Commission, but the substantial assessment of those projects is not published.

The amounts of loans granted by the EIB to the European car producers have been quite stable over time, with an average amount of €580 million per year until 2008. EIB loans are granted to car producers with regional and R&D&I purposes. During the last financial and economic crisis, an unprecedented amount of EIB loans were granted to the automotive industry. The loans may have encouraged companies to continue investing in a sustainable future, even during a period in which access to credit was very difficult.

At company level, BMW got 26 % of the EIB loans on a cumulative basis over the last decade, Ford Corporate (including its Jaguar Land Rover subsidiary during 2000-2008) received 19 % and Daimler obtained 14 %.

BMW in Germany has obtained the largest amount of the EIB loans in absolute terms. This is mainly due to a large loan granted by the EIB in 2002-2004 for the construction and fitting-out of a car manufacturing plant in Leipzig, Saxony. The project was also supported by the German government with regional aid. The EIB loans to the BMW plant were

[42] http://www.eib.org/infocentre/faq/index.htm

Table 10 EIB loans

Year		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Tot.
Country	Firm	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.
France	Peugeot		120.00						250.00		400.00	200.00		970.00
	Renault										400.00			400.00
	Toyota	225.00	65.00											290.00
Tot. France		225.00	185.00						250.00		800.00	200.00		1,660.00
Per production	(€)	67.77	51.78						84.98		395.30	104.04		49.15
Germany	BMW		150.00	100.00	300.00	200.00		400.00	500.00	400.00	400.00	380.00	325.00	3,155.00
	Daimler		240.00								400.00	400.00	400.00	1,440.00
	VW									95.00	400.00			495.00
Tot. Germany			390.00	100.00	300.00	200.00		400.00	500.00	495.00	1,200.00	780.00	725.00	5,090.00
Per production	(€)		77.44	20.40	61.09	39.86		75.89	88.96	91.15	249.94	140.48	130.57	89.93
Italy	Fiat										400.00		250.00	650.00
Tot. Italy											400.00		250.00	650.00
Per production	(€)										489.46		436.17	50.89
Portugal	VW									155.00				155.00
Tot. Portugal										155.00				155.00
Per production	(€)									924.82				69.69
Spain	Daimler		270.00		30.00									300.00
	Nissan										200.00			200.00
Tot. Spain			270.00		30.00						200.00			500.00
Per production	(€)		97.64		10.27						92.64			17.21

Table 10 (continued)

Year		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Tot.
Country	Firm	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.	€mil.
Sweden	Volvo											500.00		500.00
	Saab											400.00		400.00
Tot. Sweden												900.00		900.00
Per production	(€)											5,082.33		324.11
UK	Ford	300.00				350.00	245.00					551.00		
	Jaguar Land Rover			300.00	250.00			297.00						
	Ford Corporate	300.00		300.00	250.00	350.00	245.00	297.00				551.00		2,293.00
	Jaguar Land Rover											391.00		391.00
	Nissan										200.00		220.00	420.00
Tot. UK		300.00		300.00	250.00	350.00	245.00	297.00			200.00	942.00	220.00	3,104.00
Per production	(€)	168.44		167.03	137.02	190.72	137.58	183.24				741.47	173.17	172.50
Tot. by year		525.00	845.00	400.00	580.00	550.00	245.00	697.00	750.00	650.00	2,800.00	2,822.00	1,195.00	12,059.00
Per production	(€)	32.56	52.10	24.97	36.47	34.63	15.77	45.75	47.91	45.93	240.19	238.40	100.95	73.29

Source: Project database of the EIB. This table reports the loans granted by the EIB related to the car sector for the period 2000-2011 in Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. Loans are expressed in absolute value and relative to the units of production justified by regional motives, given the plant's location in a disadvantaged area for which European Structural Funds can be allocated. The loans to BMW in 2006-2008 were given with R&D&I and environmental motives, specifically for the development of hydrogen-powered passenger cars or for the general improvement of environmental sustainability of cars. Also in 2009 and 2010 the EIB granted loans to BMW under the ECTF facility to finance R&D&I projects. In 2011 BMW obtained EIB financing for the development of a complete system of components for hybridization of passenger vehicles' powertrain on existing sites in Germany.

Ford Motor Company, with its UK subsidiary Jaguar Land Rover, is the second largest loan recipient after BMW. Ford received EIB loans to finance R&D&I projects with environmental targets, such as the development of cleaner engines and the adaptation of plants to environmental standards. In 2004 Ford obtained an EIB loan to finance the program that should also support the UK automotive industry and contribute to the creation and maintenance of employment in the context of extensive restructuring and downsizing by most vehicle manufacturers during the past few years in the United Kingdom. Land Rover received support in 2003, also with regional motivations. Finally, Jaguar Land Rover received support in 2003 and 2006 for the development of two new versions of existing Land Rover models.

Daimler received around a third of the amount of the EIB loans granted to BMW. In particular, the EIB loan given to Daimler in 2001 was aimed at the production of a new generation of minivans in Ludwigsfelde, Brandenburg. The biggest portion of the EIB loans to Daimler was granted under the ECTF program. Those loans, authorized by the EIB in 2009 and 2010, were aimed at R&D financing to optimize fuel efficiency and reduce carbon dioxide emissions. In 2011 Daimler received an EIB loan for the R&D&I of the company's truck division to improve fuel consumption, reduce emissions and enhance overall efficiency of fleet.

3.9 Social Public Support Granted by the European Social Fund and the European Globalisation Adjustment Fund

Both instruments were used during the crisis to mitigate its negative social effects in the European car industry. In particular, the ESF was used to (i) support short-term workers by financing training and a part of wage and non-wage labor costs, (ii) support company and sector restructuring, (iii) finance retraining and (iv) anticipate change requirements and match skills. The ESF had already been used before the crisis to support restructuring within the automotive industry.[43]

Member states also applied for co-financing of active social protection measures from the EGF in order to support workers who lost their jobs as a result of the economic crisis. The Commission revised the EGF rules to intervene more rapidly in the car sector to co-finance training and job placements for workers made redundant or to keep skilled workers in the labor market.[44]

Table 11 reports both the absolute amount of funds granted to the car industry under the EGF by country and year and the amount of funds relative to total production by country and year.

[43]Communication from the Commission - "Responding to the crisis in the European automotive industry" COM/2009/0104 final (hereinafter *Car Communication*).

[44]Regulation (EC) No. 546/2009 of the European Parliament and of the Council of 18 June 2009 amending Regulation (EC) No. 1927/2006 on establishing the European Globalisation Adjustment Fund, 2009 O.J. L 167/26.

Table 11 Support granted under the European Globalisation Adjustment Fund

Country	Year Firm	2007 €mil.	2008	2009 €mil.	2010 €mil.	2011 €mil.	Tot. €mil.
Belgium	GM					14.80	14.80
Tot. Belgium						14.80	14.80
Per production (€)						284.79	15.18
France	Renault					37.70	37.70
Tot. France						37.70	37.70
Per production (€)						17.13	1.04
Portugal	Lisboa-Alentejo	4.80					4.80
Tot. Portugal		4.80					4.80
Per production (€)		28.32					1.99
Spain	Cataluña				4.30		4.30
Tot. Spain					4.30		4.30
Per production (€)					1.81		0.13
Sweden	Volvo			15.10			15.10
Tot. Sweden				15.10			15.10
Per production (€)				117.29			5.11
Tot. by year		4.80		15.10	4.30	52.50	76.70
Per production (€)		0.31		1.30	0.33	4.04	0.43

Source: EGF webpage. This table reports the amount of public support under the EGF related to the car sector for the period 2007-2011 in Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. Amounts are expressed in absolute value and relative to the units of production

The EGF support has been granted to the car industry to ease the effects of major structural changes in world trade before the crisis or to alleviate the consequences of the last financial and economic crisis. In particular, applications for public support from the EGF increased in correspondence of the crisis. The Fund has been in operation since January 2007. The EGF provides support for active market labor policies, such as occupational guidance and training. For instance, in 2009 the EGF issued a €9.8 million grant to help the 1,500 most disadvantaged workers to return to employment from three Volvo Car plants and 23 suppliers and customers.

Support granted under the ESF consists of two clearly-defined cases regarding the car industry in the ESF project database. The first project took place in Sweden in 2010 to finance a job-centre project aimed at helping employees to update their skills and making them more adjustable to the job market. This project of €1.8 million was co-funded together with Volvo Cars, AB Volvo and several suppliers. Another project of €225,000 supported Volvo plant in Belgium. Moreover, the ESF funds have been used to co-finance measures of requalification and training during short-time working in Germany (Eurofound 2009), but the exact amount is not disclosed. We have not found any aid cases related to these funds requiring a separate notification and approval by the Commission in the state aid register.

3.10 Support Granted Through Scrapping Schemes

Many European countries have introduced large-scale scrapping programs as an economic stimulus to increase market demand for the car sector during the crisis. Scrapping programs have been formulated in a variety of ways. In Europe, they are mostly cash-for-replacement schemes, which require the replacement of an old vehicle with a new one (or an old but more environmentally-friendly one) to be eligible for the subsidies, but with different conditions on the duration of the program, the size of the incentive, the form of incentive (tax rebates, price discounts etc.), the age of the old vehicle to be scrapped, and the environmental requirements of the new vehicles. Several countries introduced schemes before the crisis, mainly with an environmental objective.

Table 12 reports the absolute amount granted to the car industry under the scrapping schemes in Germany, France and the United Kingdom by country and year.[45]

The German and UK reports contain the detailed information on the number of new vehicles purchased (and one-year old cars in case of Germany). We have multiplied those numbers on the new car purchases by the amount of the incentive - €2,500 in Germany and £ 1,000 in the United Kingdom - to calculate the total amounts of benefits in the form of scrapping consumer incentives to individual car producers.

The German scrapping scheme was the most generous in terms of government budget (€5 billion). The program promoted the sales of both domestic (VW, Opel and Ford) and foreign (Fiat and Renault, in particular Dacia) brands.

In the United Kingdom the scrapping scheme especially benefited foreign car producers Hyundai, Ford, VW, Fiat and Toyota. Among the car producers, only Toyota produces cars in the United Kingdom. The program was not very successful for the domestic brand Vauxhall.

The information on the French scheme is available jointly for the years 2008 and 2009, and jointly for two scrapping schemes “superbonus” and “prime à la casse” . Around 60 % of vehicles that were sold under the schemes were domestic brands. The benefit of the domestic brands from the scheme appears to be higher compared to Germany and the United Kingdom. This outcome may be linked to the CO_2 condition on the purchase of new cars in France that could have favored domestic cars more than foreign ones.

3.11 Overall Quantification of Public Support to the European Car Industry

Table 13 provides a summary of the amount of public support granted to the European car industry over the past decade.

With regard to state aid support, we sum up the aid elements that we can estimate consistently based on the state aid decisions published in the Commission’s register: GBER aid, regional aid, training aid, R&R aid and aid granted to car producers under the Temporary Framework. Our estimates of state aid support reflect the planned aid amounts, but the actual aid expenditure may differ. The Commission does not estimate the difference between the planned budget and the actual aid amount granted to companies. We assume that, on average, the planned and actual amounts do not differ much. On the one hand, once the aid is authorized, member states are likely to grant at least the amount approved

[45]Reports from Germany and the United Kingdom provide complete information on scrapping programs to assess the amount of public support granted to individual car producers. For France the information on scrapping schemes is fragmented, so the discussion will be more limited. Other countries such as Italy, the Netherlands, Portugal, and Spain have approved the scrapping schemes as a response to the financial and economic crisis as well. In some countries scrapping schemes were in effect before the crisis (for instance in Italy, Portugal, Spain). Since there is no detailed information on those schemes, especially across car producers, we have to exclude those countries from the detailed analysis of scrapping programs.

Table 12 Support granted under scrapping schemes

Country	Year / Firm	2008-2009 Estimated benefits €mil.	Budget share %	2009-2010 Estimated benefits €mil.	Budget share %
France	Fiat	29.00	4.80		
	Ford	33.90	5.60		
	Opel	26.00	4.30		
	Peugeot	240.80	39.80		
	Renault	156.10	25.80		
	Toyota	23.00	3.80		
	VW	25.40	4.20		
	Other brands	70.80	11.70		
Tot. France		605.00			
Germany	Hyundai			125.11	3.19
	Fiat			273.70	6.97
	Ford			258.80	6.59
	Nissan			102.60	2.61
	Opel			400.93	10.22
	Peugeot			255.09	6.50
	Renault			340.69	8.68
	Suzuki			84.80	2.16
	Toyota			172.02	4.38
	VW			1,503.31	38.31
	Other brands			407.16	10.38
Tot. Germany				3,924.21	
UK	Fiat			34.56	7.78
	Ford			49.78	11.21
	Honda			14.18	3.19
	Hyundai			87.71	19.76
	Mazda			12.74	2.87
	Nissan			17.41	3.92
	Peugeot			31.39	7.07
	Renault			15.93	3.59
	Suzuki			13.81	3.11
	Toyota			32.31	7.28
	Vauxhall			29.65	6.68
	VW			51.86	11.68
	Other brands			52.62	11.85
Tot. UK				443.94	
Tot. by year		605		4,368.15	

Source: French Ministry of Ecology, Sustainable Development, Transport and Housing, German Federal Office of Economics and Export Control and UK Society of Motor Manufacturers and Traders. This table reports the public support granted under the scrapping schemes related to the car sector for the period 2008-2010 in France, Germany, and the United Kingdom. Estimated benefits are expressed in absolute value. Budget share is calculated as percentage of the sum of scrapping incentives granted on a producer's car sales in terms of the total scheme's government budget in a respective country

Table 13 Summary of quantification of public support for the European car industry

Year	2000 €mil.	2001 €mil.	2002 €mil.	2003 €mil.	2004 €mil.	2005 €mil.	2006 €mil.	2007 €mil.	2008 €mil.	2009 €mil.	2010 €mil.	2011 €mil.	Tot. €mil.
State aid support instrument													
GBER										3.80			3.80
Regional aid	46.04	302.92	590.12	78.52	26.54	106.37	7.40			89.27	15.82	51.37	1,314.36
Training aid		19.72	2.65	54.57	4.57	14.22	5.55	23.19	14.68			17.09	156.24
R&R aid						6.50							6.50
Temporary Framework										1,125.00	96.80		1,221.80
Tot. by year	46.04	322.64	592.77	133.08	31.11	127.09	12.95	23.19	14.68	1,214.27	112.62	68.46	2,698.90
Per unit of production (€)	2.86	19.89	37.00	8.37	1.96	8.18	0.85	1.48	1.04	104.16	8.67	5.27	15.13
Non-state aid support instrument													
EIB loans	525.00	845.00	400.00	580.00	550.00	245.00	697.00	750.00	650.00	2,800.00	2,822.00	1195.00	12,059.00
"aid element"	78.75	126.75	60.00	87.00	82.50	36.75	104.55	112.50	97.50	420.00	423.30	179.25	1,808.85
EGF support								4.80		15.10	4.30	52.50	76.70
Scrapping schemes									19.19	4,057.17	1,334.90	12.00	5,423.26

Source: own estimations. This table reports the quantification of the public support for the European car sector for the period 2000-2011 in Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. State aid support is expressed as gross grant equivalent in present value and relative to the units of production. Non-state aid support is expressed in nominal value. Empty cells mean no relevant public support was awarded in those years. Our estimates are based on the following major assumptions:

(i) State aid support: Estimates reflect planned aid amounts collected from the Commission's decisions published in the state aid register. They do not generally include the aid granted in the form of schemes unless (i) the aid is notified individually under the approved scheme to the Commission and the respective decision is published in the register, or (ii) we can infer the information on the granted aid amounts from the Commission's reports published *ex post* as in the Temporary Framework case. We also do not include the aid amounts published under the "Transparency system" of the Commission for regional aid and R&D&I aid that reflect the actual aid amounts.

(ii) Non-state aid support: An "aid element" in case of the EIB loans is quantified as 15 % of the nominal value of the loans granted. Scrapping schemes cover France, Germany and the United Kingdom, and the amounts reflect government budgets.

For detailed explanation of the assumptions behind our estimates, see Section 3.11

Table 14 Mix of forms of public support for the European car industry

Country	GBER	Regional	Training	R&D&I	R&R	Temporary Framework	EIB loans	Social support	Scrapping programs
Belgium		+	+			+		+	
France		+	+			+	+	+	+
Germany		+	+	+		+	+		+
Italy		+	+				+		+
Netherlands									+
Portugal		+	+				+	+	+
Spain	+	+					+	+	+
Sweden				+		+	+	+	
UK		+	+		+		+		+

The table reports the nine instruments of public support for the European car industry for the period 2000-2011 in Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom

by the Commission because the aid is necessary for the execution of investment projects by companies. On the other hand, member states may be unwilling to grant amounts of aid higher than the authorized ones because of possible controls by the Commission triggered by the annual report on aid expenditures, or by external complaints on unlawfully-granted aid.

Our overall estimate of state aid is a lower bound estimate of state aid granted to the European car producers over the past decade. In particular, our estimate does not include the aid granted in the form of schemes, unless (i) the aid is individually notified under the approved scheme to the Commission, and the aid decision is published in the register, or (ii) we can infer the information on the granted aid amounts from the Commission's reports published *ex post*. In the case of aid granted under the Temporary Framework, the aid figures report the actual aid amounts which are equal to the planned aid amounts as announced by the Belgian, German, French and Swedish governments. We do not consider other cases of aid granted on the basis of schemes in our overall quantification exercise for two reasons: (i) either the information is not available, (ii) or in case of the aid granted through schemes and published in the register of the "Transparency system" , we do not include the regional aid and R&D&I aid amounts that reflect the actual aid awarded to the car producers. As we have seen from the example of regional aid, the amounts granted based on the regional schemes might be at least as high as the amounts of regional aid authorized in the individual state aid decisions. [46]

The overall state aid to the European car industry has declined over the past decade, but peaked in response to the financial and economic crisis in 2009. After the crisis it decreased in 2010 and 2011 to a level even lower than the average level over the pre-crisis period.

[46] Because the reporting criteria adopted by the register of the Transparency system are different (as explained in the Appendix) and the register of the Transparency system is available only since 2003, we do not include these amounts in the overall quantification of the aid amounts. At the same time, we carefully checked that the aid reported in the register of the Transparency system is related to different cases with respect to the amounts authorized in the individual state aid decision. We notice that aid granted under the Transparency system sums up to 846 million over the 11 years and 9 countries in consideration, which is not too far from the total overall 1,314 million of state aid granted under the Regional Guidelines.

With regard to non-state aid support, we discuss the amount of support granted under each instrument separately. Our findings are threefold. First, the EIB loans were intensively granted to the car sector before the crisis, and went up considerably in response to the crisis in 2009 and 2010, and decreased by more than half in 2011. The loans granted in 2009 and 2010 were almost five times larger than the average yearly volume of loans granted over the pre-crisis period. EIB loans do not constitute state aid, but since they are granted at lower than market interest rates, we calculated the financial benefit of those loans to the car producers (the so called “aid element”). As the information on the actual interest rates is not available, we followed the practice of the Commission and took 15 % of the total amount of the EIB loans as a proxy for the “aid element”.

Second, the EGF funds granted to the car industry also increased following the crisis to ease the consequences of the restructuring process in the car industry. In the EGF project database, we observe a long lag between the actual application date for the funds and the date when the funds are actually released to beneficiaries. This might explain the increased amount of funds granted under the EGF in 2011. The exact amount of public support through the ESF funds is difficult to quantify because public information is scarce.

Third, member states granted an unprecedented amount of public support through the scrapping schemes to foster the local demand for cars in the crisis times. We estimate the total amount of financial benefits in the form of scrapping consumer incentives to the European car sector on the basis of government budgets. On the grounds of the available information, we can cover only three countries (France, Germany and the United Kingdom), while scrapping schemes were used also in other European countries: we can then provide only an underestimation of the financial benefits to the European car producers through the scrapping incentives.

Note that when the crisis peaked in 2009, the amount of state aid granted under the Temporary Framework was lower than the public support granted to the European car producers in the form of scrapping schemes and EIB loans. Therefore, while analyzing public transfers to companies, it is important to consider various instruments of public support to get a complete picture of public interventions in the car industry.

Finally, we consider the mix of instruments that member states have chosen to grant public support to the car industry. Table 14 visualizes these instruments by country. GBER aid is only found in Spain. Regional aid and training aid were granted by almost all countries in our sample. R&R aid was granted only once in the United Kingdom. R&D&I aid was rarely granted, but large amounts of the EIB loans were granted to the industry with the same purpose. The Temporary Framework probably substituted aid granted for R&R and R&D&I purposes. It was used by four countries: Belgium, France, Germany and Sweden. Scrapping schemes were introduced in almost all countries over the past decade.

4 Conclusion

We find that the quantification of state aid to the European car industry is a challenging task for three main reasons. First, the availability of the information on the state aid element depends on whether a public support measure is scrutinized by the Commission or not. Second, the extent of available information depends on whether state aid is granted to individual companies or is in the form of schemes to multiple companies. Third, the quantification of the aid element depends on whether state aid is granted in the form of a grant, soft loan or guarantee. Consequently, we quantify the aid element whenever this is possible. For non-state aid support, we report the total amount of public support granted under each instrument.

With regard to state aid support, regional aid was the most used aid instrument before the crisis. Overall, it declined during the last decade. In nominal terms, the largest regional aid granter has been Germany, followed by Spain and Italy. Portugal has granted most aid relative to production. At the company level, the largest aid recipient is BMW, followed by Fiat and Ford. In general GM Europe and Ford have received regional aid in multiple European locations. Peugeot and Renault tend to receive more aid at their foreign locations (mostly in Spain) than at home. VW receives aid both at home and abroad, namely in Portugal. Fiat gets aid only domestically. There is no clear evidence that European governments favor only domestic car producers. Governments support foreign car producers as well, most probably to influence their location choice and generate employment for weak or underperforming economic regions.

Training aid was the second largest aid category before the crisis. In nominal terms and relative to production, Italy has granted the most training aid, followed by Belgium and the United Kingdom. The case of Belgium is interesting because the country does not have any domestic car production. The granting of aid to the foreign car producers may be motivated by employment issues. At company level, the biggest share of training aid belongs to Fiat in Italy, followed by Ford and GM Europe in various European locations.

R&D&I aid and R&R aid were rarely granted to the car sector during the past decade. Those two instruments were not used during the last financial and economic crisis, when aid with similar purposes was primarily granted to car producers under the Temporary Framework. In the case of aid granted under the Temporary Framework for the development of green products, it may be treated as aid for R&D&I projects, usually subject to the rules of the R&D&I Framework. Aid under the Temporary Framework to firms in temporary difficulty due to the crisis can be read as a sort of R&R aid granted through a fast track in derogation of the R&R Guidelines. Since the firms did not need to present a restructuring plan, this aid could better be qualified as rescue aid. Especially France, Germany and Sweden used the Temporary Framework to support their domestic production. Italy, Spain and the United Kingdom notified some schemes targeted at the car sectors but did not use them.

With regard to non-state aid support, EIB loans were granted in large amounts to the car industry before the crisis and increased considerably as a response to the crisis, in particular to guarantee the necessary flow of credit to car producers until banks resumed their normal lending activities. The EIB has financed the automotive sector for projects located in less developed regions, for example, the BMW plant in Leipzig, which also benefited from regional aid granted by the German government. This and other EIB loans to finance the introduction of new models, or the establishment of new car plants resemble in their purpose regional aid granted under the *Regional aid Guidelines*. More recently, EIB loans are especially granted to finance R&D&I projects aimed at the transformation of the sector into a more sustainable one. The support granted under those projects resembles in its purpose R&D&I aid granted under the *R&D&I Framework*.

The EGF applications also increased following the crisis. The exact amount of the public support through the ESF funds is difficult to quantify because publicly available information is scarce.

Finally, an unprecedented amount of public support was granted to the European car producers during the crisis through scrapping programs to foster the local demand for cars. The scheme in France clearly benefited domestic car producers, whereas the schemes in Germany and the United Kingdom benefited both domestic and foreign car producers. The success of home products in France may be attributed to a domestic bias of consumers, or to the CO_2 emission requirements specified by the French scrapping scheme. The British and German schemes did not specify those requirements.

Our lower bound estimate of overall state aid to the European car industry suggests that the aid has declined during the last decade, but increased in response to the crisis in 2009 and decreased even below the average pre-crisis level in 2010 and 2011. However, in 2009 European car producers received higher amounts of public support through scrapping schemes and EIB loans than regular state aid. This support might have caused distortionary effects on competition and trade. When analyzing public transfers to the car industry, it is therefore important to consider all different instruments of public support.

In conclusion, the quantification of public support for the car industry at national and European level is a challenging exercise. Although the European Commission analyzes the evolution of state aid in its Scoreboard reports, it publishes no analysis of state aid at the industry level: one cannot follow whether some industries are treated more favorably than others and how the industry-specific aid has evolved over time. The existence of multiple public support instruments at different levels may create coordination problems and a lack of transparency, in spite of the Commission's efforts in this respect. The lack of transparency in turn poses a challenge for the quantification of state aid and non-state aid support to any industry or sector. We recommend more clarity on the part of the Commission concerning the existence of various public support instruments and regarding the ways of notifying (*ex ante*) and monitoring/reporting (*ex post*) public support measures. This could allow an easier quantification of state aid and non-state aid support granted to any industry or sector, and increase the transparency of state aid control and enforcement.

Appendix: Quantification assumptions

For the quantification of state aid support to the European car industry, we adopt the following set of assumptions to recover the aid element.

Assumption 1 We treat *ad hoc* aid and schemes in different ways. We cover all cases of *ad hoc* aid (granted with different instruments and forms) because the aid element is consistently estimated. In contrast, we treat schemes separately and we cover them in our quantification in three instances: (i) when there is an individual application of state aid under the approved scheme and the respective state aid decision is published in the register of the Commission under the denomination of "individual application" , (ii) when the aid amounts, granted under the approved schemes, are published under the "Transparency system" of the Commission, and (iii) when the aid amounts can be followed from the Commission's reports published *ex post* (especially in relation to the aid granted under the schemes of the Temporary Framework). In all other circumstances schemes are not covered in the quantification.

Assumption 2 We report the planned and actual aid amounts separately. The planned amounts are based on the state aid decisions reported in the register of the Commission. The actual amounts are published under the "Transparency system" or in the reports of the Commission.

Assumption 3 If the information on the aid element in the case of subsidized loans or subsidized state guarantees is not available, we follow the practice of the Commission in this respect when the aid element is not provided by a member state in its annual report on aid expenditure to the Commission: (i) in case of soft loans, we take 15 % of the total amount of the loan as a proxy for the aid element, (ii) in case of subsidized state guarantees, we estimate the aid element to be 10 % of the nominal value guaranteed.[47]

If the soft loan was not repaid, we take the aid element to be equal to the amount of that loan (e.g. in the case of rescue aid to MG Rover in 2005).

Assumption 4 State aid can be granted for a project with multiple objectives (e.g. aid to finance regional investment and aid to finance training). In some cases the aid decision contains separate information on the amount of state aid granted for each objective. In other cases, when the information is not available, we refer the aid amount to the aid instrument based on the primary horizontal legislation under which the aid compatibility is assessed (e.g. regional aid if the primary legislative text used to assess the aid compatibility are Regional aid Guidelines, or training aid if the primary legislative text to assess the aid compatibility is the Training aid Communication).

Assumption 5 In cases where a state aid decision takes up several years, we attribute the aid to the year of the Commission's final decision.

Assumption 6 When the aid is paid in installments, the Commission requires that data on the aid amounts are presented in the net present value at the moment when the aid was granted and calculated before any deduction of tax or other charge. We also express the aid amounts as gross grant equivalent in present value.

For the schemes approved under the Temporary Framework, the aid amounts are not notified individually, so there is no economic assessment by the Commission. The information on the actual aid granted under the Framework can only be followed from the reports of the Commission published *ex post*. Such reports usually state the amounts in nominal value. If the public authorities transfer the aid amount to the bank account of the beneficiary on the first day following the decision of the Commission, the nominal amount is identical to the net present value. Since in cases of individual aids granted under the Framework the Commission did not publish any decision and all the loans were granted at once, we assume that the nominal and net present values of such aid are equal.

With regard to non-state aid support, we state the total amount of public support that has been granted. In the case of EIB loans, we report the nominal amounts of loans signed by the Bank. In cases of social public support, we report the nominal amount of the

[47] Scoreboard - Conceptual and methodological remarks: conceptual_remarks.html

support approved by the respective social funds, i.e. either the ESF or the EGF. In cases of scrapping schemes, we report the total amount of government budget for scrapping incentives.

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