

BARTŁOMIEJ KOŁSUT

Adam Mickiewicz University, Poznań, Poland

## The import of used cars to Poland after EU accession

**Abstract:** The purpose of the article is to identify the volume and spatial structure of imports of used cars to Poland during the first 15 years of membership in the European Union, using data from the Central Register of Vehicles. The article attempts to answer three key research questions: (1) What was the volume of imports of used cars to Poland in the period 2004–2018 against the background of the volume of imports into other selected countries and in relation to the level of sales of new cars? (2) From where (which countries) to where (which regions of Poland) were used cars imported? (3) How does the import of used cars affect the age structure of passenger cars in Poland? The conclusions of the study are as follows. In the period 2004–2018, nearly 12 million used cars were imported to Poland, which makes Poland the world leader in this field. The changes in the volume of imports were mainly influenced by the economic slowdown and lowering of consumers' income levels, vehicle scrapping programs in Western Europe (which reduced the supply of older cars in these countries) and the value of the zloty against the euro. Most cars were imported from Germany, and the main gateways for imported cars were the so-called "car crescent", located mainly in the Wielkopolska region. The average age of imported cars varied from around 8.5 to around 11 years and increased the average age of cars in Poland.

**Keywords:** cars; European Union; import; Poland; used cars

**Received:** 19 December 2019

**Accepted:** 27 April 2020

**Suggested citation:**

Kołosut, B. (2020). The import of used cars to Poland after EU accession. *Prace Komisji Geografii Przemysłu Polskiego Towarzystwa Geograficznego* [Studies of the Industrial Geography Commission of the Polish Geographical Society], 34(2), 129–143. doi 10.24917/20801653.342.9

## INTRODUCTION

Since Poland acceded to the European Union, its economic and social reality has been changing very quickly. The opening of Western markets and lifting of many institutional restrictions resulted in the intensification of trade, migration and increased integration of the Polish economy and society (but also of other countries of Central and Eastern Europe) with the so-called 'old Union'. An example of the revolutionary changes resulting from Poland's integration with the EU are those to the used car market and

international trade (Chu, Delgado, 2009; Coşciug et al., 2017; Grubel, 1980). Vehicles depreciating and withdrawn from use by members of richer societies have become an attractive good for less affluent consumers from Central and Eastern Europe. For them owning a car is not only a symbol of prestige and higher material status but also a necessary element of everyday life in conditions of lower levels of access to public transport.

Poland is an excellent testing ground for analysing the phenomenon of used car imports. Firstly, because the processes that have been happening in Poland since joining the EU have been rarely seen or are absent in the more developed countries whose representatives set the tone and shape the academic discussion in automotive research. In 2004, new automotive markets opened, utterly different in terms of structure, but yet geographically similar. On the one hand, these were the car markets of Western European countries (especially Germany) with a high automotive index (close to the maximum saturation level), a relatively short vehicle life (and thus a low average age of cars) and the dominance of the primary market in car sales. On the other hand, developing countries (including the largest of them, i.e. Poland) have opened their borders with a clear scarcity of passenger cars, growing expectations and social needs, growing income levels and a well-developed sector of servicing and replacing used cars. The integration of such geographically close markets caused a large and rapid increase in trade, and observation and analysis of this process can be very fruitful for spatial and economic research.

Secondly, research on the Polish automotive market is currently facing a very big opportunity in connection with the availability of the Central Register of Vehicles (CRV) by the Ministry of Digitisation and the comparison of this detailed data with information previously published by the customs and tax offices operating within the Ministry of Finance. CRV is a large data set in which all key information about vehicles is collected (including make and model, year of manufacturing, year of first registration in Poland, type of fuel, engine capacity), as well as (which is key for geographers) data describing the location of the owners (*powiat* of residence for individuals or *powiat* of business activity for economic entities) and the country of origin for imported cars. Although this is a database with errors, deficiencies and inaccuracies, its quality is much better than even 15 years ago, when the first version was created. Access to such detailed information allows new research programs and the development of economic geography.

Thirdly, although the dominant role of Poland in the international trade of used cars is mentioned in the academic literature (Chu, Delgado, 2009), the number of in-depth analyses that would more accurately identify the scale and type of cars imported into Poland is relatively small. Among the publications present in the literature, one should, first of all, mention the work of Komornicki (2011) who analysed the volume and spatial structure of imports of used cars to Poland in 2004–2005, while formulating several explanations relevant to this. In turn, Adamowicz (2009) described changes in the level of imports of used cars in the period 1998–2007, explaining them primarily by legal and fiscal changes. In addition to these two works, there are a number of publications on changes in the spatial structure of cars in Poland (Komornicki, 2003, 2008; Menes, 2001, 2018; Rosik et al., 2018) and the sale of new cars (Kudłak et al., 2017; Strykiewicz et al., 2017) the subject of which indirectly concerns the import of used cars. However, there is a lack of research summarising the import of used cars in the long term and using data from the CRV, analyses at a territorial level lower than voivodeships are

now enabled. This article tries to fill this gap, although it is clear that it is not able to solve all the research issues posed in research on the import of used cars.

The purpose here is to identify the scale and spatial structure of imports of used cars to Poland during the first 15 years of membership in the EU. The achievement of this goal is associated with the need to answer key research questions:

1. What was the volume of used cars imported to Poland in the period 2004–2018 compared to the volume of imports in other selected countries and in relation to the level of sales of new cars?
2. Which countries were the largest number of used cars imported from and where were they registered for the first time in Poland? Do Polish regions exist specialising in this import, and where are they?
3. How did the import of used cars affect the age structure of passenger cars in Poland?

To obtain answers to the questions, customs and tax data from the Ministry of Finance, and vehicle information collected in the CRV kept by the Ministry of Digitisation, was used. Data published by the Ministry of Finance had been used in previously published works on the import of used cars to Poland (Adamowicz, 2009; Komornicki, 2011). They come from importers' declarations submitted on the AKC-U form (simplified declaration for excise duty on intra-EU acquisitions) within 14 days from the date of tax liability, i.e. from the date of purchase of a vehicle registered outside Poland. The responsibility for submission of the declaration and payment of excise duty lies on the importer who must then within 30 days register the vehicle in Poland, and thus on to the CRV. However, in practice, there may be a situation in which one entity pays the excise tax and another registers the vehicle in Poland as the first owner. Commercial importers who treat a car as a commercial product pay excise duty (fearing legal consequences), but do not register the car because of the lack of any real sanction for non-compliance with the 30-day registration deadline (such sanctions were introduced from 1 January 2020). In this case, the first Polish owner recorded in the CRV is the customer of the importer who bought the car. Therefore, the registration data of the Ministry of Digitisation differ from those published by the Ministry of Finance. For an analysis of the imports of used cars, a more accurate source of information is treasury data. However, their disadvantage is that they only describe the number of imported vehicles by voivodeship. They are available for the years 2004–2016. Yet, it should be added that the customs office in Opole was established on 1 January 2015, and in Kielce on 1 September 2015, as previous statistics for the Opolskie and Świętokrzyskie voivodeships were included under the Dolnośląskie and Małopolskie Voivodeships. In addition, since October 2017, the Ministry of Finance has been aggregating data from tax offices across the whole of Poland.

The article uses both the data from the Ministry of Finance (import of used passenger cars by voivodeship in the years 2006–2016) and more detailed information from CRV while discussing the restrictions resulting from their use. In the case of the CRV database, important in identifying the scale and structure of imports of used passenger cars, are data on (1) the country of origin of the imported car, (2) year of first registration in Poland, (3) year of production, (4) *gmina* of residence of the owner of the vehicle, and (5) *powiat* in which the vehicle was registered. The study used CRV data as of December 31 of each year (for the period 2004–2018). Imported passenger cars were separated from the entire set of vehicles registered on the basis of information on the country of origin (each car imported to Poland has information about the country

of last registration) and age in the year of first registration (cars older than a year at the time of first registration are considered as used imported cars). In turn, information about the year of first registration in Poland is treated as the date of importing the vehicle. Subtracting that from the year of production allowed the age of each car to be identified at the time of import.

#### POLAND AS A GLOBAL LEADER IN THE IMPORT OF USED CARS: CHANGES IN THE VOLUME OF IMPORTS IN 2004–2018

Imports of used cars are rarely monitored. They are difficult to describe due to problems of access to reliable data (Berkovec, 1985; Chu, Delgado, 2009) and the often implicit and sometimes illegal nature of imports (Beuving, 2006; Brooks, 2012). In the literature and official sources, you can find fragmentary data describing the scale of imports of used cars in various countries. It is known that the largest exporters of used cars are the USA, Japan and EU countries (Coffin et al., 2016; Pelletiere, Reinert, 2004, 2006, 2010). Coffin (2015) published data showing the scale of imports of used cars from the USA in the years 2009–2013 when the largest importer was Mexico (in 2013 approx. 115 000 cars) and Nigeria (in 2013 approx. 110 000 cars), and the average annual total of used car exports from the US was around 750 000. In turn, Davis and Kahn (2010) report that in 2005–2008, after Mexico lifted restrictions on car imports, approximately 600 000 were imported from the US on average annually. Data on the export of used cars from Japan published by the United Nations (UNECE, 2017) for 2014–2015, in turn, show that the largest importers of cars from this country were New Zealand (about 220 000), the United Arab Emirates and Burma (about 190 000) and Russia (about 165 000 cars in two years). The text by Golunov (2018) shows, however, that the import of used cars from Japan to Russia reached its highest level (about 500 000 cars) in 2008, and in the period 2009–2017 did not exceed 200 000 per year. Of course, the numbers cited do not exhaust the full spectrum of used car imports in the world, but they show the scale and order of magnitude of this phenomenon in the countries where it is most common. This may constitute a significant background for its interpretation in Poland where after 2004 it developed on an unprecedented scale.

The first period in which a large number of used cars were imported to Poland was 1990–1992 (Komornicki, 2011). The beginning of the transformation facilitated international trade based on individual transactions, which, combined with the demand for cheap used cars, caused a sudden increase in the import of cars from behind the western border. The volume of imports clearly decreased in the latter half of the 1990s. At that time, the primary market was dominated by the sale of the relatively inexpensive Fiat 126P, Cinquecento, Seicento and Uno, Polonez as well as Daewoo Tico, Lanos and Matiz.

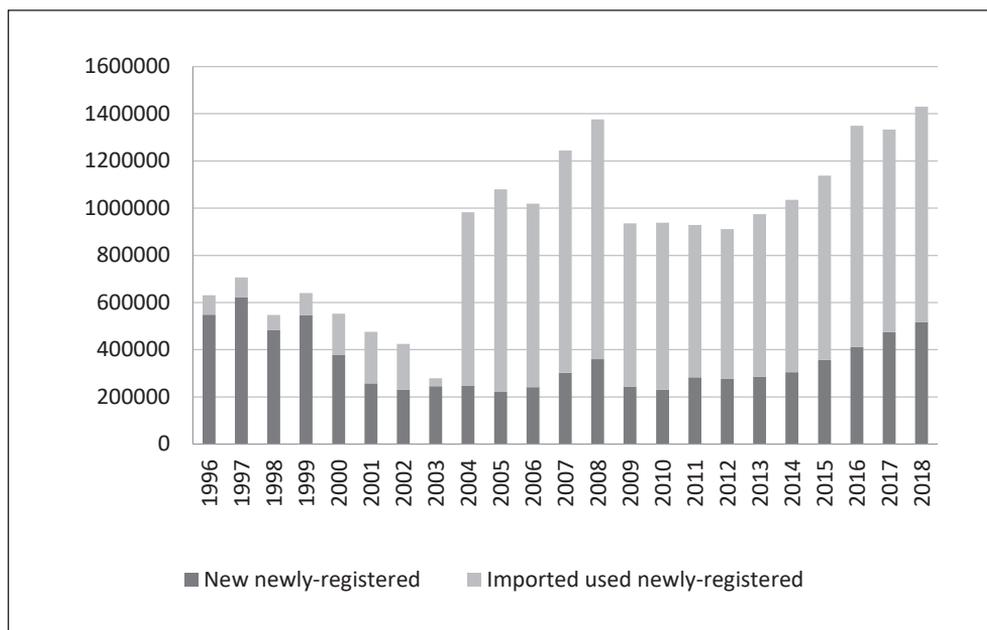
Imports of used passenger cars began to increase again since 1998 (Fig. 1) due to the consequences of Poland's implementation (based on an interim agreement with the EU) of the schedule of reduction of customs rates, which in 2002 led to the total abolition of customs duties on used car imports from EU countries (Krzak, 2004). This process was accompanied by the bankruptcy of Korean Daewoo and a large drop in sales of new cars. Also, the effects of the economic slowdown and rising unemployment were felt very strongly in Poland and this reduced consumer demand. Due to these circumstances, the import of cheaper used cars increased, and in the period 2000–2002

reached the level of approx. 200 000 passenger cars annually. In turn, sales of new cars fell from approx. 650 000 in 1997 to approx. 230 000 in 2002. This, in turn, provoked a reaction on the government side in Poland. In 2002, significant regulations limiting the import of used cars were introduced, i.e., a system of restrictive excise rates and a number of formal requirements related to the exhaust emission standard and, thus, the year of production of the car (Krzak, 2004; Adamowicz, 2009). This wholly stopped used car imports and in 2003 only approx. 35 000 were imported to Poland (while maintaining the level of sales of new passenger cars at around 200–250 000 vehicles).

The opening of the Polish market to imports of used cars from Western Europe in 2004 caused a revolution in the domestic automotive market. Virtually all significant customs and tax restrictions were lifted, which resulted in a radical reduction in the value of imported cars. In the period 2004–2018 about 12 million imported used passenger cars were registered in Poland, which means that over 15 years, an average of about 800 000 cars were imported annually. In record-breaking 2008, it was even over 1.1 million cars. These values are much higher than the data cited earlier for countries importing cars from Japan and the USA.

From the point of view of importing used cars to Poland, the last 15 years can be divided into three main subperiods (Figure 1). The first of them (2004–2008) was the time of the largest imports, which can be described as the “first import boom”. Over the five years following EU membership, an average of over 860 000 used passenger cars were registered in Poland annually. This was due to the relatively large supply of older used cars in Western Europe, and, on the other hand, high demand on the Polish side where the automotive index was relatively low and far from saturation

Figure 1. Changes in the number of new registrations in Poland in the period 1996–2018 by new and imported used cars



Source: author based on data from the Ministry of Finance and the Central Register of Vehicles

level. A favourable euro exchange rate was another positive factor. Only in 2004 were high exchange rates recorded (average at the level of approx. PLN 4.5), but from 2005 the value of the Polish currency against the euro grew at a swift pace, and in record-breaking 2008 it was, on average, approx. PLN 3.5 (NBP, 2019). This fact caused a clear reduction in the prices of imported cars on the Polish market and was the main reason for the unprecedented volume of imports, which in 2008 exceeded one million passenger cars for the first time.

In 2009, there was a radical drop in the number of cars imported to less than 700 000. It was the beginning of a five-year period (2009–2013) of “saturation and economic slowdown” with reduced levels of used car imports. During these five years, an average of approx. 650 000 used passenger cars were imported annually. This was also accompanied by a drop in new car sales. The fact that demand on the passenger car market declined during that time can be explained by several factors. First of all, Poles felt (though to a lesser extent than residents of Western European countries) the economic crisis and falling incomes, which meant they bought fewer cars. Secondly, in 2009 there was a massive jump in the value of the euro against the zloty and the average annual exchange rate that year was about 4.3 PLN, which was by as much as 0.8 PLN higher compared to the average exchange rate from 2008. Third, the supply of used cars had decreased in Western European countries, especially of those older than 10 years. This was due to the fact that countries such as Germany, France and Italy introduced state vehicle scrapping programs combined with stimulating the market for new car sales. The “cash for clunkers” programs operated since the beginning of 2009 in Germany (premium for scrapping cars more than 9 years old), and in France (more than 10 years old) (Haydock et al., 2012). Above all, the saturation of the Polish market may have had an impact on the reduction in the scale of imports of used cars due to the very large number of cars imported in 2008 at a low euro exchange rate.

The drop in the number of imported used cars did not last long. In the automotive industry, it was assumed that this would be a permanent trend associated with increasing personal incomes resulting in structural changes in the automotive market, i.e. an increase in new car sales and a decrease in used imports. After 2012, however, there was a gradual “renaissance of imports” of used cars to Poland. In 2016, imports of used cars again exceeded one million – slightly fewer cars were imported to Poland in 2018 (950 000) and 2017 (850 000). However, this was also accompanied by an increase in sales of new cars, which was the main element that distinguishes this period from the period of the “first import boom”. The year 2018 was record-breaking in terms of the number of new registrations (over 1.4 million passenger cars) in addition to the high scale of imports, the highest sale of new cars in 20 years was also recorded, exceeding 500 000 that year. On the one hand, this resulted from an increase in income, and on the other from the development of the leasing and long-term rental sector (most of the new cars registered were so-called fleet vehicles).

#### FROM GERMANY TO POLAND: THE MAIN DIRECTIONS OF TRADE IN USED CARS

Most studies on international trade in used cars confirm that it occurs between developed and developing countries. This is primarily due to differences in the cost of vehicle maintenance, but also to greater demand for cheaper cars (different levels of market

saturation) and the tendency of residents of developing countries to have a “brand” car, the purchase of which in the showroom is not possible due to too high a price (Komornicki, 2011). When these circumstances are accompanied by lifting customs and tax restrictions (or a significant reduction in their role) and the geographical proximity of a developed and developing market, ideal conditions arise for large trade in used cars. Such a process was launched within the European Union after its enlargement in 2004 and as already mentioned, there was a clear increase in the import of used cars, which had specific sources and destinations.

Data from CRV also allows an analysis of the role of individual European countries in the import of used cars to Poland (Table 1). This confirms the dominance of the German market which has been repeated many times in the trade press. More than six million used cars registered in Poland (about 60% of all imported) were imported from Germany. The second-largest is France (1.1 million cars and a share of approx. 10%), followed by Belgium (approx. 800 000 cars, which represents approx. 7.5% share) and Italy (approx. 600 000 cars and 6% share). The dominance of Germany in the import of used cars to Poland results primarily from the size of their market, geographical proximity and a durable and historically rooted network of relations between sellers and buyers. For years, Germany had been one of the destinations of economic migration from Poland, and it is one of the premises, frequently cited in the literature, that increases the likelihood of foreign trade in used cars (Beuving, 2015; Ezeoha et al., 2018; Rosenfeld, 2012).

Table 1. Origin of imported used cars in CRV as of 31 December 2019

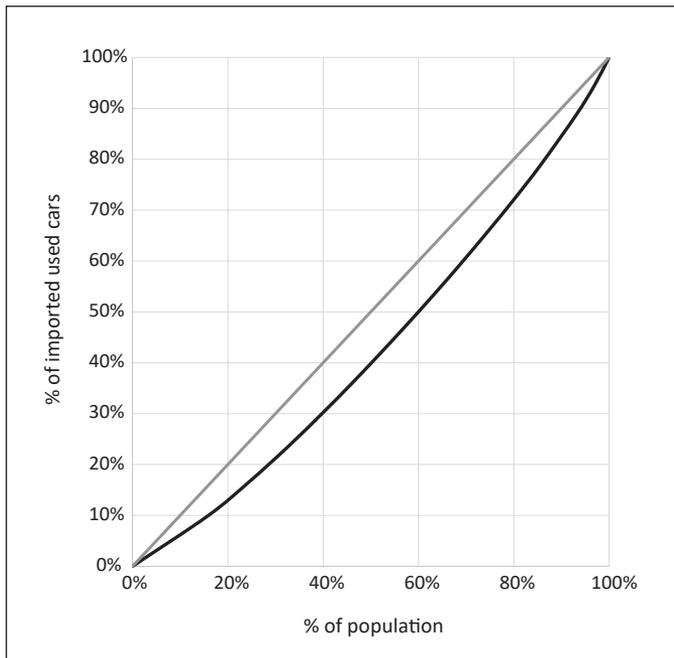
No	Country	Number of imported used cars [thousand]	Share in the total number of imported used cars
1.	Germany	6 137	59.4%
2.	France	1 071	10.4%
3.	Belgium	784	7.6%
4.	Italy	617	6.0%
5.	Netherlands	524	5.1%
6.	Austria	241	2.3%
7.	Switzerland	213	2.1%
8.	United States	196	1.9%
9.	Denmark	178	1.7%
10.	UK	121	1.2%

Source: author based on data from the Central Register of Vehicles

In addition to the sources of origin of imported cars, the identification of the so-called “entrance gates”, which are responsible for bringing them into Poland, is essential. To this end, CRV data by *powiat* were analysed. The empirical distribution of the value of the index of the number of used cars registered for the first time in 2004–2018 has a ‘right-handed’ asymmetry (skewness coefficient of 1.35), which means that the majority of *powiats* have values higher than the average. The level of variable concentration is moderate (Fig. 2), and the Gini coefficient is around 0.16.

The spatial distribution of the number of used imported cars registered in Poland for the first time in the period 2004–2018 is presented in Figure 3. It shows clearly the above-average representation of *powiats* with a large number of imported cars in

Figure 2. The concentration curve for used car imports

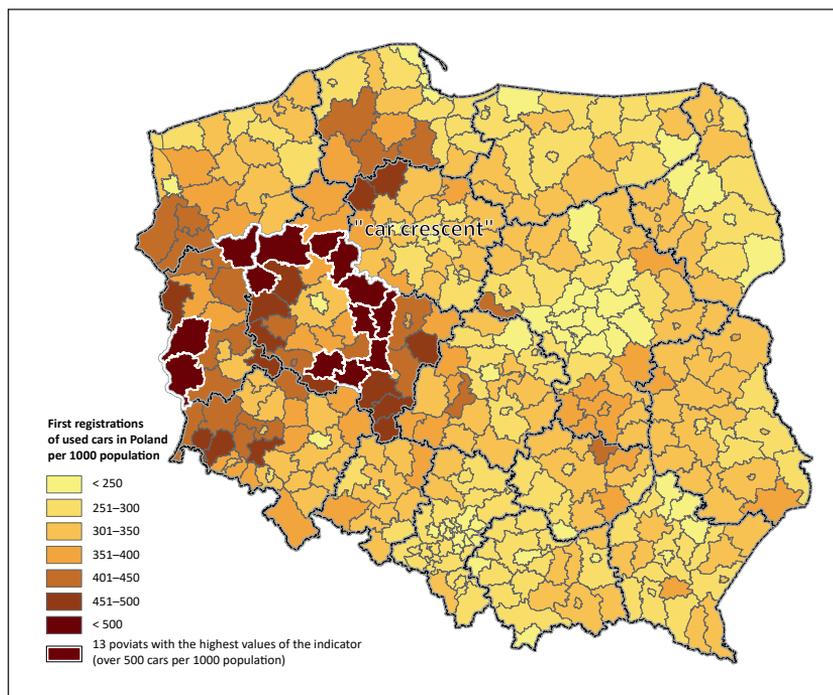


Source: author based on data from the Central Register of Vehicles

Wielkopolskie Voivodeship, and to a lesser extent also in Lubuskie. Among 13 powiaty with the highest index value (over 500), ten are from Wielkopolskie and three from Lubuskie Voivodeship. These administrative units are commercial import centres with numerous used car dealers and used car sales outlets. Among them are the neighbouring *powiaty* of the Wielkopolskie Voivodeship (Gostyń, Krotoszyn, Pleszew, Słupca, Września, Gniezno, Wągrowiec, Chodzież, Czarnków-Trzcianka) and the Strzelce-Drezdenko *powiat* from Lubuskie Voivodeship, whose layout resembles a crescent (Fig. 3). If we add Ostrów *Powiat* (the only rural one, besides Poznań *Powiat*, in which more than 100 000 imported used cars were registered in the period 2004–2018), as well as Żary and Krosno, we will get a picture of the key “entry gates” of used cars to Poland.

As mentioned before, besides data from CRV, information on the import of used passenger cars is also collected by the Ministry of Finance as part of its fulfilment of customs and fiscal obligations. The data from the CRV used in the article allows information about the *powiat* of the first registration of a used vehicle in Poland as of 31 December of a given year to be obtained, while customs tax data show the voivodeship in which the excise duty was paid for the imported car. Comparison of both sources, therefore, gives an additional opportunity to identify regions in which commercial importers operate on a large scale (paying excise duty but not registering the vehicle). The results of such a comparison are presented in Figure 4, which shows that the entry points for the import of used cars are located mainly in Świętokrzyskie, Wielkopolskie and Lubuskie voivodeships and from these regions the used vehicles go on to the others, mainly to the east of Poland (Podkarpackie, Lubelskie, Podlaskie and Warmińsko-Mazurskie voivodeships).

Figure 3. First registrations of used passenger cars in Poland in the period 2004–2018 as of 31 December of a given year by *powiat*



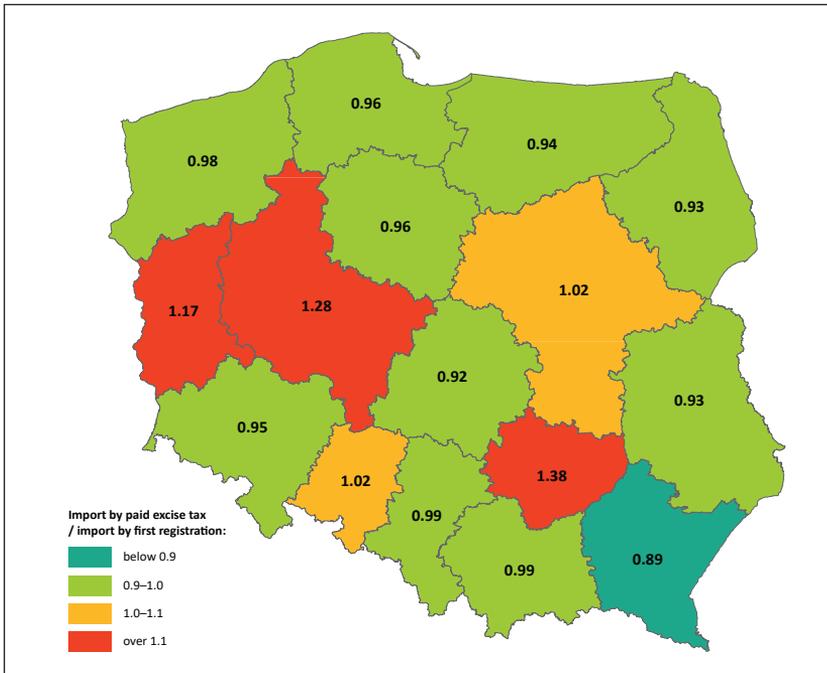
Source: author based on data from the Central Register of Vehicles

A complete explanation of the reasons for the concentration of used cars in the *powiats* of Wielkopolskie and Lubuskie, as well as partially Świętokrzyskie, seems to be one of the most exciting research issues concerning the car market in Poland. The long traditions of commercial imports in these areas confirm sustainability; however, it requires the use of in-depth social research, including qualitative interviews with importers from these areas.

#### POLAND AS A EUROPEAN AUTOMOTIVE DUSTBIN: THE AGE STRUCTURE OF IMPORTED CARS

Imports of used cars, which somehow have “taken over” the purchase of new cars, is a frequently mentioned reason for the increasing average age of passenger cars in Poland. This, in turn, raises the question of its impact on the natural environment and human health and life. It is known that older cars emit more pollution, break down more easily and decrease the level of road safety (Akloweg et al., 2011). Another environmental problem is their dismantling, scrapping and the use of these materials which considering the large scale of imports, relieves the fairly well-functioning waste management system of a developed country in favour of an imperfect and often defective “system” of a developing one. All these factors make it necessary to ask about the progressive peripheralisation of the car markets of developing countries that open their territory to the unlimited import of old used cars.

Figure 4. The ratio of the scale of imports of used passenger cars according to tax and customs data (excise duty paid) and CRV (first registrations in Poland as of 31 December of a given year) in the period 2006–2016 by voivodeship

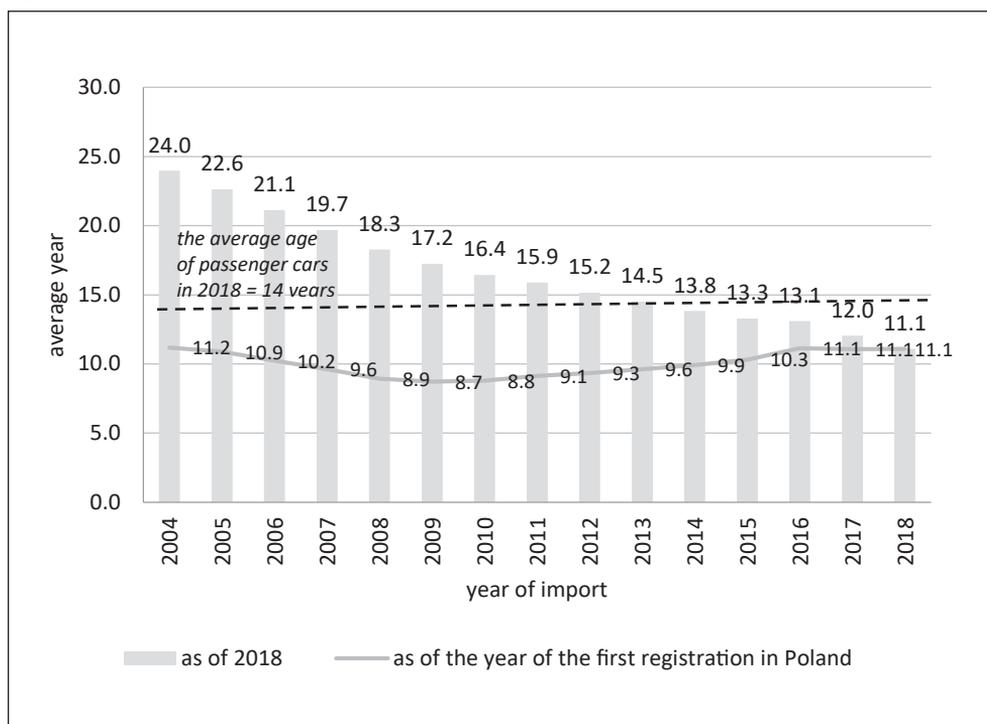


Source: author based on data from the Ministry of Finance and the Central Register of Vehicles

Data from the Central Register of Vehicles currently includes the possibility of excluding the so-called “dead souls” from static analyses for 2017 and 2018. “Dead souls” are, in the definition used by the Ministry of Digitisation, not deregistered and not ‘annulled’ vehicles (other than historic vehicles) for which more than ten years have elapsed since the date of the first registration and for a period of six years of no updated message from the registration authority, insurance guarantee fund, vehicle control station or police had been received by this date. The number of “dead souls” in CRV at the end of 2018 was over six million. This fact should be remembered especially when analysing the average age of cars in Poland. The average age of “dead souls” according to the records from 2018 is 32 years significantly overstating this parameter in official statistics on passenger cars. Currently, the average age of passenger cars in Poland is about 14 years. In the situation of including “dead souls” in the analysis, the average age of Polish cars increases to almost 19 years. This fact shows that it is currently impossible to carry out an accurate analysis. Therefore, data showing the average age of cars imported are presented against the information on the age of used passenger cars in the register in 2018 (excluding “dead souls”) and imported to Poland in 2004–2018 (Figure 5).

Of almost twelve million used passenger cars imported to Poland in the period 2004–2018, almost ten million, or about 83%, are still in use (at least according to official statistics). When these cars were first registered in Poland, their average age ranged from around 8.7 years (imports from 2009) to around 11.2 years (imports from 2004).

Figure 5. The average age of imported used cars in 2004–2018

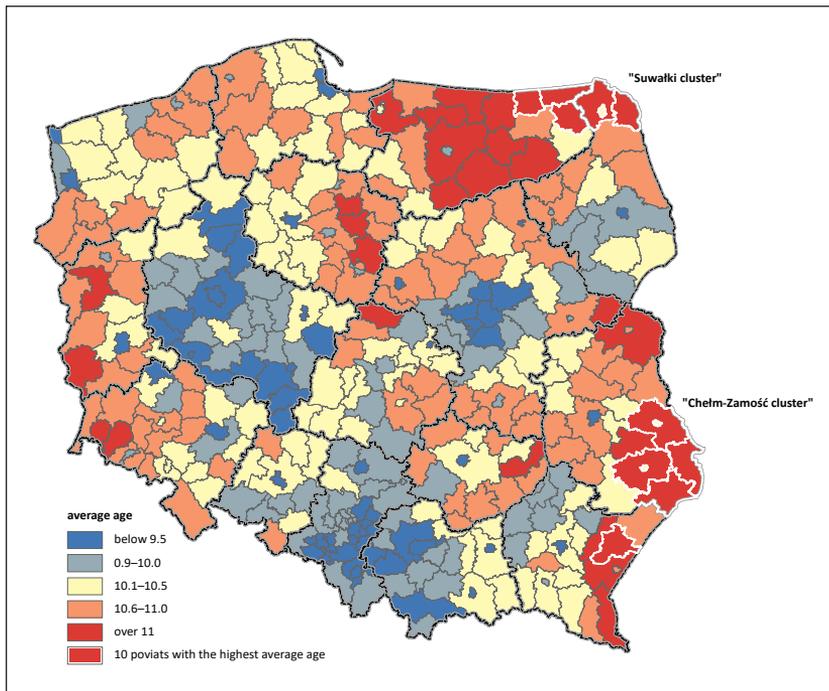


Source: author based on data from the Central Register of Vehicles

Currently, the average age of all ten million imported cars is around 16 years, which is two years more than the general average age of passenger cars in Poland. This confirms that the import of used cars has an effect on the increase in the average age of vehicles in Poland. It is also interesting that since 2010 the average age of imported used cars has been increasing, despite the gradually increasing wealth and in 2018 it approached the figure for 2004. The higher level of income should encourage a decrease in the average age of imported vehicles, but this phenomenon does not occur.

Figure 6, in turn, presents the spatial structure of the average age of used cars imported to Poland in 2004–2018. It shows at least two important conclusions. First of all, relatively young cars (average age below ten years) are registered in the *powiats* of the Wielkopolskie Voivodeship, with the largest scale of used car imports. The situation is similar in large urban agglomerations and the western part of Małopolskie Voivodeship. Secondly, the oldest cars are imported mainly to the border areas of Northern and Eastern Poland. In particular, these are to two clusters of *powiats*: (1) the “Suwałki cluster” (Suwałki, Sejny, Gołdap, Węgorzewo and Olecko *powiats*), and (2) the “Chełm-Zamość cluster” (Chełm, Zamość, Hrubieszów and Tomaszów *powiats*). Together with Jarosław *Powiat*, they form a group of 10 with the oldest numbers of imported cars (average age over 12.5 years). These regularities can confirm the relationship between the average age (which is derived from the value of the car) and the level of income of the inhabitants. The higher average age in border areas may also be associated with the so-called international trade in vehicle ownership. This phenomenon is particularly

Figure 6. The average age of imported used cars in 2004–2018 by *powiat*



Source: author based on data from the Central Register of Vehicles

present on the Polish-Ukrainian border where Ukrainians who buy a car abroad (in Poland or in Western European countries) enter into an informal “contract” with Poles who formally become co-owners of the vehicle. As a result, the car obtains Polish license plates, and thus the Ukrainian owner does not have to pay high customs duties on old used cars imported into Ukraine. So these cars appear in official registers in Poland but are found on the territory of Ukraine.

## SUMMARY

Accession to the EU revolutionised the automotive market in Poland. In connection with the extreme liberalisation of trade between developed countries of Western Europe and Poland, since 2004, we have been observing the import of used cars on an unprecedented scale. During the first 15 years, as many as 12 million used cars were imported to Poland. This fact shows the effects of lifting all institutional restrictions and releasing the developing country’s market to imports from a developed country (see Root, 2006; Adamowicz, 2009). After 2004, many countries of Central and Eastern Europe introduced various restrictions on the import of used cars. Poland did not make such an attempt (despite the existence of effective tax regulations limiting the import of used cars in 2003), which ultimately affected the dominance of the secondary market and stagnation in the sale of new cars. The effects of the lack of customs and tax regulations limiting trade between a developed and developing country are described in the literature using the example of the import of used cars from the USA to Mexico (Davis,

Kahn, 2010) and from Japan to eastern Russia (Golunov, 2018). In each of these examples, the state authorities slowed down the scale of imports by introducing institutional restrictions to protect new car makers.

Imports of used cars after 2004 were at various scales. In the period 2004–2008, there was the “first import boom” resulting largely from the low level of saturation of the Polish market, the low exchange rate of the euro and a large supply of old used cars in Western Europe (see Root, 2006; Adamowicz, 2009; Komornicki, 2011). Then, during the period of “saturation and economic slowdown”, these favourable circumstances somehow reversed and significantly reduced the scale of imports, usually newer than during the “first import boom”. All the time, however, the annual scale of imports exceeded 600 000 vehicles. We saw another change from 2013 when a period of increasing numbers of imported used cars began. At the same time, their average age also increased, which is difficult to explain. Due to the rapid growth of Poland’s GDP and a higher level of income of residents, the scenario of a decreasing average age of imported cars would be more likely, but this did not happen. An explanation of this phenomenon requires further in-depth research.

The analysis carried out in the article confirms that the vast majority of cars imported to Poland come from Germany. The largest scale of imports is observed in Wielkopolskie and Lubuskie voivodeships, especially among the eleven *powiats* of the so-called “car crescent”, in which in the period 2004–2018 over 500 imported used cars per 1000 inhabitants were registered. Also, fiscal law data confirmed that the main “entry gates” for used cars imports in the analysed period were *powiats* in Wielkopolskie and Lubuskie, as well as Świętokrzyskie voivodeships. From these regions, they were sold (especially more than 12 years old) to eastern Poland, affecting the relatively high average age of passenger cars in Poland.

Identification of the volume, direction and age structure of imports of used cars to Poland shows many interesting patterns in its change over time and its spatial distribution. Going deeper into these issues together with identifying the reasons seems to be a particularly important task for socio-economic geographers, economists and researchers of transport issues from other disciplines over the coming years.

## References

- Adamowicz, M. (2009). Kluczowe czynniki rozwoju rynku samochodów osobowych w Polsce w latach 1998–2007. *Studia i Prace Kolegium Zarządzania Szkoły Głównej Handlowej*, 96, 149–176.
- Akloweg, Y., Hayshi, Y., Kato, H. (2011). The effect of used cars on African road traffic accidents: A case study of Addis Ababa, Ethiopia. *International Journal of Urban Sciences*, 15(1), 61–69. doi: 10.1080/12265934.2011.580153
- Berkovec, J. (1985). New car sales and used car stocks: A model of the automobile market. *The Rand Journal of Economics*, 16(2), 195–214. doi: 10.2307/2555410
- Beuving, J.J. (2006). Nigerien second-hand car traders in Cotonou: A sociocultural analysis of economic decision-making. *African Affairs*, 105(420), 353–373. doi: 10.1093/afraf/adi106
- Brooks, A. (2012). Networks of power and corruption: the trade of Japanese used cars to Mozambique. *The Geographical Journal*, 178(1), 80–92. doi: 10.1111/j.1475-4959.2011.00410.x
- Clerides, S. (2008). Gains from trade in used goods: Evidence from automobiles. *Journal of International Economics*, 76(2), 322–336. doi: 10.1016/j.jinteco.2008.07.009
- Coffin, D. (2019, 10 December) (2015). Used Vehicles Are an Important Component of U.S. Passenger-Vehicle Exports. USITC Executive Briefings on Trade. Source: [https://www.usitc.gov/publications/332/executive\\_briefings/coffin\\_used\\_vehicle\\_exports.pdf](https://www.usitc.gov/publications/332/executive_briefings/coffin_used_vehicle_exports.pdf)

- Coffin, D., Horowitz, J., Nesmith, D., Semanik, M. (2019, 10 December) (2016). Examining barriers to trade in used vehicles. Office of Industries, US International Trade Commission. Working Paper ID-044. Source: [https://www.usitc.gov/publications/332/used\\_vehicle\\_wp\\_id-44\\_final\\_web\\_0.pdf](https://www.usitc.gov/publications/332/used_vehicle_wp_id-44_final_web_0.pdf)
- Coşciug, A., Ciobanu, S., Benedek, J. (2017). The safety of transnational imported second-hand cars: A case study on vehicle-to-vehicle crashes in Romania. *Sustainability*, 9(12), 2380. doi: 10.3390/su9122380
- Chu, T., Delgado, A. (2009). Used vehicle imports impact on new vehicle sales: The Mexican case. *Análisis Económico*, 24(55), 347–364.
- Davis, L.W., Kahn, M.E. (2010). International trade in used vehicles: The environmental consequences of NAFTA. *American Economic Journal: Economic Policy*, 2(4), 58–82. doi: 10.1257/pol.2.4.58
- Emons, W., Sheldon, G. (2009). The market for used cars: new evidence of the lemons phenomenon. *Applied Economics*, 41(22), 2867–2885. doi: 10.1080/00036840802277332
- Esteban, S., Shum, M. (2007). Durable goods oligopoly with secondary markets: the case of automobiles. *The RAND Journal of Economics*, 38(2), 332–354. doi: 10.1111/j.1756-2171.2007.tb00071.x
- Ezeoha, A., Okoyeuzu, C., Onah, E., Uche, C. (2019). Second-hand vehicle markets in West Africa: A source of regional disintegration, trade informality and welfare losses. *Business History*, 61(1), 187–204. doi: 10.1080/00076791.2018.1459087
- Fuse, M., Kosaka, H., Kashima, S. (2009). Estimation of world trade for used automobiles. *Journal of Material Cycles and Waste Management*, 11(4), 348. doi: 10.1007/s10163-009-0263-3
- Golunov, S. (2018). Balancing Between Legality and Illegality: Russian Import of Japanese Used Cars and Unauthorized Export of Russian Marine Bioresources to Japan. *Pacific Affairs*, 91(3), 499–522. doi: 10.5509/2018923499
- Grubel, H.G. (1980). International trade in used cars and problems of economic development. *World Development*, 8(10), 781–788. doi: 10.1016/0305-750X(80)90005-4
- Haydock, H., Misra, A., Bates, J., Wilkins, G. (2020, 20 January) (2012). *Energy Efficiency Policies in the Transport Sector in the EU*. Report for the EACI, AEA/ED46824, 2. Source: <https://www.odyssee-mure.eu/publications/br/MURE-transport-brochure.pdf>
- Komornicki, T. (2003). Factors of development of car ownership in Poland. *Transport Reviews*, 23(4), 413–431. doi: 10.1080/01441647.2002.10823175
- Komornicki, T. (2008). Changes of car ownership and daily mobility in selected polish cities. *Geografický Časopis*, 60(4), 339–362.
- Komornicki, T. (2011). Przemiany mobilności codziennej Polaków na tle rozwoju motoryzacji. *Prace Geograficzne I GiPZ PAN*, 227.
- Krzak, J. (2004). Skutki akcesji Polski do UE dla branży samochodowej. *Raport Wydziału Analiz Ekonomicznych i Społecznych Kancelarii Sejmu*, 224.
- Kudłak, R., Kisiała, W., Gadziński, J., Dyba, W., Kołsut, B., Stryjakiewicz, T. (2017). Społeczno-ekonomiczne i przestrzenne uwarunkowania popytu na nowe samochody w Polsce. *Studia Regionalne i Lokalne*, 2(68), 119–139. doi: 10.7366/150949956806
- Lim, C.C. (2014). Used Car: What's The Use? A Philippine Experience Of Japan Surplus Vehicles. *Oxford Journal: An International Journal of Business & Economics*, 6(1), 1–15.
- Mehlhart, G., Merz, C., Akkermans, L.A., Jordal-Jørgensen, J. (2019, 10 December) (2011). *European second-hand car market analysis. Final Report*, Öko-Institut, Darmstadt, Germany. Source: <https://www.oeko.de/oekodoc/1114/2011-005-en.pdf>
- Menes, E. (2001). Społeczno-ekonomiczne aspekty rozwoju motoryzacji indywidualnej w Polsce. *Przegląd Komunikacyjny*, 1, 1–6.
- Menes, E. (2018). Rozwój motoryzacji indywidualnej w Polsce w latach 1990–2015. *Przegląd Komunikacyjny*, 4, 14–25.
- Ministerstwo Cyfryzacji (2019, 12 July). Polskie drogi – tu jest jakby egzotycznie... Source <https://www.gov.pl/web/cyfryzacja/polskie-drogi-tu-jest-jakby-egzotycznie>
- NBP (2019, 13 December). Kursy średnie walut obcych w złotych. Source [https://www.nbp.pl/home.aspx?f=/kursy/arch\\_a.html](https://www.nbp.pl/home.aspx?f=/kursy/arch_a.html)
- Pelletiere, D., Reinart, K.A. (2002). The political economy of used automobile protection in Latin America. *World Economy*, 25(7), 1019–1037. doi: 10.1111/1467-9701.00476

- Pelletiere, D., Reinert, K.A. (2004). Used automobile protection and trade: Gravity and ordered probit analysis. *Empirical Economics*, 29(4), 737–751. doi: 10.1007/s00181-004-0216-6
- Pelletiere, D., Reinert, K.A. (2006). World trade in used automobiles: a gravity analysis of Japanese and US exports. *Asian Economic Journal*, 20(2), 161–172. doi: 10.1111/j.1467-8381.2006.00227.x-1
- Pelletiere, D., Reinert, K.A. (2010). World Exports of New and Used Automobiles: A Gravity Model Comparison among the European Union, Japan and the United States. *International Economic Journal*, 24(1), 103–110. doi: 10.1080/10168731003589709
- Root, E. (2006, May). The impact of used car imports on the industry and markets in Eastern Europe. Proceedings of the Global Automotive Conference, Florence, Italy, Vol. 11.
- Rosenfeld, M. (2012). Mobility and social capital among Lebanese and Beninese entrepreneurs engaged in transnational trade. *International Review of Sociology*, 22(2), 211–228. doi: 10.1080/03906701.2012.696962
- Rosik, P., Komornicki, T., Goliżek, S., Śleszyński, P., Szarata, A., Szejgiec-Kolenda, B., Pomianowski, W., Kowalczyk, K. (2018). Kompleksowe modelowanie osobowego ruchu drogowego w Polsce: uwarunkowania na poziomie gminnym. Warszawa: *Prace Geograficzne IGiPZ PAN*, 267.
- Spielmann, M., Althaus, H.J. (2007). Can a prolonged use of a passenger car reduce environmental burdens? Life Cycle analysis of Swiss passenger cars. *Journal of Cleaner Production*, 15(11–12), 1122–1134. doi: 10.1016/j.jclepro.2006.07.022
- Stryjakiewicz, T., Kudłak, R., Gadziński, J., Kołsut, B., Dyba, W., Kisiąta, W. (2017). Czasoprzestrzenna analiza rynku nowych samochodów osobowych w Polsce. *Prace Komisji Geografii Przemysłu Polskiego Towarzystwa Geograficznego* [*Studies of the Industrial Geography Commission of the Polish Geographical Society*], 31(3), 64–79.
- UNECE (2019, 10 December) (2017). Used Vehicles: A Global Overview. United Nations Economic Commission for Europe. Source: [https://www.unece.org/fileadmin/DAM/trans/doc/2017/itc/UNEP-ITC\\_Background\\_Paper-Used\\_Vehicle\\_Global\\_Overview.pdf](https://www.unece.org/fileadmin/DAM/trans/doc/2017/itc/UNEP-ITC_Background_Paper-Used_Vehicle_Global_Overview.pdf)

The article was created as part of the research grant: Spatial dimension of car market (r)evolution in Poland, financed by the National Science Center (project number 2016/23/B/HS4/00710).

**Bartłomiej Kołsut**, PhD, Department of Economic Geography, Faculty of Socio-Economic Geography and Spatial Management, Adam Mickiewicz University in Poznań, Poland. His research interests focuses on the car market, institutional theories, network theory, social research methodology, inter-municipal cooperation, local strategic planning and urban renewal.

**ORCID:** <https://orcid.org/0000-0002-9248-4780>

**Address:**

Adam Mickiewicz University in Poznań  
Faculty of Human Geography and Planning  
Department of Economic Geography  
ul. Bogumiła Krygowskiego 10, 61-680 Poznań, Poland  
e-mail: bartkol@amu.edu.pl