

Executive Summary

Reducing the CO₂ and non-CO₂ emissions of the global fleet is a priority for both climate and air quality issues. The global on-road vehicle fleet is set to double by 2050, with most future car purchases taking place in developing markets. Yet while car ownership is a near-universal aspiration and used vehicles provide an opportunity to increase personal mobility at a lower cost, not all used vehicles have the same impact on the environment. Older vehicles that are either newly imported or existing stock – for example those that pre-date Euro 4/IV equivalent standards – can emit a disproportionate amount of pollutants.

This paper is concerned with the global flow of used/second-hand vehicles, the local health impacts of these vehicles in developing countries, and the growing global emissions from cars. Vehicles that meet emission standards in exporting markets, when combined with clean fuels, have the potential to lower the impact of road transport in terms of CO₂ and non-CO₂ emissions in all markets.

The global introduction of low-sulfur, lead-free auto fuels has progressed rapidly in recent years and cleaner fuels have enabled the introduction of cleaner vehicle technologies. But even as improvements in fuel quality advance rapidly, obsolete and outdated vehicle technologies continue to be transferred to developing markets through the global second-hand vehicle market. Existing vehicle regulatory gaps between developed and developing markets mean that vehicles that make their way into developing and transitional markets may undermine the gains made in other policy areas – including air quality and fuel quality.

When it comes to vehicles, most developing countries are ‘technology-takers,’ i.e. they import rather than manufacture vehicles. A large percentage of imports are used vehicles. But not all used vehicles are equally detrimental to air quality and fuel economy; used imported vehicles can be much cleaner and more energy efficient than existing stock. In fact, research conducted by the European Commission suggests that the majority of benefits in terms of fuel economy accrue to second owners of ‘young used’ (4-9 year old) cars (Vanherle & Vergeer, 2016)

Therefore, with the right policies and fiscal instruments in place, developing countries can benefit both in terms of air quality and climate, but also economically due to the lower cost of advanced second-hand vehicle technology. Currently, the majority of developing and transitional economy countries have minimal policies governing the intake and maintenance of vehicles, including basic vehicle emission standards, which would promote the importation of cleaner and more fuel-efficient vehicles.

This paper provides an overview of current policies in Asia, Africa, Latin America and Europe and covers both exporting and importing markets. A survey of developing and emerging vehicle markets shows that where there are even basic import restrictions (age, emission standards) the vehicle fleet tends to be less outdated. The more selective an importing country is in terms of used vehicle quality, the higher the level of technology brought into a market is likely to be.

There are currently no regional or global agreements that rationalize and govern the flow of second-hand vehicles. Both exporting and importing markets have a role in the furtherance of the flow of used vehicles. The international community of states, international organizations and industry groups do not currently address the question of used vehicles and the implications of used vehicle flows both for local pollutants and health and global emissions that contribute to atmospheric warming.

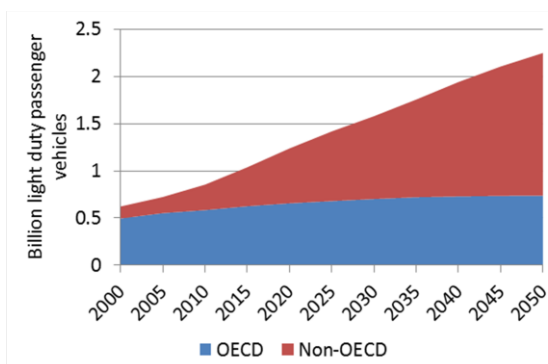
Used Vehicles: A Global Overview

Introduction

The global transfer of second-hand machinery and durable goods has tremendous potential economic benefits. However, the quality of these goods is crucial to sustained economic development and to quality of the local and global environments.

This paper is concerned with the global flow of used/second-hand vehicles, the local health impacts of these vehicles in developing countries, and the global emissions from cars. Vehicles that meet emission standards in exporting markets, when combined with clean fuels, have the potential to lower the impact of road transport in terms of CO₂ and non-CO₂ emissions in all markets. Existing vehicle regulatory gaps between developed and developing markets mean that vehicles that make their way into developing and transitional markets may undermine the gains made in other policy areas – including air quality and fuel quality.

It is estimated that there are now close to 1.2 billion vehicles in the world’s vehicle fleet and this number could rise to 2.5 billion by 2050 (IEA, 2012).



Source: IEA Energy Technology Perspectives, 2012

Light duty vehicle growth Worldwide

Most of this growth will be in developing countries, with a projected two out of every three cars to be purchased in emerging economies; many of these cars will be second-hand imports. While car ownership is a near-universal aspiration and used vehicles provide an opportunity to increase personal mobility at a lower cost, not all used vehicles have the same impact on the environment.

The transport sector remains the main source of urban air pollution in most countries, contributing up to 80% of urban air pollution in some cities

(Partnership for Clean Fuels and Vehicles, 2014).

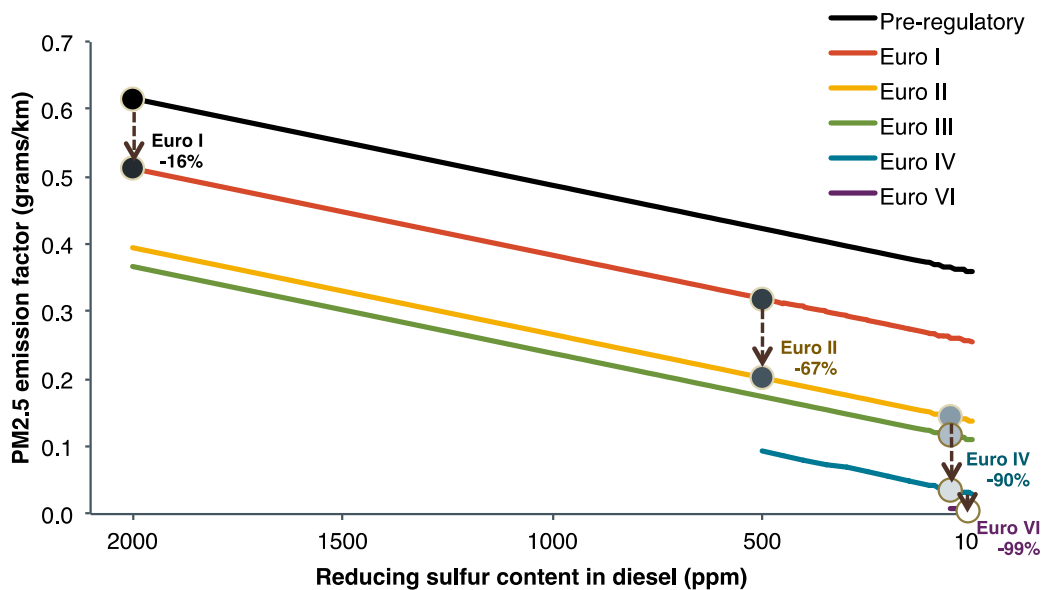
Reducing the CO₂ and non-CO₂ emissions of the

global fleet is a priority for both climate and air quality issues. Older vehicles that are either newly imported or existing stock – for example those that pre-date Euro 4/IV equivalent standards – can emit a disproportionate amount of pollutants.

The global introduction of low-sulfur, lead-free auto fuels has progressed rapidly in recent years and cleaner fuels have enabled the introduction of cleaner vehicle technologies that make full use of after-treatment and energy efficiency innovations. For example, a Euro 6-equivalent light duty vehicle using ultra-low sulfur diesel (10 ppm) and a particulate filter reduces fine particle and black carbon emissions

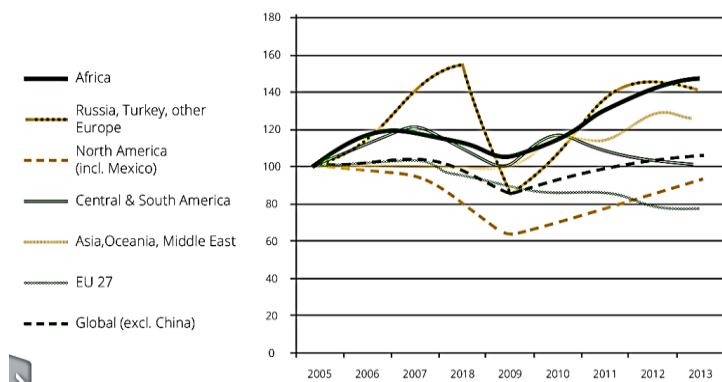
by over 99% as compared to combustion of 2000 ppm sulfur fuel with no emission controls. A worldwide transition to cleaner fuels and vehicles in all markets would reduce cumulative emissions of diesel black carbon by an estimated 7.1 million metric tons through the year 2050. This would bring down annual black carbon emissions from on-road vehicles by over 85% by 2050 (UNEP, ICCT, 2016)

PM2.5 emissions as a function of vehicle emission standards



Impact of fuel sulfur levels and emissions control standards on PM_{2.5} emissions from heavy-duty diesel vehicles (grams/km)
 Source: (Climate and Air Quality Coalition, 2016)

However, even as improvements in fuel quality advance rapidly, obsolete and outdated vehicle technologies continue to be transferred to developing markets through the global second-hand vehicle market. Nevertheless, not all used vehicles are equally detrimental to air quality and fuel economy; used imported vehicles can be much cleaner and more energy efficient than existing stock. In fact, research conducted by the European Commission suggests that the majority of benefits in terms of fuel economy accrue to second owners of 'young used' (4-9 year old) cars (Vanherle & Vergeer, 2016)



Global Vehicle Sales Growth Rates: Source: XCOM Africa GmbH – Data excluding China

Global vehicle Sales Growth Rates

When it comes to vehicles, most developing countries are ‘technology-takers,’ i.e. they import rather than manufacture vehicles. A large percentage of imports are used vehicles. For example, today in Kenya more than 99% of the vehicles imported are used vehicles, and less than half a percent are new vehicles (University of Nairobi Enterprises and Services, 2014).

In general, the majority of developing and transitional economy countries have minimal policies governing the intake and maintenance of vehicles, including basic vehicle emission standards, which would promote the importation of cleaner and more fuel-efficient vehicles. This regulatory gap allows for the transfer of obsolete and polluting vehicle technology. A brief case survey of developing and emerging vehicle markets shows that where there are even basic import restrictions in place (age, emission limits) the vehicle fleet tends to be less dated. For example, in Uganda where there is no import restriction, the average age of light duty diesel passenger cars was 16.4 years in 2014; the average age of petrol cars was 15.4 years (Makerere, 2014). In Mauritius, where there is a 3-year age limit on auto imports 50% of imported cars were brand new in 2015. Similarly, in Costa Rica, where imported vehicles must pass an Environment Protection Agency Smog Test and all imported vehicles must have catalytic converters, 80% of the imports are new. The more selective an importing country is in terms of used vehicle quality, the higher the level of technology brought into a market is likely to be.

There are currently no regional or global agreements that rationalize and govern the flow of second-hand vehicles. Therefore, there is no harmonized way to ensure that only quality vehicles are traded. In 2004 G8 countries adopted the 3R initiative on reducing barriers to trade in recyclable waste, recycled and second-hand goods. Given the amount of recyclable metal resources (Fe, Al, Cu, Pb, and Zn) in second-hand cars (Fuse, Nakajima, & Yagita, 2009) this framework may be a way forward for future governance of used vehicles.

Both exporting and importing markets have a role in the furtherance of the flow of used vehicles. The international community of states, international organizations and industry groups do not currently address the question of used vehicles and the implications of used vehicle flows both for local pollutants and health and global emissions that contribute to atmospheric warming.

Changing times in global vehicle markets

For the past decade, a change has begun to slowly take place in the global car market. Traditionally, the focus of car manufacturers and dealers has been on the new vehicle business with little or no attention paid to used cars. In fact, the used vehicle business was seen as a byproduct of new vehicle sales. However, in recent years the longevity, reliability and quality of used cars have improved while global demand for cars continues to rise. These factors have shifted attention to used vehicles, both from a commercial perspective but also from a policy angle. Internet sales of used cars have changed the market even further. In summary, “the used car business is here to stay. With declining margins in the new car business and the aging of vehicles on the road, it is likely to be a growing and increasingly

important component...” of vehicle sales (Capgemini, 2007). In many ways, the used car business has become vital to new car sales.

The global trade in used vehicles jumped from 1.2 million units in 1997 to over 4.7 million by 2007 (Macias, Aguilar, Schmid, & Francke, 2013). Trade in used vehicles has been on the rise and valued at over USD 17.6 Billion in 2014. (Coffin, 2015). Yet, despite the growing importance of used vehicles in the global economy, there is a dearth of data on *global* flows and values of the second-hand trade that provide a comprehensive picture of scale, flow and quality. Some regional data (e.g. EU, North America) is available, but data on used vehicle flows to developing markets is scarce.

The demand for mobility and cars is growing in transitional and emerging economies, but it should be noted that both developed and developing markets have a high demand for used vehicles (Capgemini, 2007). While future vehicle sales will take place mainly in developing countries, it is important to note that the purchase and trade in used vehicles is not specific to developing countries. The difference is that developing countries tend to have minimal policies governing vehicle emissions from vehicles and the import of vehicle technology, while developed markets have mature vehicle emissions regimes in place along with inspection and maintenance systems.

The main factors that drive the global movement of second-hand cars include, but are not limited to, the following:

- Used vehicles offer consumers mobility at a lower cost; for this reason, placing restrictions on used vehicle imports may be unattractive to policymakers;
- Stringent emission standards in exporting countries (along with motor vehicle inspections and registration/road tax taxation) may make replacement more attractive (e.g. in Japan), thus releasing more advanced technology available on the international second-hand market while also spurring new vehicle sales in manufacturing markets;
- Environmentally sound recycling and disposal of used vehicles can be expensive due to strict environmental protection regulations. In Japan, for example, the recycling costs are based on the total mass of the car, the number of air bags, the size of the radiator and the manufacturer. Generally, a cost of between USD 90-180 (10,000-20,000 yen) paid to a scrap dealer over and above having to part with the vehicle. This makes exporting these vehicles to developing markets more attractive (AccessJ, 2012).

Vehicle Importers per Region

As already noted, both developing and developed countries benefit from the sale of second-hand cars. For example, the United Kingdom imports used vehicles from Japan. However, the analysis below focuses on emerging and developing markets that rely on vehicle imports.

Sub-Saharan Africa

Despite African countries having among the lowest motorization rates worldwide, car ownership is increasing - mostly driven by the importation of used vehicles. Out of 54 countries on the continent, 27 countries¹ do not place any restrictions on the import of used vehicles.

Several countries in Africa set age restrictions on used vehicle imports.

Countries with Various Import Age Restrictions in Africa

Age Restrictions	Countries with Age restrictions
3 Years	Mauritius, Seychelles, Algeria, Chad
4 Years	Gabon, Senegal
5 Years	Libya, Mozambique, Niger, Tunisia
7 years	Cote d Ivoire
8 years	Kenya, Mauritania, Namibia
10 years	Eritrea, Benin, Democratic Republic of Congo
12 Years	Liberia
12 Years	Nigeria and Swaziland

Egypt, South Africa, Sudan, and Morocco outrightly ban used vehicle imports.

Countries like Gambia, Ghana, Mali, Cote d'Ivoire, and Cape Verde have adopted punitive taxation/penalties for used vehicle imports beyond a certain age. Some countries impose additional taxes, for example an internal consumption tax (Algeria) or environmental tax/levy (Uganda). Some of the tax systems encourage older vehicle imports by imposing lower taxes on them.

Mauritius

In addition to the 3-year import age restriction for vehicles, Mauritius has a taxation regime that supports the importation of more energy efficient vehicles. New motor vehicles are imported mainly from the EU and account for 51% of all vehicle imports into the country. Imported used cars are mainly from Japan and account for 49% of all car imports (Ally, 2016). Mauritius has been actively seeking to improve the vehicle fleet since 2011 when a feebate scheme was adopted. The scheme levies a fee on

¹ Equatorial Guinea, Ethiopia, Guinea, Guinea-Bissau, Lesotho, Madagascar, Malawi, Republic of Congo, Rwanda, Sao Tome and Principe, Sierra Leone, Somalia, South Sudan, Tanzania, Togo, Uganda, Zambia, Zimbabwe, Angola, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Comoros, and Djibouti

cars emitting above 150 CO₂g/km starting from US\$ 57per g/km to a maximum of US\$142 per g/km for cars over 290 CO₂ g/km. A rebate is also given to cars emitting CO₂ below the 150g/km threshold.

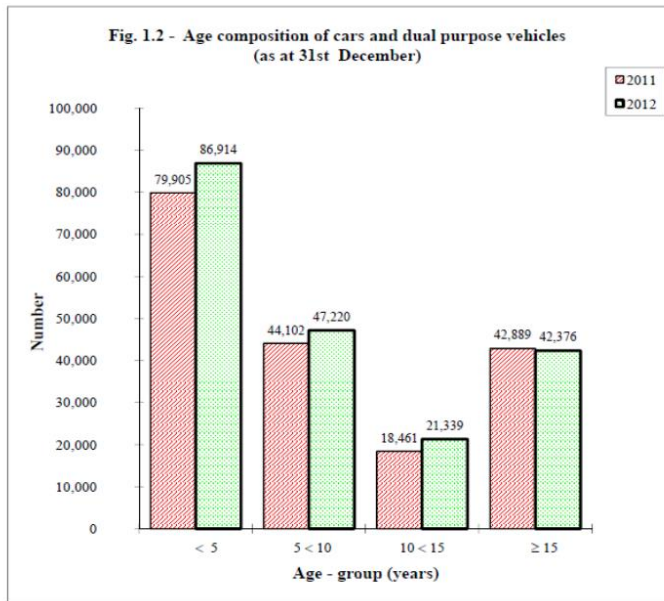
Calculation of CO₂ Levy payable (> 150g/km) in Mauritius

CO ₂ Emission Range (g/km)	Rate (Rs/g/km)
151-190	Rs 2000 (U\$ 57)
191-225	Rs 3000 (U\$ 85)
226-290	Rs 4000 (U\$ 114)
Over 290	Rs 5000 (U\$ 142)

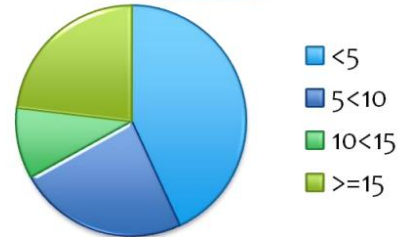
Source: (Ally, 2016)

New imported and second-hand cars pay the same rate of registration fee depending on the cylinder capacity. However there is a 50% levy reduction for hybrid and electric cars. In addition, electric cars attract excise duty at the rate of 25% (ad-valorem) while other vehicles attract excise duty based on the engine size starting form 55% for cars up to 1600cc. Larger engines attract a higher percentage of excise tax. The establishment of this scheme resulted in an improvement of fuel economy from 7 l/100km in 2005 to 6.6l/100km in 2013 and 5.8 in 2014 (Ministry of Environment and Sustainable Development, 2014). With the incentives provided by the Mauritius Government to promote energy efficient vehicles, there has been marked increase in importation of hybrid and electric cars. The scheme also led to a rapid increase of new hybrid vehicle sales registrations from 337 (2011) to 1824 (2014) and from zero electric vehicles in 2009 to 8 vehicles in 2014 (Ally, 2016). The country has a younger fleet of vehicles with the majority being below 5 years.

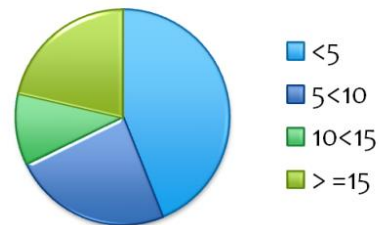
Age composition of light duty vehicles in Mauritius



Age composition, 2011



Age composition 2012



Source: Statistics Mauritius, 2012

Uganda

Uganda imposes no age limit on vehicle imports. Instead, the country has an environmental levy taxation regime, which levies a percentage of the value of the vehicle older than 5 years. Before 2015, the taxation regime allowed no levies for vehicles up to 8 years with vehicles above 8 years getting only 20% of the vehicle value as environment levy. The environmental levy taxation regime has since been revised and now favors the import of vehicles less than 5 years which attract 0% of the value of the vehicle as environment levy

Environment Levy to vehicles Applicable to passenger vehicles, goods vehicles excluded

Pre July 2015		Post July 2015	
0-8 yrs	0%	<5 yrs	0%
>8 yrs	20%	5-10 yrs	35%
		>10yrs	50%

Source: (Banaga-Baingi, 2016)

Data from the country shows that the corporate average fuel economy declined from 12.52 L/100km in 2005 to 13.73 L/100km in 2014; this was attributed to the increase in the average age of vehicles imported into the country (Makerere University, 2015). The decrease in the number of new vehicle imports could be attributed to the lack of an import age restriction and an environmental levy tax regime that is not very punitive.

New and used vehicle imports in Uganda

Year of Registration	DIESEL				PETROL			
	New	Old	Used	New as % of total	New	Old	Used	New as % of total
2000	533	254	787	67.7	295	367	662	44.6
2001	676	391	1,067	63.4	297	502	799	37.2
2002	788	520	1,308	60.2	252	634	886	28.4
2003	850	678	1,528	55.6	268	769	1,037	25.8
2004	973	942	1,915	50.8	345	1,245	1,590	21.7
2005	1,042	1,227	2,269	45.9	392	2,071	2,463	15.9
2006	1,218	1,543	2,761	44.1	379	2,308	2,687	14.1
2007	1,540	2,306	3,846	40.0	474	3,557	4,031	11.8
2008	1,723	3,034	4,757	36.2	434	4,449	4,883	8.9
2009	1,510	3,354	4,864	31.0	380	5,007	5,387	7.1
2010	1,476	3,632	5,108	28.9	399	6,939	7,338	5.4
2011	2,507	3,274	5,781	43.4	350	7,404	7,754	4.5
2012	3,206	5,029	8,235	38.9	578	13,624	14,202	4.1
2013	4,848	12,620	17,468	27.8	967	28,770	29,737	3.3
2014	5,881	18,176	24,057	24.4	1,094	39,405	40,499	2.7
Total	28771	56980	85751		6904	117051	123955	

Source: (Makerere University, 2015)

Asia Pacific

Asia has the highest rates of motorization in the world primarily driven by China, India, Indonesia and the Philippines. Japan is the biggest exporter of used motor vehicles in the world. Each year about 1 million used vehicles are exported from Japan to other countries (Japan Export Vehicle Inspection Center, 2015)

China has also begun exporting used vehicles to other countries but no data is available at this time. Similarly, India also exports used vehicles to countries like Nepal, but no quantifiable data was found. Other exporters of used vehicles in region are Thailand, Singapore, and South Korea.

Data from the United Arab Emirates shows high numbers of used vehicle exports. This is because Dubai acts as a hub for vehicle exports to other parts of the world, particularly African countries.

Bangladesh, Hong Kong SAR, India, Malaysia, Nepal, Pakistan, Philippines, Singapore, and Sri Lanka allow the importation of used vehicles (see figure below). However, there are regulations that limit the importation of used vehicles in these countries that include compliance to roadworthiness, emission standards, and age of manufacture of vehicles. More details are available for these and other Asian countries in the Annex.

Policies on Vehicle Importation in Asia

		BAN	CHI	HK	IND	INO	MAL	NEP	PAK	PHI	SIN	SRI	VIE
Compliance to emission standards	for NEW vehicles	☑	☑	☑	☑			☑		☑	☑	☑	
	specified for used/ reconditioned vehicles	☑											
	for IN-USE vehicles		☑	☑	☑		☑			☑	☑	☑	☑
Importation of used vehicles	Allowed	☑		☑	☑		until 2015	☑	☑	☑	☑	☑	since 2006
	Should conform with emission stds	☑		☑	☑		☑			☑	☑	☑	
	Should conform with roadworthiness stds			☑	☑		☑			☑	☑	☑	
	Should conform with steering/ control stds	☑		☑	☑		☑			☑	☑	☑	
	Depending on age/ mileage/ engine type			☑	☑		☑		☑		☑	☑	
	Banned		since 2002			since 2007	2016			2002; 2007			since 2006
	for used 2- & 3-wheelers	☑	☑			☑							☑
for used passenger cars		☑			☑				☑			☑	
for used commercial light duty vehicles	☑	☑										some	
for used heavy duty/ construction vehicles	☑				☑								
Restrictions	Vehicle age cap	< 4 yrs				☑		☑	☑		☑		
	Conditions for 2-wheelers			☑	☑				no 2-stroke			no 2-stroke	
	Conditions for heavy duty vehicles			☑									
Exemptions	For some vehicles based on type				MUVs			HDVs		HDVs			HDVs
	For some vehicles based on ownership												
	For entry into economic/ free port zones									☑			

Source: (Cleaner Air Asia, 2016)

Sri Lanka

The Democratic Socialist Republic of Sri Lanka (Sri Lanka) is an island country in the Indian Ocean with a total population of 20 million in 2014. The capital Colombo has 2.36 million people with the highest concentration of motor vehicles in the country. In 2014, the country recorded 5.61 million vehicles. The country vehicle fleet comprised of 50% motorcycles while the other half was shared between three-wheelers and passenger cars. According to the country's motor vehicle registration data, 90% of all newly registered vehicles are new and 10% are second-hand. About 60% of all the vehicles in Sri Lanka are found within the Colombo metropolitan region. The country employs a strict and aggressive vehicle taxation scheme that provides substantial tax reduction for hybrid and electric vehicles. As a result of the implementation of this scheme, the country had about 80,000 hybrid vehicles and 2,400 fully electric vehicles in 2015. This has improved the fuel economy of passenger cars in Sri Lanka from 6.4 l/100km in 2012 to 5.3 l/100km in 2014 (Sugthapala, 2015)

Latin America and the Caribbean

Used vehicle imports in the Caribbean come mainly from Japan, United States, Thailand, United Kingdom and Germany. In this region, there are no harmonized vehicle standards. However, as of March 2016 the Regional Plan of Action on Atmospheric Pollution states “for those countries where the import of used vehicles is permitted, promote the establishment and enforcement of stringent emissions control regulations and ensure that the condition of these vehicles does not pose a threat to human health and the environment...” (<http://www.pnuma.org/forodeministros/20-colombia/documentos.htm>).

In the South American sub-region, several countries have started to adopt more stringent vehicle emissions standards and in 2017 all countries require Euro 3 or higher light duty vehicle imports. Bolivia, Peru and Paraguay are the only countries that allow used vehicle imports; however, these impose an age restriction. Paraguay has an age limit of 10 years, while Peru has a 5-year age limit.

Used vehicle imports are banned in Argentina, Brazil, Chile, Colombia, Ecuador, Uruguay and Venezuela. In the Caribbean, most countries have age restrictions on used vehicles: Jamaica is at 10 years and Trinidad and Tobago at 4 years for gasoline and 3 years for diesel light duty vehicles.

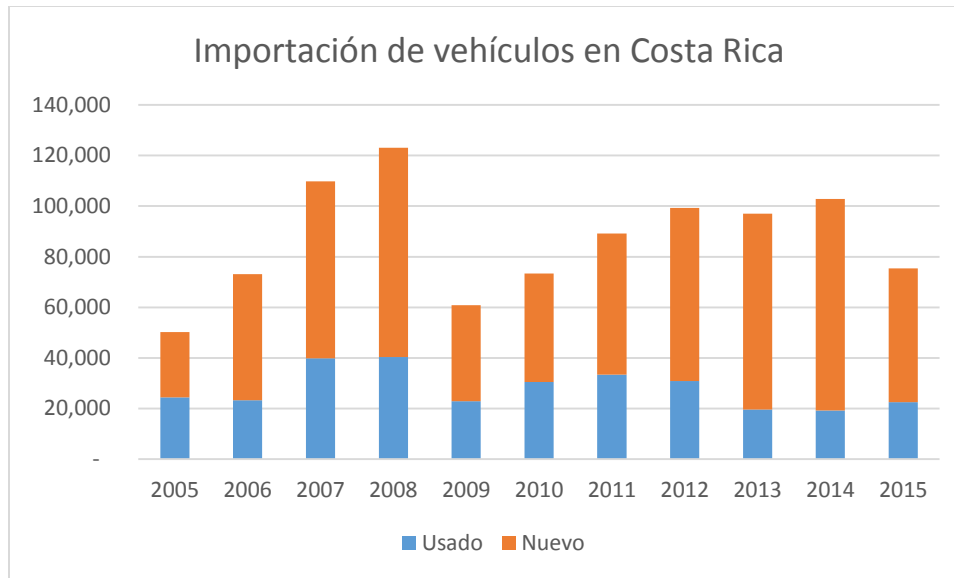
In the Central American sub-region, all countries² permit the importation of used vehicles. Panama and Mexico have age restrictions of 10 years and 5 years, respectively. Other Central American countries do not have any age restrictions, although Costa Rica is proposing a 12-year age limit. Aside from Mexico’s Euro 4 and Costa Rica’s Euro 1 light duty vehicle emission standards, none of the other countries has vehicle emissions standards.

Costa Rica

Costa Rica allows the importation of used vehicles without any age restrictions. At the time of registration, most used vehicle imports have an average age of more than 10 years from the year of manufacture. Costa Rica imports from the United States and Japan, but second-hand imports have been declining in the last decade, from 49% of all vehicle imports in 2005 to 30% of overall imports in 2015.

² Belize, Costa Rica, Dominican Republic, Guatemala, Nicaragua, El Salvador, Honduras, Panama and Mexico

Importation of Vehicles in Costa Rica



Costa Rica has instituted a selective taxation scheme as one of the ways to deal with imported vehicles. This tax is paid from an import price defined by the Ministry of Finance. This instrument has resulted in progressively reduced imports of used vehicles.

Selective Tax on Vehicle Imports in Costa Rica, 2012 and 2016

Category	Selective tax 2012	Selective tax 2016
New	30%	30%
Used < 3 yrs	30%	30%
Used 4 and 5 yrs	40%	30%
Used >= 6 yrs	53%	48%
HEV y BEV	10%	10%

At the beginning of this decade, the new Transit Law limited the entry into the country of vehicles with total loss or alterations, which could be acquired in the international market at very low prices. This, together with the increase in selective taxes, has had a significant effect on the disincentive to import used vehicles. Financing is another constraint, as loans to buy new cars have a term of up to seven years, while second-hand loans are only granted up to three years.

The distribution of imports according to the year of manufacture shows that many vehicles older than ten years are still imported, because as stated above, their price on the international market is so low

that it is impossible to reduce their import by applying taxes. The incentive for hybrid and electric vehicles has had a marginal impact, accounting for only 0.4% of imports in 2015.

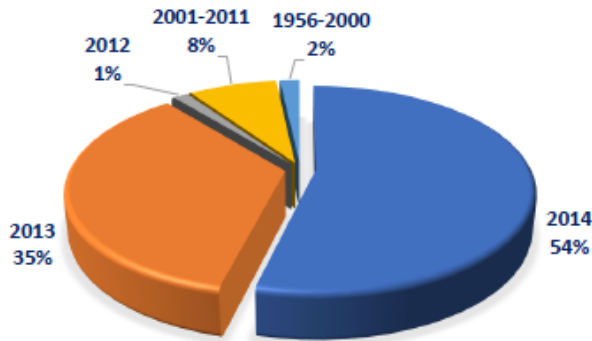
Eastern Europe

Many countries in the region have harmonized emission standards with the EU auto fuel economy standard, EC Directive 2009/30/EC, Regulation (EC) No 443/2009 and Regulations (EU) 2016/427 of 10 March 2016 and 715/2007. While vehicle registration and taxation regimes are the purview of national governments, an EU-wide regime on vehicle emission standards and fuel quality has steadily driven up the quality of vehicles on roads in East Europe – not only for member states, but also for candidate countries like Turkey, Moldova, Montenegro, Serbia, Bosnia and Herzegovina, Albania and FYR Macedonia. On the whole, age limits have been replaced by emission standards and taxations regimes that favor cleaner, newer vehicles. However, the average age of fleets in Eastern Europe tends to be much older than in Western Europe. This is mainly due to regulatory gaps that include more lax inspection and maintenance systems, along with antiquated taxation schemes that do not incentivize newer, less polluting and more energy efficient vehicles.

However, this picture is rapidly changing as countries evaluate the impact of vehicles on air quality, fuel costs and national emissions trajectories. Most countries in the region have some form of barrier on imported vehicle technology, but the policies vary in terms of their effectiveness in supporting the cleanest and most efficient vehicles. The examples and case studies below summarize the rapidly evolving policy responses to vehicle imports in Eastern Europe.

Data from the Ukraine's 2014 vehicle imports survey showed that 46% of vehicles imported were used, and that 76% of used vehicle registrations were only 1 year old (GFEI Ukraine 2014). The country limits the import of older vehicles based on emission standards: as of 1 January 2013 the import of cars rated below Euro 3 is banned. As of 1 January 2016 only Euro 5 cars are permitted for import, and Euro 6 is planned for January 1, 2018. Excise taxes are also lower for vehicles with smaller engine volume and lower CO₂ emissions.

Year of manufacture Distribution of used vehicle imports in 2014



MAKE YEAR DISTRIBUTION

Source: GFEI Auto Fuel Economy Assessment 2014

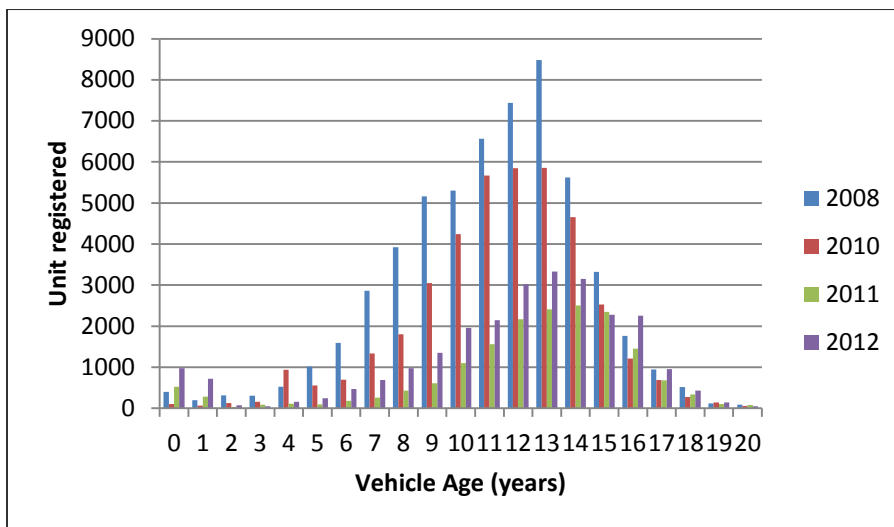
Some countries, like Georgia, actually incentivize the import of older cars through lower taxation on older vehicles, choosing to focus registration taxation on engine size. The majority of Georgia’s imports are used vehicles mainly purchased from Western Europe, Japan and the USA (CENN, 2014). Import age ranges from 1 to over 20 years old, with an average (mean) age of about 13 years and a most frequent (modal) age of 14 years. This is one of the oldest imported auto fleets in the world. One of the main reasons for this aged fleet is that Georgia’s excise tax favors older imports with significantly lower taxation; the lowest rates of taxation are for vehicles between 7-12 years of age, so the excise tax stimulates the import of older cars.

Georgian Excise Tax

Car age, years	Price, GEL per engine cm ³
1 or less	1.5
2	1.4
3	1.3
4	1.2
5	1
6	0.7
7-12	0.5
13	0.6
14	0.7
More than 14	0.8

The direct result of this type of taxation, combined with limited or no vehicle emissions inspection, is that older vehicles, with limited emission controls are favored by consumers due to lower price. Recent trends in 2011 and 2012 indicate that vehicles newer than 2 years old have increased their market share significantly to 7% of the new registrations, compared to 1% in 2008. Nevertheless, 2012 also witnessed a higher share of 16 years and older light duty vehicles, to 10%. Therefore, it appears the market is becoming divided as very new and very old light duty vehicles are both gaining market share.

Automotive fleet age breakdown for Georgia



Source: (CENN, 2014)

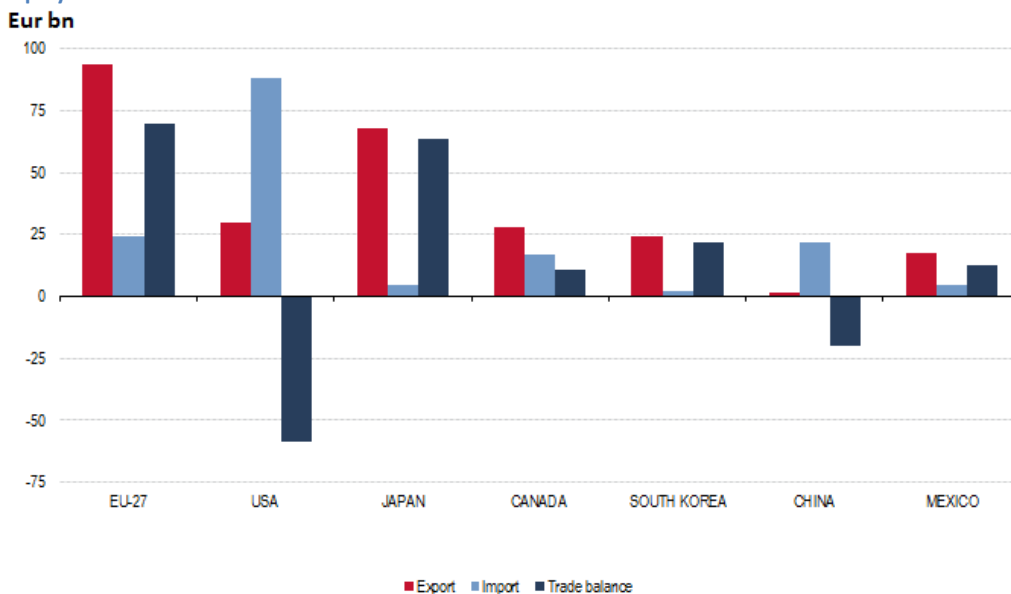
Armenia’s import regime favors smaller cars, but also favors older/used cars. Azerbaijan’s import duty on new vehicles is charged at a rate of US\$0.4 per cm³ of engine volume, while the corresponding rate for used vehicles (more than one year of use) is US\$0.7. Bosnia and Herzegovina’s import rules allow Euro 5 LDV standards for new vehicles, Euro 3 for used vehicles as of December 2010; Serbia’s import standards are similar. Moldova penalizes imports older than 3 years, and banned imports of vehicles above a decade in age. Russia’s import taxes are aged-based and incremental for older vehicles, rising from 30% tax increase on imported cars older than 1 year to 35% tax increase for imported vehicles from 3 to 5 years old. Imports older than 5 years are taxed between 2.5 and 5.8 Euro per cm³ of engine volume. FYR Macedonia’s import taxes are fully based on engine size, but tax levels are low with almost no progressive increase. This results in almost no control on vehicle import condition.

Used Vehicle Exporters

The major vehicle (new and used) exporters in the world are the EU, Japan, and North America (US and Canada). A similarity with these major exporters is that they have relatively high motorization rates. Their vehicle stocks are high and most of the population can afford to buy new vehicles. The new vehicle markets remain large. In these countries, there is a high rate of vehicle replacement, which creates a potential supply of older vehicle that can be exported to other countries.

Due to the differences in income levels in exporting countries and importing countries, depreciation costs for vehicles differ a lot. An average vehicle's price depreciates faster in high-income country than in a low-income one. Sellers of used vehicles in a high-income country can thus sell their vehicles in low-income countries for a better price than if they sold them in the home country. This is therefore a major incentive to export the used vehicles.

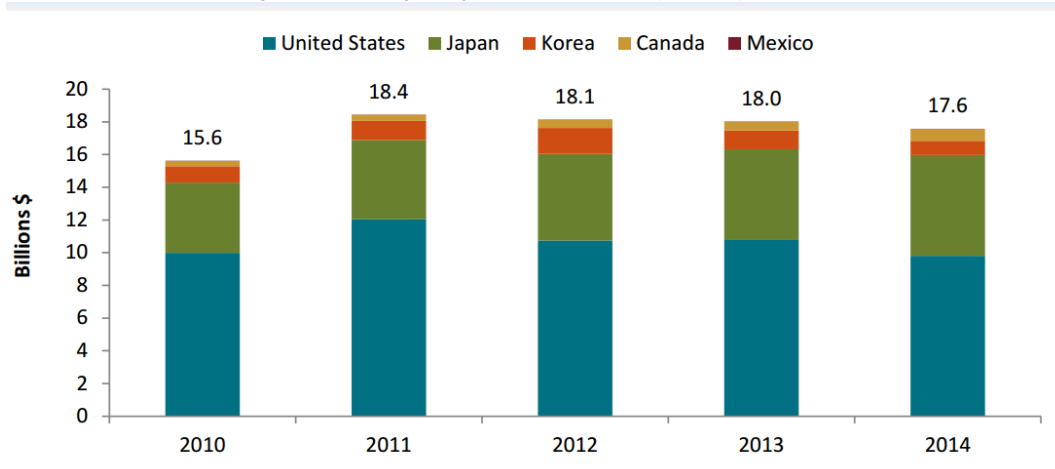
Major players in the World Wide trade in Motor Vehicles



Source: Eurostat 2010

Trade in used vehicles has been on the rise and was valued at over USD 17.6 Billion in 2014. Used vehicle exports as a share of vehicle exports vary by country. In the United States, used vehicle exports in 2014 made up 14% of U.S. vehicle exports by value. In Japan, used vehicle exports in the same year represented 7% of vehicle exports by value. (Coffin, Horowitz, Nesmith, & Semanik, 2016). Used vehicle trade is thus a very important part of the economy in these exporting countries.

Values of Used Vehicle Exports from Major Exporters, 2010-2014 (billion\$)

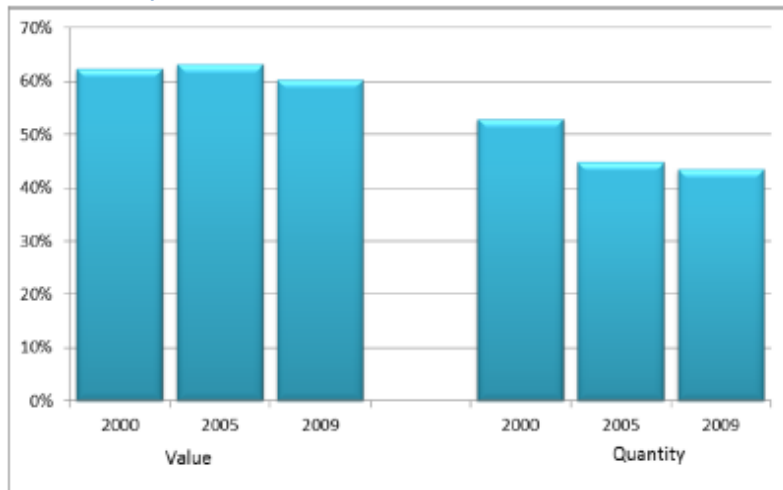


Source: (Coffin, Horowitz, Nesmith, & Semanik, 2016)

European Union

About 60% of the EU trade in used cars is towards other EU countries (Lovo, 2015).

Share of EU Exports towards EU Countries



Source: (Lovo, 2015)

As at 2011, Germany alone exported 150,000 light duty vehicles annually, equivalent to 44% of all exports in the EU of used light duty vehicles. In the same year, Spain accounted for 41% of all exports of second-hand light duty vehicles. France accounted for 3% of all light duty vehicles exports. However, France had a net import of second-hand vehicles of more recent date. By then, vehicles originating from Germany alone had an average of 6-8 years and were mainly sold to Eastern Europe and Africa.

(MEHLHART, MERZ, AKKERMANS, & Jørgen, 2011). More recent data suggests that vehicles in use in the EU have an average age of 9.73 years. (ACEA, 2016)

Trade in new and used motor cars accounted for a substantial part of the EU trade, with close to 6% of the total value of all extra-EU exports in 2011 (Eurostat, 2012). Used vehicles exports from the EU are focused on East Europe, the Caucasus and Central Asia and Africa.

Quantity and Value of Used Vehicle Exports from the EU

Country	Quantity		Country	Value	
	2005	2009		2005	2009
Russia	12%	10%	Russia	18%	8%
Kazakhstan	10%	7%	Norway	10%	8%
Algeria	8%	6%	Algeria	9%	6%
Belarus	6%	6%	Ukraine	6%	6%
Ukraine	5%	6%	Switzerland	4%	4%
Nigeria	4%	4%	Croatia	3%	4%
Benin	3%	4%	Belarus	3%	3%
Croatia	3%	3%	Kazakhstan	3%	3%
Niger	3%	3%	US	2%	3%
Togo	3%	3%	Nigeria	2%	3%
Africa	41%	44%		28%	29%

Source: (Lovo, 2015)

Japan

Japan is the most important exporter worldwide next to Germany. In addition to Asian markets, Japan mainly supplies countries with a requirement of right-hand drive cars. The country exports vehicles to over 100 different countries in Asia, Africa and the Middle East (Jörg Janischweski, 2003). The figure below details the ever-changing picture of exports worldwide from Japan. In a single year, Russia fell from first place in imports from Japan to eighth due to the steep devaluation of the ruble and the consequent downturn of the Russian automotive market in 2015 (the deepest among major global markets). New Zealand and the UAE account for a bulk of imports together with Myanmar. However, UAE often serves as a transit point for imports to African countries, so its import number may be somewhat inflated, while, for example, Kenya’s import rate may be under-estimated.

Japan Export Vehicle Inspection Center data on Top Ten Destinations for Vehicle Exports from Japan in 2014 and 2015

Export Statistics of used vehicles from Japan in 2015			Export Statistics of used vehicles from Japan in 2014		
Rank	Country	Vehicle exports numbers	Rank	Country	Vehicle exports numbers
1	New Zealand	113,183	1	Russia	119,641
2	United Arab Emirates	104,952 ³	2	New Zealand	105,819
3	Myanmar	87,741	3	Myanmar	103,592
4	Kenya	65,469 ⁴	4	United Arab Emirates	82,908
5	Chile	58,603	5	Chile	66,167
6	Sri Lanka	52,279	6	Kenya ⁵	56,934
7	Pakistan	44,427	7	Kyrgyz Republic	48,289
8	Russia	44,018	8	South Africa	42,376
9	South Africa	38,463	9	Georgia	38,692
10	Tanzania	36,641	10	Pakistan	35,232
	Total	645,776		Total	699,650

Source: (Japan Export Vehicle Inspection Center, 2015)

New cars in Japan are sold with condition of obligatory inspection after 3 years. The 3-year mandatory inspection is called a “shaken” which is a rigorous and costly inspection process. Reported estimates of the average inspection cost start at \$1,000 and get as high as \$2,500 per vehicle. Further renewals of the obligatory inspection certificates are required at two-year intervals (Clerides, 2004). Many vehicle owners in Japan therefore decide in favor of selling their vehicles after five or seven years, the time when the second or the third obligatory test is due. In addition, the remaining value of an older vehicle is almost zero (Jörg Janischweski, 2003). This test is thus considered one of the main drivers for the export of secondhand vehicles. The high renewal cost of the shaken and the obligatory tests leads many Japanese consumers to replace the cars after the shaken expires. This creates a large supply of relatively good quality used cars. The strict regulations in the country translate to a higher rate of depreciation in the value of automobiles in Japan than in other countries with looser regulations. It is this differential in depreciation rates, that creates the opportunity for trade in used cars (Clerides, 2004).

³ As earlier suggested, a large percentage of these vehicles are for re- export

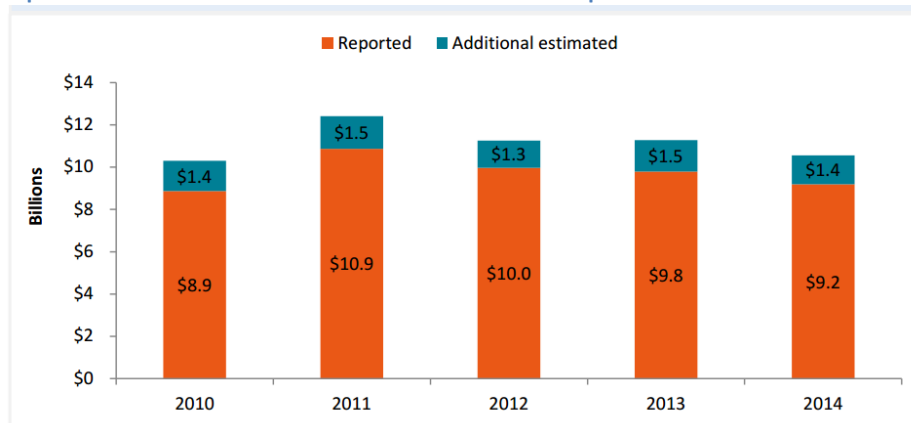
⁴This figure may be much higher than this from country inventory data

⁵This figure may be much higher than this from country inventory data

North America

Used vehicle exports from North America largely originate from USA and Canada. It is estimated that the value of used vehicle exports from these two countries is over USD 10 billion annually: (Coffin, Horowitz, Nesmith, & Semanik, 2016).

Reported and Estimated U.S. and Canadian Used vehicle Exports 2010-14

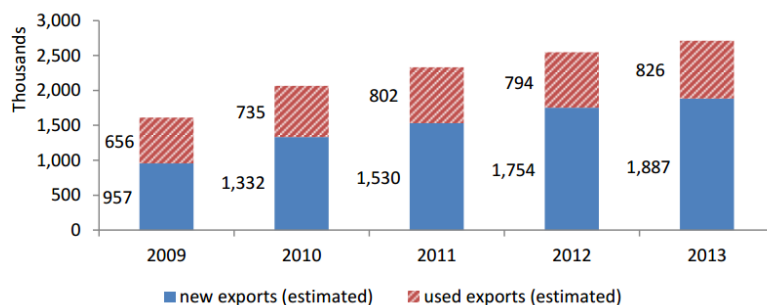


Source: (Coffin, Horowitz, Nesmith, & Semanik, 2016)

Between 2009 and 2013, U.S. exports of used passenger vehicles averaged 762,000 units per year with many of the vehicles destined for lower-income markets. Between 2009 and 2013, used vehicles made up 34% of the total volume of the U.S. passenger vehicle exports. This represented 21% of the value of all vehicle exports. As at 2013, the used vehicle exports from U.S had risen to nearly 826,000 units (Coffin, 2015).

In 2014, the used vehicle exports from the U.S. made up 14% of U.S. vehicle exports by value. It is interesting to note that the share of used vehicle exports has declined year on year since 2010 as compared to the new vehicle exports. This may be attributed to the high demand for used vehicles outside the U.S. border putting upward pressure on the U.S. price of used vehicles. The narrowing gap between the used car and new car prices makes it less attractive for consumers to buy used vehicles.

Declining share of used passenger vehicles



Source: (Coffin, 2015)

Developing countries led by Mexico, Nigeria, and Benin form the major markets for used vehicle exports from the U.S.

Top markets for Used Passenger Vehicles Exports from the U.S, 2012- 2014

	2012	2013	2014
Mexico	62,434	106,136	102,157
United Arab Emirates	90,567	80,740	82,584
Nigeria	92,019	102,022	74,890
Benin	63,462	53,934	54,192
Cambodia	19,143	17,695	23,990
Jordan	26,369	34,571	23,766
Dominican Republic	17,871	17,984	19,738
Georgia	10,423	16,971	18,855
Saudi Arabia	43,103	26,640	18,651
China	121,138	14,920	18,007

Source: (United States Department of Commerce, International Trade Administration, 2015)

Regulatory Gaps and Policy Responses

As detailed above, many developing countries have minimal or no restrictions on the import of used vehicles. However, this regulatory gap is filling rapidly. Countries are improving fuel quality and consumers are demanding newer, more advanced vehicle technology. In addition, policymakers are considering vehicle emission standards that fully complement cleaner fuels and this often means age restrictions on imports or full vehicle emission standards that are Euro-equivalent. The global automotive picture is changing rapidly.

Used Vehicle Import Bans: Some countries have banned the import of used vehicles altogether (e.g. Indonesia, Chile, Turkey, South Africa), while others are using fiscal instruments to encourage cleaner technology. Sri Lanka has a higher share of hybrid electric vehicles than any other country in the world. This is because of the strict and aggressive vehicle taxation scheme that provides substantial tax reduction for hybrid and electric vehicles imported into the country. Ukraine banned the import of cars below Euro 3 light duty vehicle emissions standard from January 1, 2013.

Age Limits: Some countries have chosen to place age limits on imports. Kenya has set an age limit of 8 years for imports, and is considering a Euro 4/IV emission standard. In the absence of vehicle emission standards and developed inspection and maintenance systems, age limits are an attractive policy response for importing markets.

Taxation: Other countries have chosen to tax older vehicles on first registration. This incremental taxation can be seen in most East European countries. For example, Moldova applies increased taxes for imported vehicles older than 3 years, while banning the import of vehicles over 10 years old. In Russia an age-based taxation system is in place for imported vehicles: 30% tax increase on imported cars older than 1 year; 35% tax increase for imported vehicles from 3 to 5 years old; for vehicles older than 5 year the tax is within 2.5 and 5.8 Euro per cm³ of engine volume. A yearly road tax/re-registration tax can also be assessed in accordance to vehicle environmental performance.

Inspection: Other countries have strict tests as a precondition for vehicle registration, which means that not all vehicles can be registered once imported. For example, in Zambia there is no age limit for vehicles being imported into the country. However, the Zambia Bureau of Standards requires that vehicles pass a roadworthiness inspection prior to export from Japan. This inspection is conducted in Japan, Singapore, the United Kingdom, United Arab Emirates, and South Africa by an appointed agent. Vehicles that fail this inspection cannot be registered.

Limitations and Challenges

Data availability

Many countries cannot always provide the export and import data for used automobiles from their trade statistics. This is because there is no distinct way of disaggregating used vehicles in the country statistics. Often, used and new vehicles are recorded in a similar manner and there is no way to disaggregate. This presents a problem in that it is difficult to put in place fiscal measures targeted at reducing used vehicle imports.

Discrepancies in trade statistics

Because the export and import data reported by each country do not match the corresponding data of the partner country, it is also difficult to assess the full impact of the used vehicles. For example, data

from Japan Export Vehicle Inspection Center shows that used vehicle exports in the period between 2010 and 2012 numbered 112,929 (Japan Export Vehicle Inspection Center, 2015) whereas the data acquired from the Kenyan government showed that the used vehicles imported from Japan, which account for close to 80% of total imports were slightly over 240,000 in the same period (University of Nairobi Enterprises and Services, 2014). This discrepancy presents a problem while assessing the full scale and impact of the used vehicles.

Lack of harmonization in customs procedures to classify imports

Many importing countries have differing country customs procedures and there is import fraud in some countries. This presents the problem that, countries with less restrictions import older and 'dirtier' vehicles. The Mombasa port Kenya for example acts as the port of entry for vehicle imports to Uganda. Uganda does not impose any age limits for the import of used vehicles yet Kenya has an age restriction of 8 years. With the East Africa Community common market protocol, there is an allowance of vehicles from Uganda to drive into Kenya. This means that the gains that could be realized from the fiscal measures employed in Kenya are not fully realized.

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Appendix 1: Country Vehicle import legislations

Latin America and the Caribbean Region

Country	Fuel Quality (sulphur max allowable)		Vehicle Emission Standards, Light Duty Passenger
	Diesel	Petrol	
Anguilla			Inspection required before registration
Argentina	1000	150	Import ban on used vehicles, although a few exceptions.
Barbados	15		Used vehicles must be less than 4 years old, and an environmental tax is paid on arrival. vehicle must have new tyres, vehicle must be less than 50,000 km
Belize	5000	1500	Imported vehicles must be less than 5yrs old. Indication of vehicle inspection system.
Bermuda			Only new vehicles or less than six months old are allowed to be imported.
Bolivia	2000	50	No importation of cars over five years old, diesel vehicles with engines smaller than 4,000 cubic centimeters, and all vehicles that use liquefied petroleum gas in an effort to limit both government fuel subsidies and pollution.
Brazil	500/10	50	Importation of used vehicles is banned.
Cayman Islands (BVI)	5000		No import restriction, although an environmental tax is paid on arrival.
Chile	15	15	Importation of used vehicles is banned.
Colombia	50	300	Importation of used vehicles is banned.
Costa Rica	50	1000	Imported vehicles must pass EPA Smog Test signed off by local consulate; all imported vehicles must have catalytic converters. No import age limits.
Cuba	8000	1200	Imported used vehicles must be less than four years old
Dominica			No import restrictions, but environmental levy must be paid on arrival
Dominican Republic	7500	1500	The import of automobiles and light trucks (under five tons) over 5 years old is prohibited
Ecuador	5000	650	Importation of used vehicles is banned
El Salvador	5000	1000	Import requires proof that vehicle complies with emission control requirements; vehicles must be manufactured after 1995
Honduras	5000	1000	Used private vehicles must be less than 7yrs old.
Jamaica	5000	1500	Imported cars must be less than 5yrs old. For pick-ups - Six(6) years For motor cars - Five(5) years Trucks, Trailers and other heavy duty equipment - Ten (10) years
Mexico	500	80	Vehicles must be minimum 5 years old (and max of 10 years) must have a gasoline engine, and must be equipped with a catalytic converter.
Paraguay	50	500	Importation of used vehicles must be less than 10 yrs.
Peru	5000	2000	Passenger vehicles must be less than 5
St Kitts and Nevis	500	400	No import restriction, but environmental levy to be paid, depending on vehicle age, higher levy is above 5 years.
Suriname	5000	300	Used vehicles must be less than five years old.
Trinidad and Tobago	1000	500	Age limit of gasoline-powered foreign used cars allowed for importation is four years from February 2016.

Country	Fuel Quality (sulphur max allowable)		Vehicle Emission Standards, Light Duty Passenger
	Diesel	Petrol	
Uruguay	50	30	Importation of used vehicles is banned,
Venezuela	2000	1500	Importation of used vehicles is banned,

Africa region

Country	Fuel Quality (sulphur max allowable)		Vehicle Emission Standards, Light Duty Passenger
	Diesel	Petrol	
Benin	3500	3500	Import age restriction is 10 years for LDVs and 13 years for tourism vehicles. There is a requirement for control emissions but that is not specified.
Botswana	500	500	Maximum of 100,000 kms on the vehicle
Chad	166	35	Vehicle inspection upon importation
Côte d'Ivoire	3500	150	A fine of FCFA 150.000 is imposed on vehicles older than 10 years and an additional FCFA 10.000 for every year.
Eritrea	3000	1000	Used vehicles must be less than ten years old
Gabon	1500	150	Used vehicles must be less than four years old (since July 2001)
Ghana	3000	1000	Used vehicles over five years old pay graduated penalty according to year of manufacture and capacity
Kenya	50	150	Used vehicles must be less than eight years old
Lesotho	500	500	Used vehicles must be less than eight years old
Mauritius	50	150	Has a three year age restriction
Mozambique	500		Used cars must be less than five years old; used vans must be less than nine years old.
Niger	380	160	Used vehicles from outside of the SACU area must be less than five years old; there is no age limit for SACU-originating used vehicles
Réunion			Used vehicles must be less than eight years old
Seychelles	500-5000	110	Used vehicles must be less than five years old
South Africa	500	500	import of used vehicles banned
Sudan	80	30	imported second-hand vehicles are illegal, except for immigrants, vintage and racing cars, vehicles adapted for physically disabled, and donated vehicles for welfare organizations
The Gambia	5000		Import of used vehicles restricted through taxation – increases in vehicles exceeding 10 years and roadworthiness must be
Uganda	50	150	No import age restriction. Environment levy charged for cars according to age

East Europe region

Country	Current Sulfur Levels in Fuel (Max, ppm)		Light Duty Vehicle Emission Standards and Enforcement	
	Diesel (ppm)	Petrol (ppm)	LDV Emission Standards	Used Vehicle Policies
Armenia	10	10	All vehicles to be produced or to be imported into the country from 1 January 2015, must comply with the norms of the following UN ECE regulations (5-the ecological class): UNECE rules N 49-04 of the B levels (01.10.1995) UNECE rules N 24-03, addendum 1 (only for diesel engines)	<ul style="list-style-type: none"> Import taxation favors smaller cars, but also incentivises older/used cars: http://www.amcham.am/business/doing-business2/tax-guide.html
Azerbaijan	350	150	Euro 4 for LDV, IV HDV standards. On 15 January 2014 Azerbaijani Prime Minister Artur Rasizade signed the Order No 2 on the country's transition to Euro 4 (amending AZS 636-2012 state standard "Road Transport. Ecological Classes" has been confirmed under the order of the State Committee for Standardization, Metrology and Patent). According to the decision, the Euro 4 standard enters into force from 1 April 2014 (http://www.aecc.eu/en/content/pdf/AECC%20Newsletter%20January-February%202014.pdf , http://en.apa.az/xeber_azerbaijan_applies_euro-4_standard_from_209268.html)	<ul style="list-style-type: none"> Import duty on new vehicles (less than a year) is charged at a rate of US\$0.4 per cm³ of engine volume, while the corresponding rate for used vehicles (more than one year of used) is US\$0.7.
Bosnia and Herzegovina*	350	150	Euro 5 LDV for new vehicles, Euro 3 for used vehicles since 28.12.2010 ("OGRM of BiH", No. 89/10).	Euro 5 LDV for new vehicles, Euro 3 for used vehicles since 28.12.2010 ("OGRM of BiH", No. 89/10).
Georgia	150	50	None.	<ul style="list-style-type: none"> Cars imported into Georgia are subject to two types of taxation, which are not directly linked to fuel economy but do vary according to the engine volume and age of the vehicle. Imported vehicles are subject to an excise tax, according to vehicle age. In addition, cars are subject to an import tax of 0.05 GEL per engine cm³, as well as an additional 5% of this initial amount per year of use of the imported car.
Moldova	2000	500	GOST R 52160-2003 "Motor Vehicles Equipped with Compression-Ignition Engines. Opacity of Exhaust Fumes. Norms and	<ul style="list-style-type: none"> Review of national legislation planned in 2016. No local production of vehicles or

			Methods of Control” adopted by the Resolution of Gosstandard (State Committee for Standards) of Russia # 375-st of 18.12. 2003 – Harmonized with Directive 72/306/EEC. The Resolution of the Government of the Republic of Moldova “On Adoption of Rules Related to Harmonization of National Standards and Ecological Requirements to Emissions and Noise from Motor Vehicles with EU Standards” is drafted. http://www.airgovernance.eu/admin/editor/uploads/files/ENG_Report_Concordance%20table%20and%20recommendations_2_NI.pdf	fuels.
Russia*	10	50	All LDV sales and registrations will require Euro 5 from January 2016 onwards. Euro IV HDVs approved before the 01/01/2014 can be produced and entered into use until the 31/12/2015. Euro 4 standard for new manufactured and imported LDV and Euro IV HDV introduced in 1/1/2010.	<ul style="list-style-type: none"> • In 2010 Moldova abolished customs taxes for vehicles less than 7 years old imported or produced within neighborhood NIS countries. • Increased taxes are applied for vehicles older than 3 years. • Currently an age limit of 10 years is applied for all imported automobiles.
Serbia*	10	10	Euro 5 for new LDV vehicles from 2011, Euro 3 for used vehicles since 2005. HDV standard unknown.	<ul style="list-style-type: none"> • An age-based taxation system is in place for imported vehicles: 30% tax increase on imported cars older than 1 year; 35% tax increase for imported vehicles from 3 to 5 years old; for vehicles older than 5 year the tax is within 2.5 and 5.8 Euro per cm3 of engine volume.
The Former Yugoslav Republic of Macedonia*	10	10	From July 2015 the limits for S vehicles will be Euro 4 and Euro 5 for new LDV’s imported and registered in FYR Macedonia.	Taxation of used vehicles (upon registration) based on engine size and power, plus flat fee. Yearly road tax.
Turkey*	10	10	Euro 5 LDV from 2010, Euro VI HDV effective January 2015 (https://www.dieselnets.com/standards/tr/).	<ul style="list-style-type: none"> • Importation of used vehicles is banned. • Major regional auto manufacturer.
Ukraine*	50	50	Euro 5/V from 2016	<ul style="list-style-type: none"> • From January 1, 2013 the import of LDV vehicles below Euro 3 is banned. • Euro 5 LDV for January 1, 2016, Euro 6 LDV for January 1, 2018. • Excise taxes are lower for vehicles with smaller engine volume and lower CO₂ emissions.

Asia

Country	Current Sulfur Levels in Fuel (Max, ppm)		Light Duty Vehicle Emission Standards and Enforcement	
	Diesel (ppm)	Petrol (ppm)	LDV Emission Standards (Current and Planned)	Used Vehicle Policies
Afghanistan	10,000	No info	No info	<ul style="list-style-type: none"> Allows importation of used vehicles
Bangladesh	5,000	1,000	<ul style="list-style-type: none"> Currently Euro 1 Roadmap established but timeframe for adoption to be confirmed Euro 3 – July 2019 (Nationwide) Euro 4 – July 2019 (Dhaka and Chittagong) 	<ul style="list-style-type: none"> Allows importation of used vehicles
Brunei Darussalam	500	1,000	<ul style="list-style-type: none"> Euro 1 – Diesel Euro 2 – Petrol 	<ul style="list-style-type: none"> Euro 4 – 2016
China	50	50	<ul style="list-style-type: none"> China IV (~Euro 4/IV); China V (~Euro5) Beijing Euro 6 – 2016 (Beijing) including 10ppm sulphur in fuels China V nationwide by 2017 	<ul style="list-style-type: none"> Used vehicles importation prohibited
China (Hong Kong SAR)	10	50	<ul style="list-style-type: none"> Euro 5 for Diesel 	<ul style="list-style-type: none"> Allows importation of used vehicles
China (Macao SAR)	50	50	<ul style="list-style-type: none"> Euro 4 equivalent 	<ul style="list-style-type: none"> Allows importation of used vehicles
Chinese Taipei	10	50		<ul style="list-style-type: none"> Allows importation of used vehicles
Fiji	500	No info		<ul style="list-style-type: none"> Limits Euro 4 imported new vehicles including second-hand
India	350	150	<ul style="list-style-type: none"> Euro 3 Euro 4 in eleven major cities Euro 6 equivalent standards planned for April 2020 	<ul style="list-style-type: none"> Used vehicle importation in India is not easy, and not mainstreamed. Used vehicles imports are only allowed through Customs Port at Mumbai. Vehicles should have a minimum of 5 years roadworthiness, and importer shall submit certification from any government sanctioned testing agency on its roadworthiness
Indonesia	3,500 (avg.) / 500ppm/ 50ppm	500	<ul style="list-style-type: none"> Euro 2 Discussions ongoing for implementation of Euro 4 	<ul style="list-style-type: none"> Used vehicles importation prohibited
Malaysia	500	500	<ul style="list-style-type: none"> Euro 2 Plans implementation of Euro 4 by January 2016 	<ul style="list-style-type: none"> Allows limited importation of used vehicles through pre-approved permits to be obtained from the Ministry of International

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Marshall Islands	50	150	Discussions on-going for establishment of Euro based vehicle emission standards	<ul style="list-style-type: none"> Allows importation of used vehicles
Mongolia	5,000	No info	No info	<ul style="list-style-type: none"> Allows importation of used vehicles
Nepal	350	150	<ul style="list-style-type: none"> Euro 3 	<ul style="list-style-type: none"> Allows importation of used vehicles
Pakistan	5,000 - 7,000	No info	No info	<ul style="list-style-type: none"> Allows importation of used vehicles
Palau	No info	No info	No info	<ul style="list-style-type: none"> Allows importation of used vehicles
Philippines	50	50	<ul style="list-style-type: none"> Euro 4 	<ul style="list-style-type: none"> Allows limited importation of used vehicles (passenger cars) through Special Economic Zones/ Ports
Singapore	10	50	<ul style="list-style-type: none"> Euro 4, Euro V for diesel Euro 6/VI standards planned for 2017 	<ul style="list-style-type: none"> Allows importation of used vehicles less than 3 years of age, plus a surcharge of S\$10,000 on top of the Quota Premium (cost to acquire a Certificate of Entitlement) and tested by government sanctioned laboratories
Sri Lanka	2000	1000	<ul style="list-style-type: none"> Euro 1 	<ul style="list-style-type: none"> Allows importation of used vehicles
Thailand	50	50	<ul style="list-style-type: none"> Euro 4/IV Ongoing discussions on the timeframe for Euro 5/6 standards 	<ul style="list-style-type: none"> Used vehicles importation prohibited
Viet Nam	500	500	<ul style="list-style-type: none"> Euro 2 Planned Euro 4 by 2017 	<ul style="list-style-type: none"> Euro 5 – 2022