Car scrapping - sense and nonsense of a popular scheme

In this Paper:

The Issue

In September 2009 the British government decided to extend the funds for the car scrappage bonus to an additional 100,000 vehicles with the aim of mitigating the impact of the financial crisis on the struggling car industry and to prevent possible lay-offs. This initiative rewards people who want to scrap their old car with a certain financial support for buying a new car. It was first implemented in Germany to protect the backbone of its economy and has also become quite popular in the rest of Europe and beyond. Governments and the industry usually claim that by doing this it not only strengthens the economy but also fosters the reduction of CO_2 emissions as less efficient older cars would be recycled and replaced by more efficient and more environmentally friendly ones.

The question is: does this reasoning stand up to scrutiny? Is the car scrappage scheme a genuine green measure with the aim of approaching a carbon-free society or is it just another example of populist greenwash in order to camouflage unambiguous industry interests? And furthermore: where else do the opportunities for change lie and which other measures could be taken?

1.0 Car Scrapping: Incentives embraced worldwide

Many countries in Europe and beyond decided to implement a car scrappage scheme, but with different requirements which they felt would benefit the country most. Here is an overview of how the idea was translated into action.

Country	entry into effect	Age requirement	Emissions requirement	financial limit
Austria	2009 (April)	older than 13 years	Euro-4	1500 euros
China	2009 (June)	"old heavy polluting cars and trucks"	Euro-3	$450 to $900
Egypt	2009	only taxis older than 20 years	choice between 5 models – all assembled in Egypt	650 euros plus special credit scheme
France	2009 (January)	older than 10 years	up to 160 g/km for increasing efficiency	1000 up to 5000 euros
Germany	2009 (January)	older than 9 years	Euro-4	2500 euros
Italy	2009 (there were several before)	older than 10 years	<140 g/km petrol <130 g/km diesel for increasing efficiency	1500 up to 5000 euros
Ireland	2009 (December)	older than 10 years	Euro-4	1500 euros
Japan	2009 (June)	older than 13 years	none	2500 dollars
Luxemb-ourg	2009 (January)	older than 10 years	Euro-4 for emissions below 120 g/km	1500 euros 2500 euros
Portugal	2007	older than 10 years older than 15 years	Euro-4	1000 euros 1250 euros
Romania	2005	older than 12 years	no particular requirement	900 euros
Russia	2010 (March)	older than 10 years	must be produced in Russia	1200 euros
Slovakia	2009 (March)	older than 10 years	acquisition below 25.000 euros	2000 euros
Spain	2008 (August)	older than 10 years or more than 250.000 km	less than 120 g/km	special credit scheme
United Kingdom	2009	older than 10 years	no particular requirement	2000 pounds
United States	2009 (July)	consumption more than 13,1 l/100 km	consumption less than 10,7 l/100 km	up to 4500 dollars

Looking at the table we can clearly see the different ways of implementation. Most of the emission requirements are not very ambitious as the Euro 4 standards have been binding standards for new cars since 2005 and this is outdated in any case as the Euro 5 started in September 2009. That means that in many countries there is no incentive to buy a particularly environmentally friendly car but just any car meeting the new standards. Only France, Italy, Luxembourg and Spain offer increasing incentives the more efficient the car you buy is. Beyond Europe a certain commitment can also be seen, but both China's and Russia's measures are not exactly ambitious. China's efforts of at least reaching the Euro 3 standards is put into perspective by an ever higher number of

vehicles on the roads in the cities and the US effort to reduce fuel consumption from over 13,1 l/km to under 10,7 l/km is close to being somewhat laughable as advancing technology would provide this improvement anyway.

Very promising on the other hand seems to be the effort Egypt is undertaking in its capital where an estimate of 35,000 old bangers serve as taxis and cause great pollution (and safety risk) around the city. The Egyptian government decided to provide incentives for Cairo taxi drivers to scrap cars that are 20 years and older and to buy locally produced cars which are fitted to either run on petrol or on compressed natural gas. Since the scheme started in April 2009 about 17,000 old cars have been replaced as of the end of January 2010.[1] Banks had agreed to finance a total number of 29,000. As the scheme only applies to cars that are 20 years and older, studies suggest that it is best to scrap them completely. On the other hand the substituting vehicles are very clearly defined. There is only a choice between 5 models, all of which are green cars. The scheme proved to be so successful in Cairo that it is planned to extend it to the whole of Egypt.

In Russia as a prerequisite for enjoying the benefits of the scheme the new car has to be produced in Russia. In Egypt the five models that taxi drivers can choose from are also assembled within the country. Within the WTO - of which the EU is a member - a clause to promote only domestic products is generally not allowed, as this is seen to be anti-competition.

2.0 A step towards clean transport or industry-driven greenwash? Aspirations under scrutiny

Generally the scrappage scheme is presented as a stimulus for the domestic economy and thus investing out of the financial crisis whilst at the same time making societies more environmentally friendly, facilitating change in production and guiding consumer behaviour in a new direction. So let's look at the different arguments and whether aspirations can stand up to scrutiny.

2.1 The scrappage scheme as lifesaver of the economy in crisis times

The financial crisis has put many countries in difficult economic situations. Demand for goods connected to major investment significantly went down, putting even more pressure on the economy. In the automobile industry thousands of jobs were in danger of being shed or moved to lower income countries. With a large scale political incentive, demand was meant to be increased to secure the industry and jobs, thus mitigating the impact of the crisis.

A car scrappage scheme does make sense as a means of crisis mitigation. In times of recession where liquid assets are rare, such a scheme can encourage people not to reduce their spending and thus drive the economy into an ever deeper recession but

[1] http://www.eiu.com/index.asp?layout=ib3Article&article_id=1105201295&country_id=&pubtypeid=1112462496&industry_id=&category_id=&rf=0

rather encourage them to spend their assets and thus push the economy towards a quick recovery.

A similar approach in times of crisis has been taken in the building sector. Many public construction projects which had been kept in the drawer before the crisis have been pulled out in order to help the sector survive during the downturn. This has worked very well but there is one fundamental difference between the two measures: the construction projects concerning public buildings and infrastructure were unavoidable and would have been implemented eventually anyway. The government and municipality decisions of translating them into action at this specific moment in time have proven very effective in counterbalancing the effects the economic downturn had had on the building sector. The unavoidability of, for instance, road maintenance is not comparable with a need for subsidies in the automobile industry.

The argument that these subsidies will indeed help the economy and employment is not sustainable. Insufficient aggregate demand during economic downturns is leading to high unemployment and loss of potential output. According to Keynesian economic theory this needs to be addressed by government policies aimed at increasing aggregate demand and hence increasing economic activity and employment. However, Keynes also admitted that it is not important whether the subsidies are put into something useful or not. Building, for instance, completely useless pyramids is great for employment as it is for the economy, but it does not provide any use other than that involved in their production. The same thing applies to warfare where it is often argued that it stimulates research and development and the arms industry, which in turn boosts employment.

In this argumentation we must keep in mind not only what you can see but also what you cannot see - an economic phenomenon called the parable of the broken window[2]. The money spent, in our case on subsidies to the automobile sector, does benefit the industry which is what you can see. But what you cannot see is what as a result the money is **not** spent on, for instance infrastructure or education. But not only does the government lose this money for other purposes, it is also a loss for the people who would otherwise have gained something, in this case construction workers or teachers. Consequently the costs of what you cannot see are higher than the benefit that you can see.

2.2 The scrappage scheme as a tool for preserving employment

Trade unions argue that there will be a massive loss of jobs if the industry is not supported. The scheme does make sense when it comes to job security in the short term. However, we need to keep in mind that not only is the motor industry highly automated but also that only a rather small percentage of cars on the road (10-20%) are actually produced in the same country. This poses the question as to whether the scheme can genuinely be seen as a job saver in the first place, given the fact that public transport also employs a huge number of people.

[2] http://www.economicexpert.com/a/Parable:of:the:broken:window.htm

When looking at the medium and long term it turns out that a car scrappage scheme does not provide added security for workers in the automobile sector. Goods which need a major investment from consumers, such as cars, are not bought very frequently. As a result of the incentives, in 2009 many new cars were bought which otherwise would have only been bought one or two years later. Therefore, after the scheme runs out, sales will not only go back to the low level where they would have been without incentives, but they will drop even lower. An artificially formed peak naturally provokes an ensuing low level. As a consequence a lot of money has been spent, not in solving the problem, but in postponing it to next year.

However the scrappage scheme did also convince some people to buy a new car who otherwise would not have planned to do so in the first place[3]. Obviously this is good news both for industry and employment. However, these current consumers will not prevent the low level recurring either, as it is very unlikely that these people will buy another car any time soon.

We might ask ourselves why save jobs in a polluting sector in the first place? From a very long-sighted perspective it is going to dwindle sooner or later anyway, at the latest with the start of the post-oil era. Isn't the reduction in production and hence in employment as well as the reduction of car usage in general rather desirable in the long run and from a global perspective, even though it is caused by high oil prices and reduced purchase power? Isn't the end justified even if it has been facilitated by some rather unpleasant circumstances? Wouldn't it be wiser to invest in the best available alternative technologies as soon as practicable and use the present decrease in demand to start adapting production and training staff?[4]

2.3 The scrappage scheme as a promoter of a green economy

The aspiration for a positive impact on the environment is the plan to remove a number of old bangers completely from the roads by ensuring they get scrapped instead of resold. Incentives are given to the owner to buy a new, more environmentally friendly car to foster a shift towards a cleaner transport.

However, even cars with a CO_2 output of 150 gram/km enjoy being part of the scheme, which is not particularly environmentally friendly. In fact, the only requirement is that the new cars meet the Euro 4 standard on exhaust emissions. Given that all cars on sale in the EU have had to meet this standard since 2005, there is no particular stimulus for paying attention to environmental friendliness beyond that. In other words average technology cars are being supported by the government and thus the tax payer.

[3] http://www.dailymail.co.uk/news/article-1214479/Motor-industry-urges-Mandelson-extendcar-scrappage-scheme.html

[4] The main argument of the automobile industry against new standards e.g. for CO_2 emissions is that production chains can only be adapted slowly and in several steps. It requires time and effort from factories and employees and hence it is only reasonable to start during an economic downturn where production facilities and staff actually have the opportunity to devote their energies to the switch to best available technologies.

With regard to the environment it is evident that convincing people to buy a car who had not really planned to do so anyway can in no possible way be labelled as an environmentally friendly measure. Not to speak of the rebound effect of a more efficient car which is cheaper in consumption; it will encourage people to use it more often. And to support people in buying a new car, who had planned to do so anyway, is just a waste of taxpayer's money.

Another argument for supporting the scrappage of cars with an environmental aspiration is the guarantee to completely remove them from the roads and thus prevent them from being resold. The question coming up hereby is: is it really sensible to scrap 9-year old cars and therefore avoid them from being shipped e.g. to Africa where these cars could replace the 30-year old vehicles which are - without any kind of catalytic converter - currently heavily polluting the air in Lagos, Dakar or Yaoundé?

And if they do so - which was actually the case with cars that were supposed to be scrapped in Germany[5] - then the whole point of pumping money into their destruction is negated. Also from the cars that are actually being scrapped in Europe, all the parts can be removed beforehand - including the old engine- in order for them to be exported to the East or to the South where they can then continue to pollute.[6] In conclusion this natural journey of a car - regardless of whether it is sensible or not - is not even prevented by the car scrappage scheme despite the huge amount of funds pumped into it.

2.4 The scrappage scheme as facilitator of change

Luxembourg's transport minister Lucien Lux considered the crisis to be a unique chance for ecological investment and for lasting change[7] and he is certainly not alone in his assessment. At a time of economic difficulties when incentives are given to increase demand there is a political chance of shaping this demand according to certain goals. Hence the plan to link crisis mitigation with the promotion of a greener society is very reasonable and to be welcomed.

Yet it often seems that national governments apparently do not have a clear agenda on how to tackle crosscutting issues and give mixed signals instead. On the one hand people are being encouraged to car-share and drive five miles (8 kilometres) less a week as there are too many cars on the roads and the authorities don't seem to know how to cope with all the traffic on the road systems. The Dutch Transport Structure Scheme for instance already included an explicit target to halve the rate of growth in vehicle traffic since 1990. On the other hand governments feel the need to stimulate the automobile industry. A holistic approach to transport is needed to overcome these contradictions that combines the approach of environment and industry ministries rather than working against each other. Part of this approach could be a European-wide scrappage scheme which orients itself towards scientific studies about the best age for a car to be

[5] http://www.dw-world.de/dw/article/0,,4594661,00.html
[6] http://www.dw-world.de/dw/article/0,,4594661,00.html
[7] http://www.woxx.lu/id_article/2897

scrapped, not only from an economic but also an environmental point of view and in addition only gives incentives to small, light and truly environmentally friendly cars.

But also at an EU level much is left to be desired. On 19 February 2010 the Council of Ministers met to discuss the future of the European car industry. They "identified green technologies as a strategic medium-term perspective for the industry to help it recover from the crisis and improve its competitiveness."[8] Framework Programme 7 (2007-13) which supports European investment in research and development in order to boost competitiveness, tackles car efficiency. The European Green Car Initiative is one of the three Public Private Partnerships included in the Commission's Economic Recovery package.[9] These financial support measures are supplemented by demand-side measures, involving regulatory action by EU and Member States, such as the reduction of car registration taxes on cars with low CO_2 emissions to stimulate car purchase by citizens. This is to be welcomed but the focus on research does not tackle regulatory measures for car scrappage schemes. A missed opportunity indeed. The incentives given throughout 2009 should have already incorporated the proclaimed goals by clearly supporting only the best available technologies. By giving support also to the second, third or fourth best, a golden chance has been blown. The car scrappage could have indeed been a facilitator of change but not in the half-hearted manner in which it was done.

3.0 The Crux of the story: a car's life-cycle

Apparently one very crucial factor is often forgotten in the whole discussion: the fact that the world's resources are not unlimited. It is indeed true that newly produced cars do emit about 25% less carbon than the ones that are being scrapped. However, another important factor in this calculation is the amount of resources and energy needed for production which is often underestimated and neglected.

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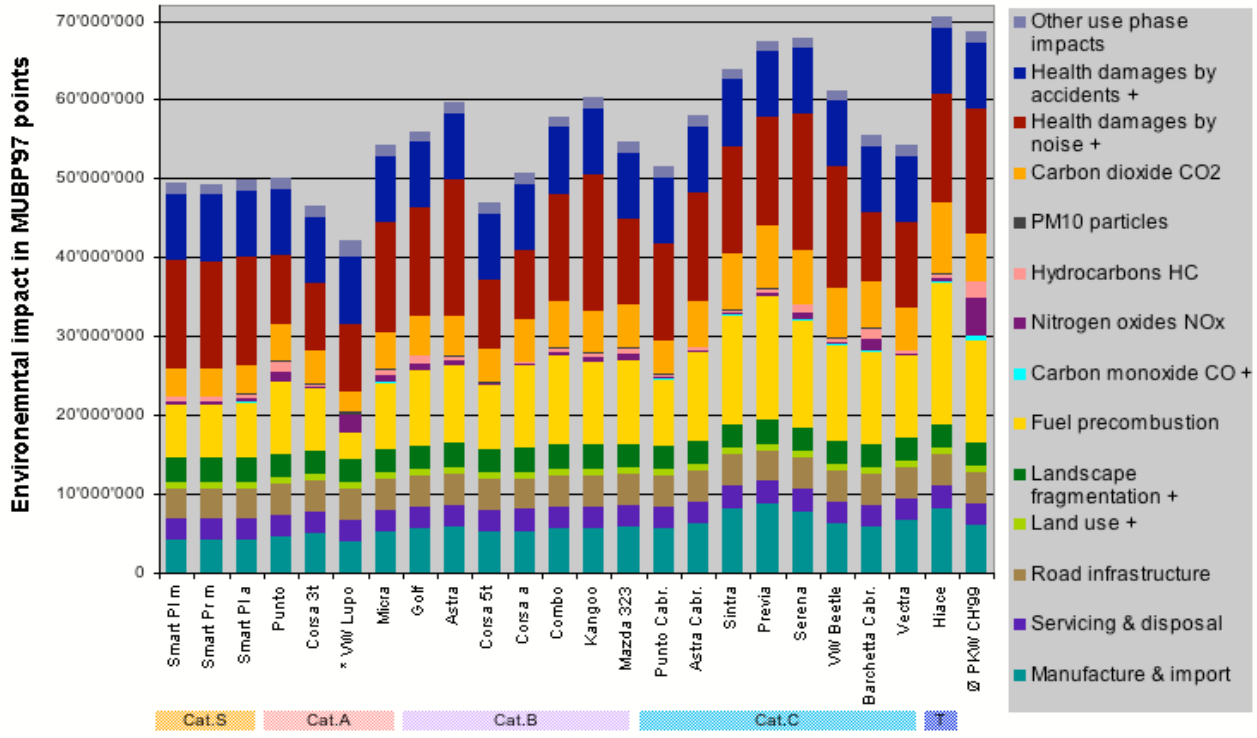
Andrew Davis, Director of the Environmental Transport Association, stated that "the schemes are by their nature wasteful and routinely fail to take into consideration the amount of energy required to build a vehicle in the first place." [10] He is backed up by Blanche Weber, president of the Mouvement Ecologique, who repeats that the European car pool would modernize itself even without any squandering of questionable funds over a period of a few years.[11]

[8] http://www.euractiv.com/en/transport/tajani-table-eu-clean-cars-strategy-news-266562
[9] http://ec.europa.eu/research/industrial_technologies/lists/green-cars_en.html
[10] http://www.thisisplymouth.co.uk/business/Car-scrappage-scheme-extension-welcomed/ article-1378868-detail/article.html
[11] http://www.woxx.lu/id_article/2897

With this in mind it seems quite absurd to scrap a car which is only nine or ten years old and which has already used up a lot of resources in its production. In order to scrutinize this in more depth a detailed analysis of a complete life cycle can give a good overview of the environmental impact of the production, life and scrappage of a car. This, however, is very difficult and time-consuming. It is extremely complicated and needs detailed data collection to analyse all stages of a car's life cycle.[12] In any case we can distinguish three main stages: production from resource extraction to manufacture, use and recovery. In every stage calculations of the environmental impact are done according to different methodologies.

To get an idea we can have a look at the figures provided by Mobility Car Sharing Switzerland who undertook calculations for their entire fleet[13]:

Total environmental impact of car models
for a life time service of 150 000 vehicle-kilometres



Figures do vary according to the model produced, but one can generally say that between 5-15% of a car's emissions occur during its manufacture, which is quite considerable[14]. Another 10% comes from fuel production, which in some studies is

[12] http://vcc-sae.org/abstracts/716-original-method-car-life-cycle-assessment-lca-and-its-applicationlada-cars

[13] http://www.doka.ch/DokaMobilitySTRCproc01.pdf
With this table we have to keep in mind, though, that Mobility Car Sharing Switzerland is geared to only purchasing efficient and rather environmentally friendly cars. Hence the example is not representative for the current EU fleet.

[14] http://www.ecolane.co.uk/projectspublications.php

integrated into the former number, accounting for around 20% of total lifetime CO_2 emissions for the vehicle and fuel production stage. The utilization phase, with around 70-80%, still has the biggest impact on the environment and thus offers the highest potential to save both economic and environmental resource consumption. An important determinant of emission impact is the size of the car. The bigger and heavier a vehicle, the more fuel it needs. Higher fuel use requires an increase in fuel production energy and thus again increased emissions. Also, larger cars require more materials and assembly energy during manufacture.

Obviously, the higher the percentage of emissions produced during manufacture, the more advisable it is to keep the car for longer. The more energy efficient a car becomes, the higher the percentage of the emissions during manufacture; keeping the car for longer would then be sensible.

A study from 2008 conducted by the Royal Automobile Club Foundation in the UK came to the conclusion that in order to reduce emissions in the country, the ideal age to incentivise car scrappage would be for cars that are 17 to 18 years old.[15] Other studies arrive at an ideal scrappage age of around 12 years. [16]

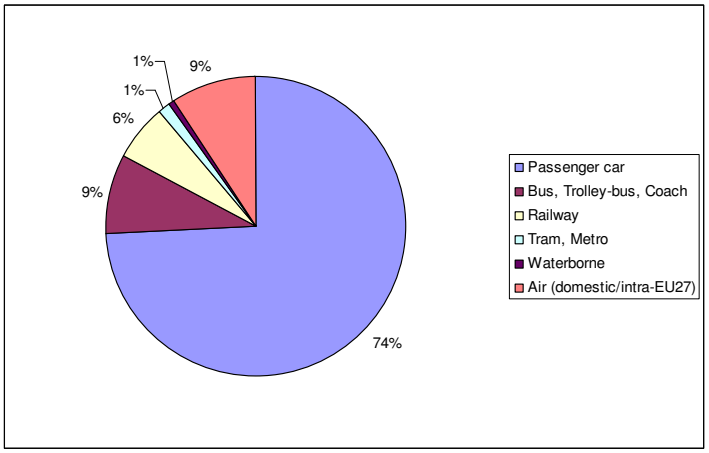
Another way of trying to work out whether a policy measure is worthwhile is the calculation of the costs for every avoided ton of emitted CO_2. This calculation is very complex and figures vary greatly according to the factors taken into account; however, research broadly suggests that the costs of car scrapping is very high compared to other climate protection measures and is therefore hardly worth it. Calculations estimate the cost at 150-550 euros per avoided ton of CO_2 emissions whereas the costs of geothermal energy are around 4 euros.[17]

This estimation has just recently been confirmed in an evaluation of the scheme stating that "The scrappage scheme may save the car industry, but it won't save the planet. (...) The environmental impact of the scheme has been ... nil or even negative".[18]

[15] http://www.green-car-guide.com/articles/579/1/Reduce-emissions-by-scrapping-18-year-old-cars/Page1.html
[16] http://www.woxx.lu/id_article/2897
[17] http://www.terrapass.com/blog/posts/is-cash-for-clunkers-a-good-idea
[18] http://www.timesonline.co.uk/tol/driving/news/article7033732.ece

4.0 What are the alternatives?

Transport has a significant impact on the environment as it accounts for 20-25% of world energy consumption and CO_2 emissions[19]. Also, CO_2 emissions from transport are increasing faster than any other emitting sector. Today, there are nearly 600 million private automobiles and 209 million light trucks registered in the world. Therefore it is paramount for the EU, as well as for the rest of the world, to tackle the challenge and to start thinking about how to mitigate this growth. One starting point must be individual car transport itself as it accounts for 74% of all passenger transport within the EU-27.



EU-27 passenger transport
Data available at
http://ec.europa.eu/transport/publications/statistics/doc/2009_energy_transport_figures.pdf

4.1 Political Incentive I: Investment in public transport

A lot can be done by investing more in public transport. Because of this, cities can and should be one of the major drivers of this change. More and more cities across Europe are already introducing different measures in order to combat pollution coming from car emissions or dense traffic in general.[20] Cooperation platforms such as *Eurocities*[21] play a significant role in promoting progress and delivering support. Here are some of the interesting actions that were taken at the municipal level:

Zurich in Switzerland turned into an example of green public transport with an integrated network of electric trams and trolley buses and electric mainline railways. They are knitted together by an integrated multi-modal ticketing system that positively encourages people to make extensive use of the transports[22].

In **Dublin**, along with many other cities, public bikes have recently been introduced[23]. Having provoked a lot of polemics in the run-up, the scheme turned out to be very successful. 23.000 people signed up to it in the first three months. Dubliners seem to appreciate it as a cheap and handy form of transport although maybe not perfect for all seasons of the year.

Brussels offers one year's free transport to people who give up their car for good.

[19] http://ec.europa.eu/transport/publications/statistics/doc/2009_energy_transport_figures.pdf
[20] http://www.umwelt-plakette.de
[21] http://www.eurocities.eu/main.php
[22] http://citytransport.info
[23] http://www.dublinbikes.ie/All-Stations/Station-map

Adelaide in Australia is currently testing a battery electric bus, the *Tindo*, which gets its electricity from a photovoltaic system on the central bus station[24]. This way, drivers of more polluting cars need to switch to public transport and the cities give a clear signal to people to pay attention to emissions when buying a new car.

For some time now the electric *Capabus* has been running in **Shanghai**, China. It uses power stored in large onboard electric capacitors, which are quickly recharged whenever the vehicle stops at any bus stop. This bus can also capture energy from braking, and according to the producer, recharging stations could also be equipped with solar panels[25].

Many cities across Europe[26], (among others **Prague, Copenhagen, Berlin, Rome,**) introduced low emission zones in their city centres where only cars which fulfil emission criteria certified by an environmental badge can enter.

To sum up, there are many ways of effectively investing in green transport which are much more convincing than the scrappage scheme and where public money is invested to much better effect.

4.2 Political Incentive II: Speed limits on highways

Most EU Member States already have a speed limit of between 120 and 130 km/h on their highways[27]. Only Germany, Italy and Malta are the black sheep within the EU family with Germany being known as the country where people go to push the envelope of their cars. A speed limit for Germany would have a huge impact on CO_2 emissions. If a country-wide limit of 120 km/h was introduced, 3.3 billion tons of CO_2 per year could be saved immediately and without any expense whatsoever.

The Italian speed limit of 150 km/h needs to be significantly reduced as well. In Austria, Bulgaria, the Czech Republic, Denmark, Greece, France, Lithuania, Luxembourg, Hungary, Poland, Romania, Slovenia and Slovakia 130 km/h are allowed on motorways. Consideration could be given to reducing this further to 120 km/h accompanied by stiff penalties for infringements.

The potential for saving emissions via the reduction of speed limits is immense, not to mention the disincentives for the industry regarding the production of heavy, powerful, fast cars. Once it is no longer possible to drive at a speed of 200 km/h on European highways, automobile producers won't be eager to invest in developing high-powered engines any more.

[24] http://green.autoblog.com/2007/12/13/tindo-solar-powered-bus-makes-its-debut-in-adelaide
[25] http://blogs.transworldnews.com/suntan/Post.aspx?postID=20211
[26] http://www.umwelt-plakette.de
[27] http://ec.europa.eu/transport/publications/statistics/doc/2009_energy_transport_figures.pdf

4.3 Political Incentive III: Modification of tax law

Tax law is an important factor in the whole picture. Companies care about their image as being professional, successful, important etc. and therefore order heavy company cars with high fuel consumptions. In most cases climate protection is secondary, if not completely neglected. In some countries the expenses for acquisition and fuel is tax deductible for the owner company. Such a tax law secures the domestic sales for expensive premium vehicles. Solutions for more efficient cars and reduced emissions are being developed but they need to enter the market. Another approach could be to disincentive company cars altogether as they are often given to people who do not really need a car for work. Unfortunately a company car is still often a status symbol and engine performance a matter of prestige.

The British company car tax system, for instance, has been reviewed in 2002 and has changed to an emission basis which is a significant factor in moving the UK towards a sustainable low carbon economy[28]. It provides financial incentives for employers and company car drivers to choose cars with lower emissions. From April 2010 onwards electric cars will be exempt from company car tax for five years. In France non-polluting vehicles are exempt from all taxes[29].

Some companies have started to rethink and to take CO_2 emissions into consideration when purchasing new cars even without pressure from the government[30]. Others offer their employees a benefit if they give up their company car completely. This shift in mentality needs the encouragement of public recognition and continuing smart taxation.

Road tax could also be a useful tool. In the UK, for instance, road tax is much cheaper for less powerful cars and there have been discussions going on of imposing a higher rate of tax for very high emission cars. Other countries could profit from the UK experience and consider embracing such a measure as well.

4.4 Individual efforts: Ten ways of better driving

Many automobile associations across Europe offer advice on how to drive economically. By following the ten points below, you can save between 10-20% of your fuel consumption[31]:

- Pay attention to fuel consumption, weight, aerodynamics and form of motorization when buying a car. Maintain it regularly;
- Avoid short distance rides. Consider alternatives, combine several trips and take advantage of car sharing offers[32];

[28] http://www.hmrc.gov.uk/cars/icm02000.pdf

[29] https://www.pkf.com/site/webdav/site/pkf/shared/Intranet/International%20Tax%20other%20attachments/Country%20Tax%20Guides%20in%20PDF/France%20Tax%20Guide%202009.pdf

[30] http://www.computerwoche.de/karriere/karriere-gehalt/1928008/

[31] http://www.theaa.com/motoring_advice/fuels-and-environment/drive-smart.html and http://www1.adac.de/images/ADAC%20Sprit-Spar-Training_10%20Tipps%20SST_Toyota_tcm8-219614.pdf

[32] For car sharing offers have a look at www.carsharinguk.com, www.mitfahrgelegenheit.de or www.covoiturage.com

- Remove unnecessary ballast from the car. Keep air resistance low by removing roof racks;
- Check the tyre pressure regularly. Use low rolling resistance tyres;
- Change gears early and drive with a low number of revolutions;
- Achieve a smooth way of driving without acceleration and braking a lot. Drive looking ahead;
- Switch off the engine for longer stops (from upwards of 30 seconds);
- Slow down gradually by taking the foot off the accelerator rather than by sudden braking or shifting down gears;
- When driving slowly let the car roll once in a while with caution but not on a gradient;
- Switch off unnecessary energy-consuming devices such as air conditioning, rear window heater, seat heater, etc.

5.0 Conclusion

We have seen that many countries in Europe and beyond embraced the car scrappage scheme with different levels of ambitions; some (France, Italy and Spain) had green objectives, others (Germany, the UK and Portugal) showed more of a focus on the economic recovery.

The scrappage schemes, as half-heartedly applied in most of these countries, proved not to be sustainable in any way. Not for the environment, not for the economy in crisis times, not for preserving employment, not for promoting a green economy and not for facilitating life-style change.

Demand was merely increased artificially for a very limited period of time with the result that the demand then reduces to levels that are even lower than before; this impacts on both the economy and the labour market. Focussing on keeping the demand high shifts the attention away from the need for adapting production and use of cars. This denotes a missed opportunity for promoting a greener economy and fostering change.

At present the average car in the EU-15 is 8.5 years old according to the European Automobile Manufacturers' Association with 32.4% being older than 10 years[33]. These cars will be replaced eventually and ten million euros could be used much more efficiently elsewhere - for instance in public transport.

If governments still decide to go for scrappage schemes despite this, they must make sure that they benefit the environment, the economy and the labour market in the long term. There must be certainty that taxes are only used to the benefit of genuinely green cars. Only cars over 13 years old should be eligible for any such scheme in order to assure that energy used in the production of the car is not wasted. Increasing incentives for increasing efficiency as applied in France, Spain and Italy are good examples of shaping consumer behaviour. More importantly, research and development of new and

[33] http://www.acea.be/images/uploads/files/20090529_average_car_age.pdf

green technologies must be incentivized and supported to work towards an individual transport sector which is as green as possible.

However, there are other ways of achieving effective and long-lasting emissions reductions: by investing in public transport, by better enforcing speed limits on highways, by modifying tax laws and by raising awareness of methods of more economical driving. There is a need for a holistic approach instead of contradictory piecemeal approaches by different government departments and bodies.

6.0 Policy recommendations

- The EU should support the agreement of speed limits on highways across Europe to ensure emission cuts in countries which so far have been reluctant to have limits

- The EU should make speed limits mandatory on all road projects with EU funding, thus ensuring lower levels of emissions

- The European Commission's current standard for new build cars is not high enough as current technology already allows for lower levels. The EU should therefore review the standard and agree a lower benchmark

- Current scrappage schemes without a specific emphasis on car efficiency must be phased out

- Any future scrappage schemes must make the car's fuel efficiency and carbon footprint the core criteria for financial support

- Member States should be encouraged to engage in the exchange of best practices concerning the scrappage scheme and follow the good examples provided

- There should be an EU-wide scheme for exchanging best practice between cities and local authorities in relation to public transport schemes which can then be replicated

- Car manufacturers should be incentivised to provide customers with full information about the carbon footprint of different cars to allow individuals to make appropriate choices. This should include information about the impact on fuel use of devices such as air conditioning, seat heating and other in-car gadgets.