

Regulation (EU) 2017/1151 came into force across the EU on 1 September 2018. Under this regulation, the application of a new protocol for the measurement of automobile pollutant emissions known as the Worldwide Harmonised Light-Duty Vehicles Test Procedure (WLTP) is mandatory. All vehicle registrations performed after that date must comply with this protocol. In practice, this means that measurements of fuel consumption and emissions are more stringent than those obtained under the previous system. This regulatory change has immediate tax effects, since vehicle registration tax is calculated based on CO2 emissions,<sup>1</sup> and it also obliges manufacturers to adapt their production systems to ensure that vehicles comply with the new legal requirements.

The two measurement systems will coexist until 31 December 2020. The European regulations provide a tool that permits correlating the values of CO2 emissions of the WLTP with those of the New European Driving Cycle (NEDC) for the purpose of having a comparable base. The Ministry of Industry, Trade and Tourism has approved the use of this transitional system<sup>2</sup> to reduce the impact on the automotive industry. This measure does not exempt any vehicle from complying with the emissions established in the new standards, but rather intends to graduate the tax impact of the change in procedure and facilitate manufacturers' implementation of the technologies and developments required to adapt their range of products to the new cycle requirements.

This regulatory change is giving rise to several consequences for the automotive industry. During the summer car dealers tried to dispose of the stocks of vehicles that would not meet the new standards,<sup>3</sup> offering heavy discounts. They also resorted to self-registration for their final sale at a later date, since the new regulations will not be applied to second-hand cars. The main effect, however, derives from the need for manufacturers to change their production so that the new models comply with the regulatory change. The volume of economic activity that is directly affected by this legislative change is significant, given the weight of the automotive industry<sup>4</sup> in the euro area (see Charts 1 and 2), accounting for somewhat more than 20% of Germany's manufacturing production (around 7% of the economy's total output) and increasing since 2009, and for 8% in France and 7% in Italy. These figures are relatively large in Spain, albeit lower than in Germany, accounting for 11% of total manufacturing output (around 3% of total output). In employment terms, the weight of the automotive industry as a percentage of total manufacturing in Germany, France, Italy and Spain is 12%, 4.1%, 4.4% and 7.5%, respectively (approximately 2%, 0.4%, 0.7% and 0.8%, respectively, in the total economy).

Additionally, this sector is very important for the export activity of euro area countries. In Spain, motor vehicle exports accounted for around 11% of the total in 2017 in nominal terms, although the sector's relative weight in the total has been decreasing in recent years, given the degree of external openness of the rest of the economy seen since the crisis.<sup>5</sup> In Germany the weight of the

1 Vehicle registration tax in Spain is divided into brackets, based on vehicles' emission levels. Those with emissions lower than 120 gr/km are exempt from paying the tax. The tax rate for those with emissions between 121 gr/km and 160 gr/km is 4.75% and for those between 161 gr/km and 200 gr/km it is 9.75%. Cars with emissions in excess of 200 gr/km are taxed at 14.75%. The fact that the new legislation addresses higher emission levels means that certain vehicles will no longer be tax exempt and others will move to a higher bracket.  
 2 See press release <https://www.mincotur.gob.es/es-es/GabinetePrensa/NotasPrensa/2018/Paginas/20180831.aspx>

3 Car dealers may continue to register vehicles certified under the NEDC protocol until 1 September 2019, provided the volume does not exceed 10% of the previous year's total sales.  
 4 Unless expressly stated otherwise, the automotive industry refers to sector 29 of the Spanish National Classification of Economic Activities (CNAE, by its Spanish abbreviation): Manufacture of motor vehicles, trailers and semi-trailers.  
 5 See M. Almunia, P. Antràs, D. López-Rodríguez and E. Morales (2018) *Venting Out: Exports during a Domestic Slump*, Banco de España Working Paper No. 1844.

Chart 1  
MOTOR VEHICLE INDUSTRY OUTPUT / TOTAL ECONOMY

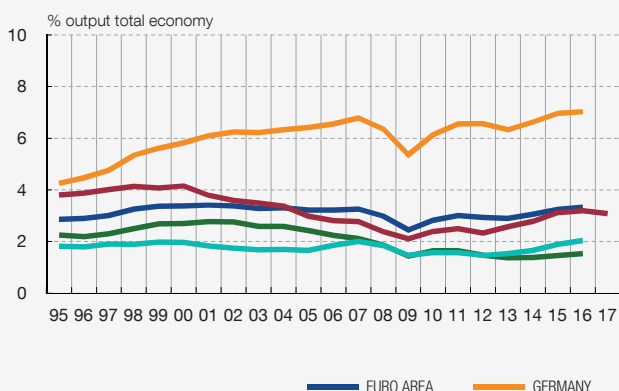
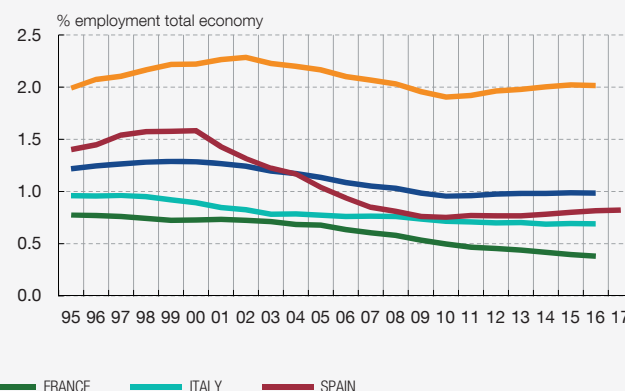


Chart 2  
MOTOR VEHICLE INDUSTRY EMPLOYMENT / TOTAL ECONOMY



SOURCE: Eurostat.

automotive sector in exports is also 11%, while in France and Italy it is lower, accounting for 4.7% and 4.4%, respectively.

Nonetheless, the sector is more important for foreign trade than what these figures reflect. The automobile production process involves successive interactions between different firms that are located in different countries so that it is not possible to be immediately aware of the position and participation of each economy in the global supply chains. The world input-output database (WIOD) allows breaking down exports into the fraction relating to foreign value added (imported content) and domestic value added, i.e. the respective contributions of non-resident and local production factors to total value added, separating from the latter a third component, which is domestic value added that is re-exported in the form of intermediate goods.<sup>6</sup> Chart 3 shows how, in comparison with the other large countries of the euro area, Spain has a greater weight of the so-called “backward” component (inputs from abroad) and a lower weight of the “forward” component (intermediate inputs that will be re-exported to a third country), although the differences are very small in the latter case. This composition indicates that the automotive industry in Spain is more oriented towards the final product, which could lead to the negative impact of regulatory changes on production in the sector materialising with some delay in comparison with the other countries considered, whose automotive industry focuses more on the initial phases of production.

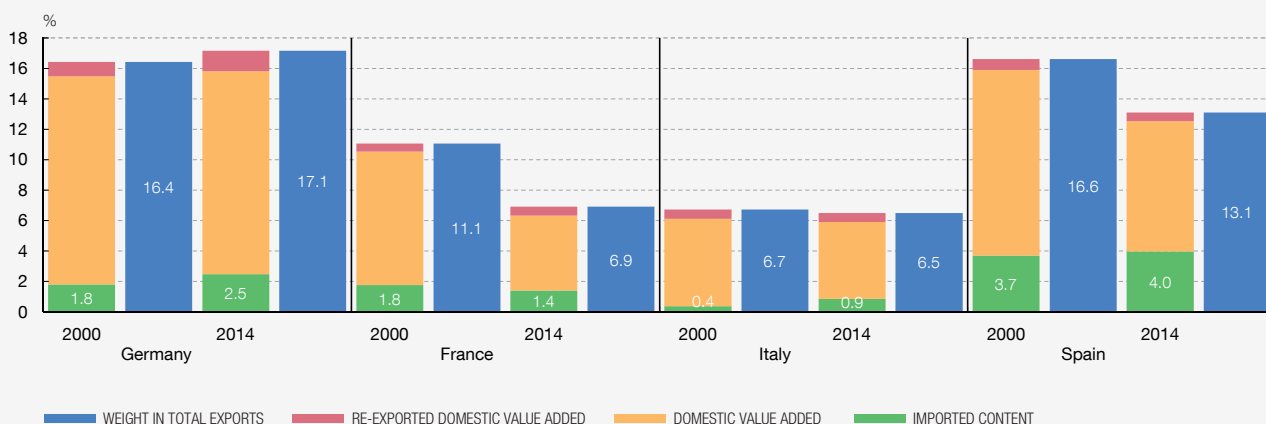
As regards the effect of the regulatory change on the most recent activity data, a distinction should be made between demand and supply elements. In the case of demand, vehicle registration

figures were significantly affected in the most recent phase both in Spain and in the other European countries where the new legislation has been implemented. Thus, very high growth was recorded in the months prior to the change in regulation, particularly in August (with the exception of Italy, where the rise was more moderate), linked in part to the self-registration policy discussed previously. In Spain, registrations in August grew close to 50% year-on-year, compared with increases of between 15% and 25% in the same month during the four previous years, a pattern that was also seen in Germany and France. Once the regulation came into force, these increases were followed by falls of varying intensity which offset in some cases the increases of August. In the case of Spain, despite the declines in September and October, the cumulative growth of registrations during the period August-October stood at 5.9%, while falls of 11.3% and 5.6% were recorded in Italy and Germany, respectively (see Chart 4).

As regards supply, car production figures also appear to have become distorted around the dates of entry into force of the regulation (see Chart 5). In Spain the auto component of the Industrial Production Index (IPI) fell by approximately 20% in September, partly owing to demand having been brought forward to the summer months, but also because the need to certify vehicles under the new regulation could have prompted delays in the supply chains of the different production plants, according to the anecdotal evidence available. The decline in October was much more moderate (-1.9%), such that in cumulative terms, car production in the period August-October fell by 5.4% vis-à-vis the decrease of 2% recorded in the same period in 2017. As regards the rest of the European countries analysed, the situation is mixed. A significant decline was observed in the period August-October in Germany (-11.9%, compared with a 2.4% increase in 2017), which was slightly more moderate in Italy (-8.7%, compared with a 4.5% increase in 2017) and the effect was minor in France, increasing by 0.7% (12.9% in the same period in 2017).

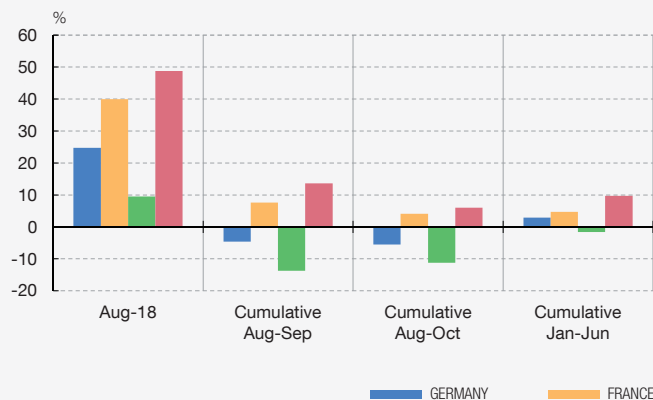
6 For further details see E. Prades and P. Villanueva (2017), “Spain in the Global Value Chains”, *Economic Bulletin*, 3/2017, Banco de España, and M.P. Timmer et al. (2015), “An illustrated user guide to the World Input-Output Database: the case of global automotive production”, *Review of International Economics*, vol. 23, No. 3, pp. 575-605.

Chart 3  
SHARE OF THE AUTOMOBILE INDUSTRY IN TOTAL EXPORTS AND GLOBAL VALUE CHAIN PARTICIPATION

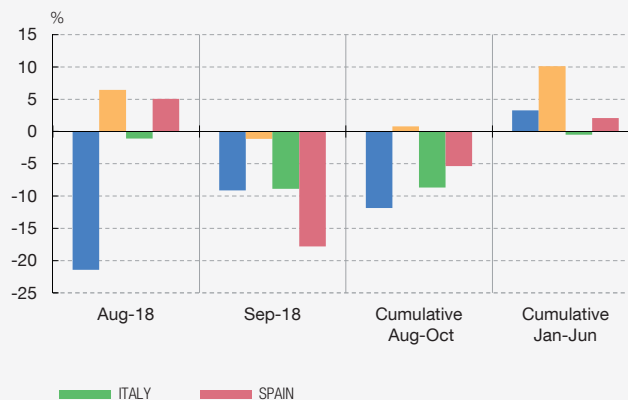


SOURCES: WIOD 2016 and Banco de España calculations.

**Chart 4**  
VEHICLE REGISTRATIONS  
Year-on-year rates



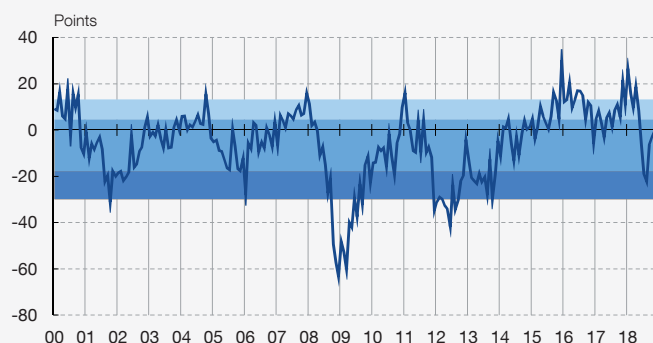
**Chart 5**  
INDUSTRIAL PRODUCTION INDEX - VEHICLES (a)  
Year-on-year rates



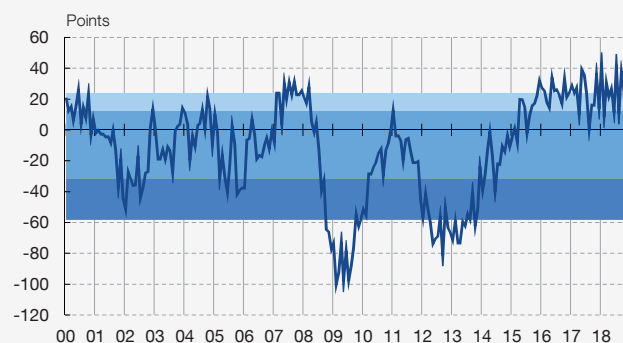
SOURCES: European Automobile Manufacturers Association and Eurostat.

a Data relating to sector 291: Manufacture of motor vehicles.

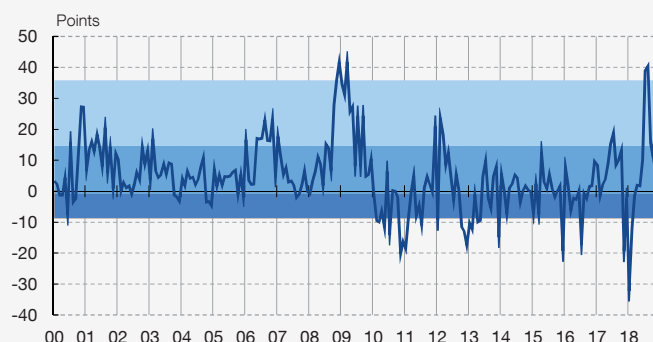
**Chart 6**  
CONFIDENCE INDICATOR FOR AUTOMOTIVE INDUSTRY



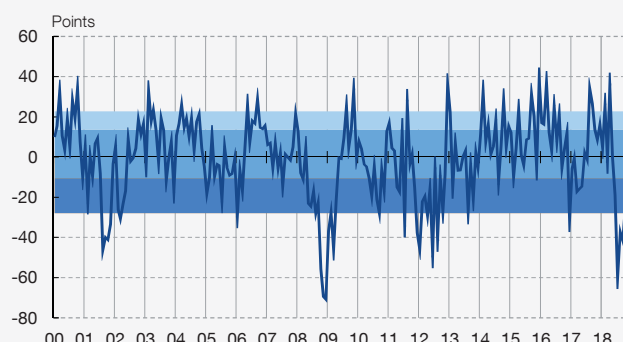
**Chart 7**  
ASSESSMENT OF ORDER BOOK LEVELS



**Chart 8**  
ASSESSMENT OF STOCKS OF FINISHED PRODUCTS



**Chart 9**  
PRODUCTION EXPECTATIONS FOR THE COMING MONTHS



10-25 PERCENTILE    25-75 PERCENTILE    75-90 PERCENTILE    INDICATOR

SOURCE: European Commission.

As regards the outlook for the industry, the indicators available reflect a downturn in the months leading to the entry into force of the new legislation, which is reversing in subsequent months, an effect which appears to be temporary. Specifically, in Spain the confidence indicators for the auto industry have shown a downturn since May, which worsened in July and August, although this trend has reversed. The behaviour of the aggregate indicator is explained by the uneven performance of its components. First, in the summer

months there was a significant accumulation of inventories, possibly reflecting the initial problems in demand, which, however, declined in later months. As regards the assessment of order books, the levels remain high, which seems to point to a temporary phenomenon. Finally, the downturn shown in production expectations since the summer months also reversed in November, pointing to a possible normalisation of activity in production chains over the coming months (see Charts 6 to 9).

---