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THE POLITICAL ECONOMY OF THE INCREASE IN TURKISH TAXES ON MOTOR VEHICLE FUELS

This paper was prepared as a contribution to the project of the on Lessons on Environmental Policy Reform of OECD's Working Party on Integrating Environment and Economic Policies. The study also contributes to a project of OECD's Joint Meetings of Tax and Environment Experts on the political economy of environmental taxation.

JEL Classification: H22, H23, Q48, R22, R48

Keywords: Tax incidence; competitiveness; environmentally related taxes; political economy

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ABSTRACT

Motor fuel taxes have risen significantly in Turkey over the last decade, primarily for fiscal reasons. This paper provides a case study on the political economy issues related to this increase. It starts with an in-depth analysis of Turkish motor fuel taxes, including a summary of the main changes to them and a review of the basic data. It then investigates the impact of motor fuel tax rate increases on income distribution, competitiveness and other environment-related variables in Turkey. Finally, it focuses on acceptability issues related to the fuel tax rate increases. The analysis in this paper indicates that any increase in fuel taxes (and therefore in transportation costs) impacts much more heavily on the rich than on other income groups. The findings also imply that since fuel costs account for a minute fraction of total input cost in most Turkish sectors, fuel taxes do not cause significant reductions in the competitiveness of any sector. These factors may help explain why opposition to fuel tax increases has been relatively moderate. Finally, the analysis identifies acceptability issues as the most problematic aspect of Turkish motor fuel taxes.

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Keywords: Tax incidence; competitiveness; environmentally related taxes; political economy

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RÉSUMÉ

Les taxes sur les carburants ont fortement augmenté en Turquie au cours de la dernière décennie, principalement pour des motifs budgétaires. Ce rapport présente une étude de cas qui s'attache aux aspects de cette augmentation relevant de l'économie politique. Il commence par une analyse approfondie de la fiscalité des carburants en Turquie, accompagnée d'une synthèse des principaux changements qui y ont été apportés et d'un examen des données de référence, pour ensuite étudier l'impact des hausses des taux de taxation des carburants sur la répartition des revenus en Turquie. Ce rapport examine aussi l'effet de ces hausses sur la compétitivité et se concentre ensuite sur les questions d'acceptabilité soulevées par l'alourdissement de la fiscalité des carburants en Turquie. D'après les résultats de ce rapport, les augmentations des taxes sur les carburants (et par conséquent des coûts de transport) grèvent beaucoup plus les hauts revenus que les faibles revenus. Autrement dit, l'analyse montre que cette hausse est progressive, du point de vue de ses effets redistributifs, puisque les segments les plus riches de la population sont beaucoup plus touchés que les catégories les plus pauvres. Par ailleurs, les résultats donnent à penser que les taxes sur les carburants ne sauraient être à l'origine d'un recul notable de la compétitivité dans aucun des secteurs de l'économie turque, car le coût des carburants représente une fraction minime du coût total des facteurs de production dans la plupart des secteurs du pays. C'est peut-être en partie pour ces raisons que l'opposition à la hausse de ces taxes a été relativement modérée. Enfin, selon cette analyse, l'aspect le plus problématique de la fiscalité des carburants en Turquie concerne l'acceptabilité des hausses des taux de taxation.

Classification JEL : H22, H23, Q48, R22, R48

Mots-clés : Incidence fiscale ; compétitivité ; taxes liées à l'environnement ; économie politique

FOREWORD

This paper was prepared by the OECD Secretariat, largely based on input prepared by Dr. Erkan Erdogdu[1] as a contribution to a project on "Lessons in Environmental Policy Reform" of OECD's Working Party on Integrating Environment and Economic Policies. The study also contributes to a project on the political economy of environmental taxation the of OECD's Joint Meetings of Tax and Environment Experts.

Motor fuel taxes increased considerably in Turkey over the last decade, in particular from 2000 to 2005, primarily for fiscal reasons. The analysis in this paper indicates that this tax increase has clearly been *progressive* in terms of its impacts on income distribution, affecting richer segments of the population much more than poorer income groups. The paper also indicates that since the cost of fuel constitutes a very small fraction of the total cost of inputs in most Turkish sectors, fuel taxes cannot be said to cause significant reductions in the competitiveness of any sector. These factors may help explain why opposition to this important tax increase has been relatively moderate. In addition, the paper indicates that the real petrol tax increase between 2000 and 2005, as expected, had beneficial impacts on the environment.

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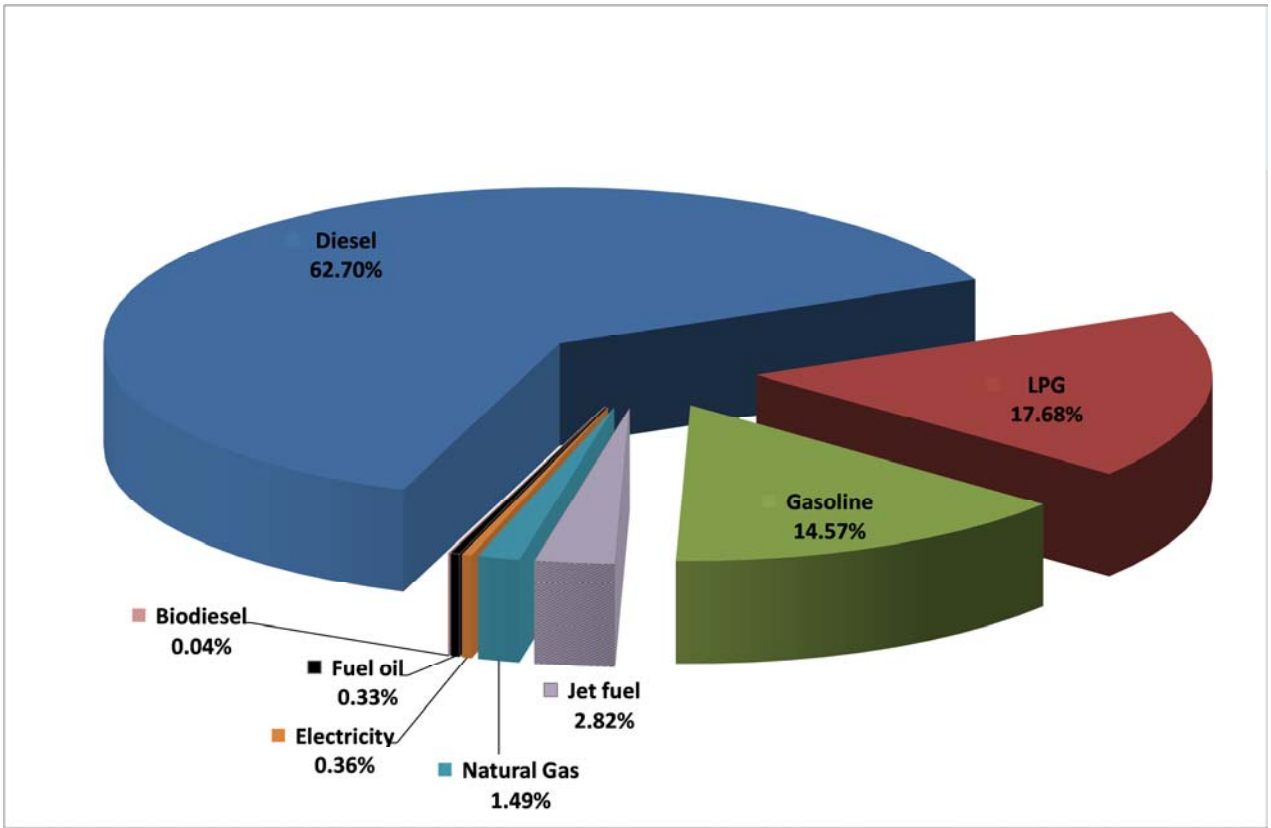
THE POLITICAL ECONOMY OF THE INCREASE IN TURKISH TAXES ON MOTOR VEHICLE FUELS

1. Introduction

1. In 2010, the total energy used for transport in Turkey was 14 630 kilotonnes of oil equivalent (ktoe) (International Energy Agency (IEA), 2012a). Figure 1 presents the distribution of the energy used for transport by product. Diesel, liquefied petroleum gas (LPG) and gasoline account for 95% of the total energy used for transport. In this study, the term "motor vehicle fuels" refers to diesel, LPG and gasoline.

Figure 1. Distribution of energy used for transport by product in Turkey
2010



Source: IEA (2012), Energy Balances of OECD Countries (2012 edition), OECD/IEA, Paris, http://dx.doi.org/10.5257/iea/ebo/2012.

2. The Organisation for Economic Co-operation and Development (OECD), the IEA and the European Commission define environmentally related taxes as any compulsory, unrequited payment to general government levied on tax bases deemed to be of particular environmental relevance. The relevant tax bases include energy products, motor vehicles, waste, measured or estimated emissions and natural resources. Taxes are unrequited in the sense that benefits provided by government to taxpayers are not normally proportionate to their payments (OECD, 2006). Within this framework, Turkish taxes on motor

vehicle fuels are regarded as "environmentally related". The OECD/European Environment Agency (EEA) (2013) classifies the special consumption tax on fuels, the special consumption tax on motor vehicles and the motor vehicles tax as "environmentally related taxes in Turkey". In 2010, these three taxes generated USD 28.64 billion in revenue, 73.8% of which came from a special consumption tax on fuels. The main reason for fuel taxes in Turkey has always been purely fiscal. Revenues are needed for fiscal consolidation. Fuel taxes are relatively more difficult to evade than income tax as levied under Turkey's current tax collection system. Like many other developing countries, Turkey regards fuel taxes as an effective tool to raise revenue to support public finances, in part due to a large informal sector of the economy which contributes to make it difficult to raise revenues via income taxes. Nevertheless, fuel taxes still impact on the prices car users pay, thereby contributing to environmental outcomes.

3. Parallel to on-going industrialisation, Turkey's primary energy needs increased rapidly at an average 4.3% annual growth rate over 1980-2011 (IEA, 2012a). Its 2010 per capita energy supply was 1.4 tonnes of oil equivalent (toe), below the world average of 1.9 toe and the OECD average of 4.4 toe (IEA, 2012b). Although the country is a major energy transit route, thanks to its proximity to major oil and gas reserves, it has negligible fossil fuel resources and imports practically all of its oil and natural gas from countries to the east (Erdogdu, 2007, 2010a). In 2010, only 30.7% of Turkey's primary energy supply came from domestic sources, well below the OECD average of 71.8%. The government aims to increase the share of renewable energy in electricity generation to 30% by 2023 and cut energy intensity by 20% by 2023 compared to 2011. Turkey has also started construction on its first nuclear power plant, and is planning to build a second one.

4. Energy imports totalled USD 54.1 billion (22.5% of Turkey's total imports) in 2011 (TurkStat, 2013b). The bill can be expected to increase significantly in coming years as the IEA forecasts more than a doubling of primary energy consumption, from 105.1 million tonnes of oil equivalent (mtoe) in 2010 to 217.8 mtoe by 2020 (IEA, 2012c). Increasing energy imports might become an important burden to the economy, given the persistent current account deficit. This means that reducing fuel consumption is a major public policy issue in Turkey, whose dependence on imported oil makes it especially vulnerable to price changes stemming from disruptions in the world oil market. This vulnerability is not accounted for in individual consumption decisions and thus represents an externality from fuel consumption. This provides a potential rationale for public policy (including tax policy) oriented toward fuel consumption.

5. Fuel use also generates environmental externalities. Turkey's emission coefficients are in the middle range compared with world and OECD averages. In 2010, with a per capita carbon dioxide (CO_2) emission of 3.7 tonnes, Turkey ranked significantly below the OECD average of 10.1 tonnes and the world average of 4.4 tonnes per capita. In 2000, these values were 3.1 tonnes for Turkey, 11.0 tonnes for the OECD and 3.9 tonnes for the world. In 2010, total emissions from fuel combustion were 265.9 Mt of CO_2 in Turkey, 27.4% of which came from oil products. Road transport was responsible for 39.0 Mt of CO_2, 14.7% of total emissions from fuel combustion (IEA, 2012d). Although this figure was relatively lower than the 16.4% world average and 23.9% OECD average, reduced fuel use in Turkey could still lead to improved air quality and associated health benefits.

6. Turkey signed the Association (Ankara) Agreement with the then European Economic Community in 1963. This agreement established an association relationship and envisaged the progressive establishment of a customs union designed to bring the two sides closer together in economic and trade matters. In 1999, Turkey was recognised as a candidate country for EU membership. In late 2006, the EU set itself the ambitious target of reducing its greenhouse gas emissions by 20% below their 1990 level as of 2020 and invited other developed economies and the developing world to participate in the Kyoto Protocol. Turkey is the only country featured in the Annex-I list of the United Nations Rio Summit that has not established an official target for CO_2 emission reductions (Erdogdu, 2010b). Turkey will likely face significant pressures to present a national plan on climate change, along with specific emission targets and

associated abatement policies, as part of its bid for full EU membership. The country is under some pressure to comply with the Kyoto Protocol and constrain its emissions of CO_2 and other greenhouse gases. Yet, as an emerging economy, Turkey could reasonably expect an increase in its absolute emissions even with the imposition of policies to limit emissions. Besides, its current arsenal of environmental policy instruments is mostly limited to energy taxes, environmental impact assessments and pollution penalties. Clearly, these instruments will not suffice under a more active environmental policy design. They will need to be expanded to include other policy measures to reduce energy intensities, such as additional pollution taxes, emission permit trading and abatement investments.

7. This paper is organised into seven sections. Section 1 is the introduction. Section 2 analyses motor fuel taxes in Turkey. Section 3 investigates the impact of motor fuel tax rate increases on income distribution. Section 4 focuses on the impact of rate increases on competitiveness. Section 5 discusses environment-related impacts of the fuel tax rate increases. Section 6 is devoted to acceptability issues related to fuel tax rate increases.

2. Motor fuel taxes in Turkey

8. In theory, when a tax is imposed on a polluting fuel, it introduces an economic cost that consumers take into account when deciding whether to use it. Harming the environment can be seen as claiming a service from nature. Consumers should bear the full costs of their consumption to ensure that it is economically justifiable and costs are not imposed on others. Introducing a tax implies that some or all of the relevant external costs are internalised in the decision process. Despite specific taxes, fees and charges, the Turkish fiscal system does not include a specific carbon price. Although fuel taxes in Turkey internalise external costs such as noise, road safety, air pollution and (to some extent) traffic congestion, the main rationale for the existing fuel taxes has always been raising revenue, not carbon pricing.

9. Turkey introduced a value added tax (VAT) in 1985. Similarly to the European Union's VAT system, it requires re-calculation and payments to the tax authorities at each transaction point in the onward sales chain. To simplify and harmonise the indirect tax system with that of the EU, a special consumption tax (SCT) was introduced on 1 August 2002, abolishing 16 different indirect taxes and funds (including a petroleum consumption tax, a liquid fuel price stabilisation fund, a motor vehicle purchasing tax, an environment fund, a supplementary motor vehicle purchasing tax and a supplementary VAT). The SCT is structured as a single tax levied equally on both domestic production and imports of products including alcoholic beverages, cigarettes, motor vehicles and petroleum products. When the SCT came into force, high VAT rates were decreased to a maximum of 18%.

10. Turkey's Automatic Pricing Mechanism, which operated between July 1998 and the end of 2004, set a ceiling on the prices of almost all fuels. In early 2005, the government decided to remove price caps, prompting an increase in pre-tax prices. Since then, pre-tax fuel prices have been set by the market.

11. Turkey currently levies an 18% VAT on all energy products, as well as an additional SCT on motor vehicle fuels. The SCT is a fixed sum per litre or kilogram for each fuel type, periodically adjusted for inflation. The Council of Ministers may increase motor fuel taxes by 50% and also reduce them to zero.[2] Figure 2 shows the development of SCT levels in Turkey since 2003. As of 30 January 2013, the SCT on regular gasoline (2.1765 Turkish lira (TRY) per litre) is higher than for diesel (1.5945 TRY per litre) and LPG (1.5780 TRY per kg). The SCT is identical for both commercial and non-commercial consumers. It is important to note that VAT is levied on the sum of the pre-tax price (including the income share of the market regulator, EMRA[3]) and the SCT, meaning that consumers pay VAT not only on the

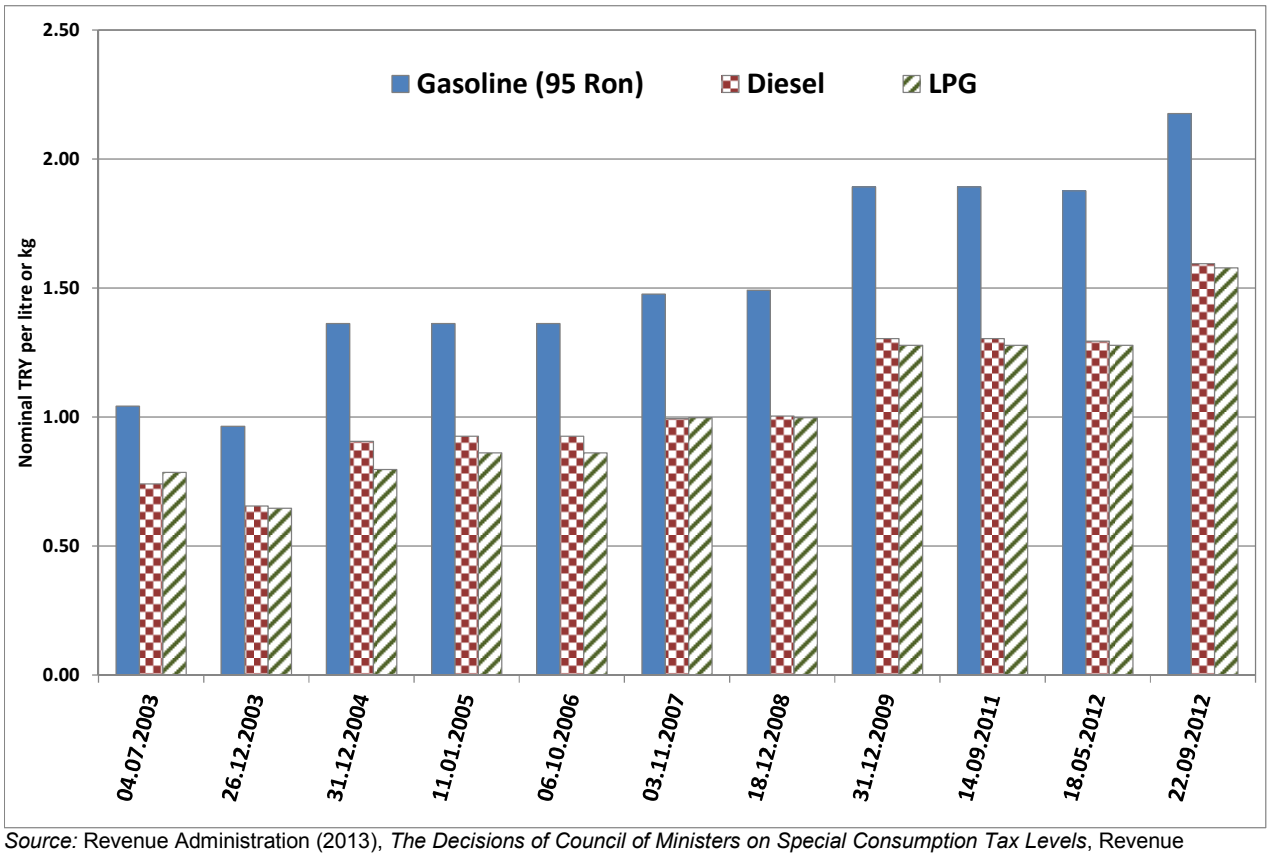
2 . Article 12 of SCT Law No.4760, dated 6.6.2002.

3 . Energy Market Regulatory Authority.

fuel they consume, but also on the SCT levied on the fuel. In other words, consumers pay tax on the tax. Figure 3 presents the components of end-user fuel prices in Turkey[4]. Figure 4 shows the share of total taxes (SCT and VAT) in final prices: 61% of gasoline price, 54% of diesel price and 48% of LPG price.

12. Between 1999 and 2001, the Turkish government encouraged household use of LPG for cooking purposes by removing both the VAT and the SCT, which resulted in lower prices for LPG than for gasoline and diesel. Since regular motor engines cannot use LPG, the government expected limited use in cars. However, an industry soon developed that made gasoline engines compatible with LPG. With a payback period of about one year, the operation proved sufficiently simple and cheap for drivers to convert their vehicles to LPG use. Alerted by the resulting loss of tax revenue, the government began to phase out this tax expenditure in 2001. Nevertheless, this provision significantly boosted LPG consumption.

Figure 2. SCT levied on fuels in Turkey since 2003
Nominal TRY per litre or kilogram (kg)[5]

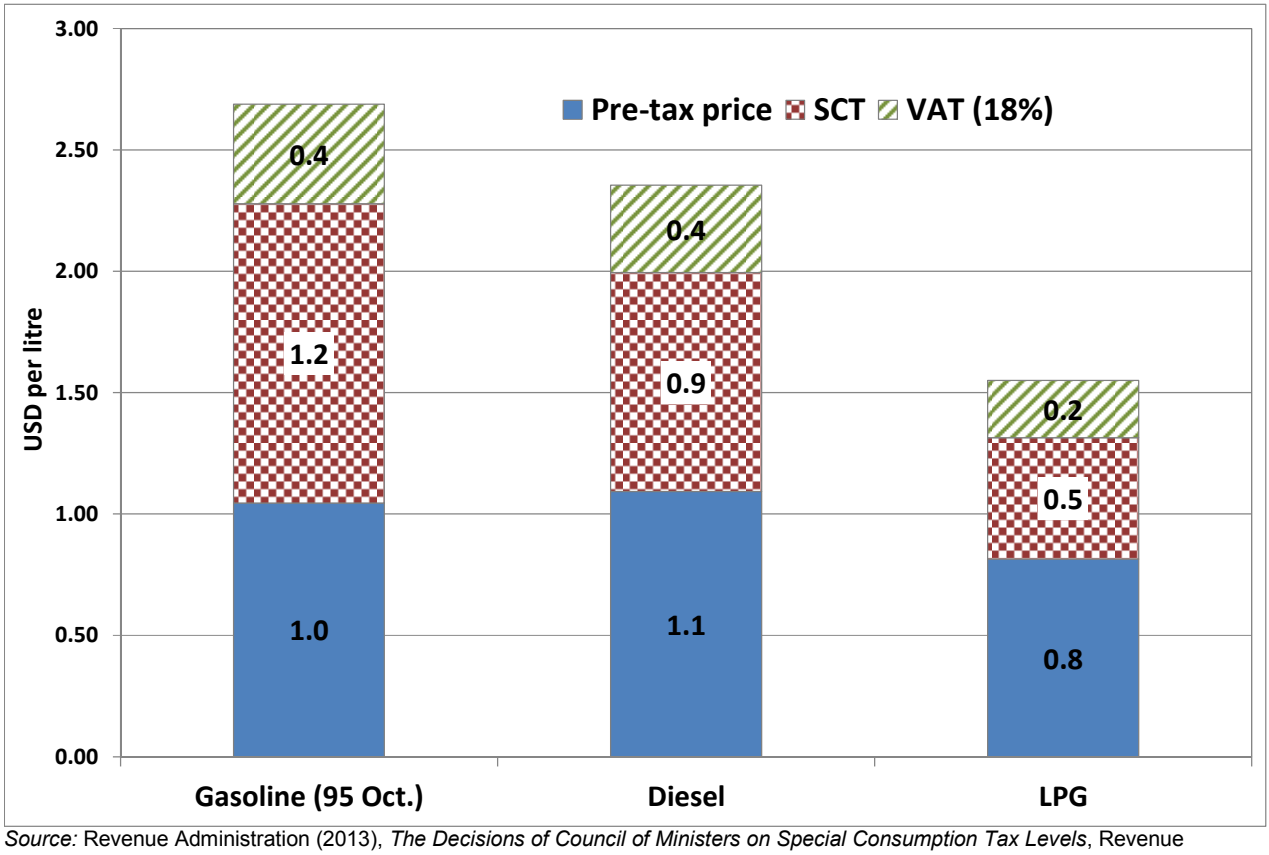


Source: Revenue Administration (2013), *The Decisions of Council of Ministers on Special Consumption Tax Levels*, Revenue Administration of Turkey, Ankara.

4 . Although the SCT on LPG is quoted in kilograms, the price is quoted in litres. Hence, while calculating the amount of SCT on LPG, the SCT in kilograms should be converted into litres by multiplying it with an intensity ratio of 0.56.

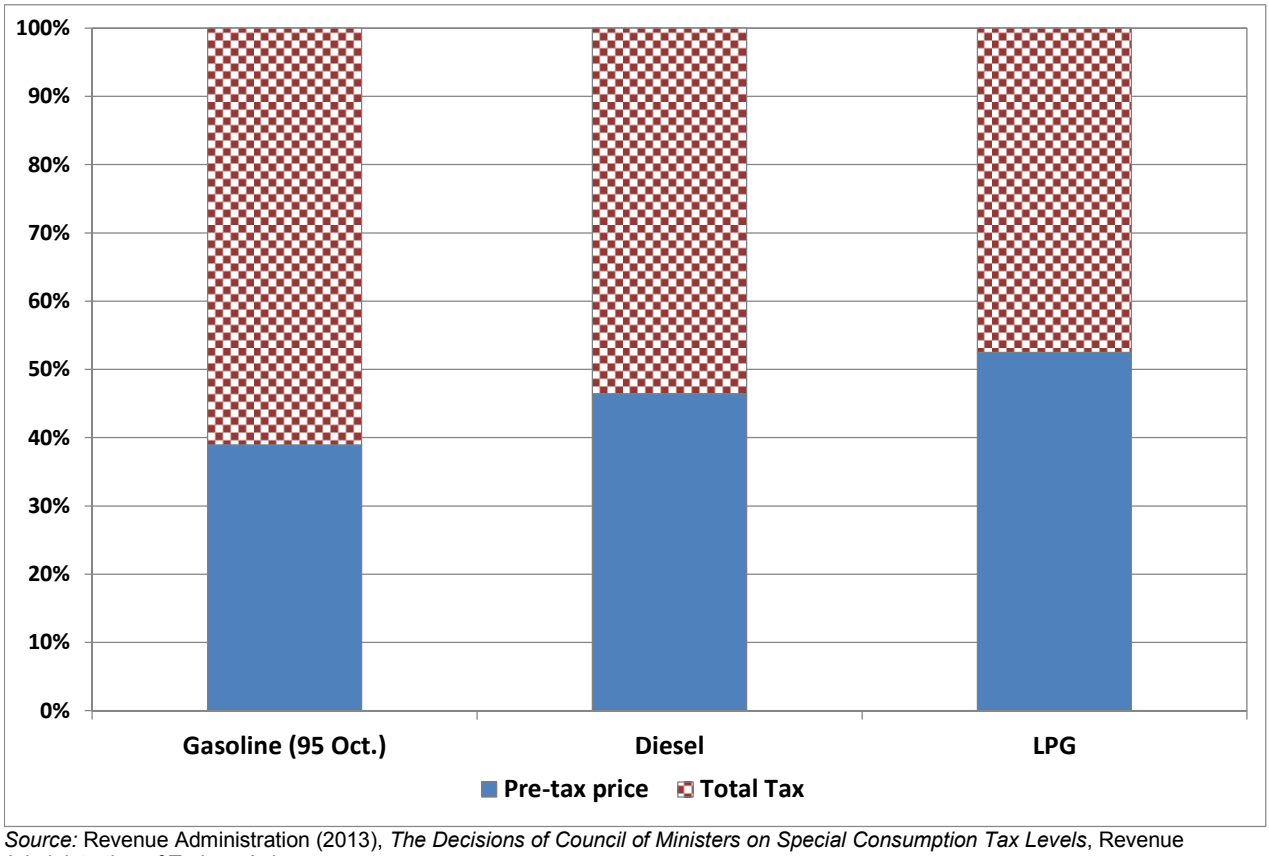
5. USD 1 = TRY 1.7673.

Figure 3. Components of fuel prices in Turkey as of 30 January 2013
USD per litre



Source: Revenue Administration (2013), *The Decisions of Council of Ministers on Special Consumption Tax Levels*, Revenue Administration of Turkey, Ankara.

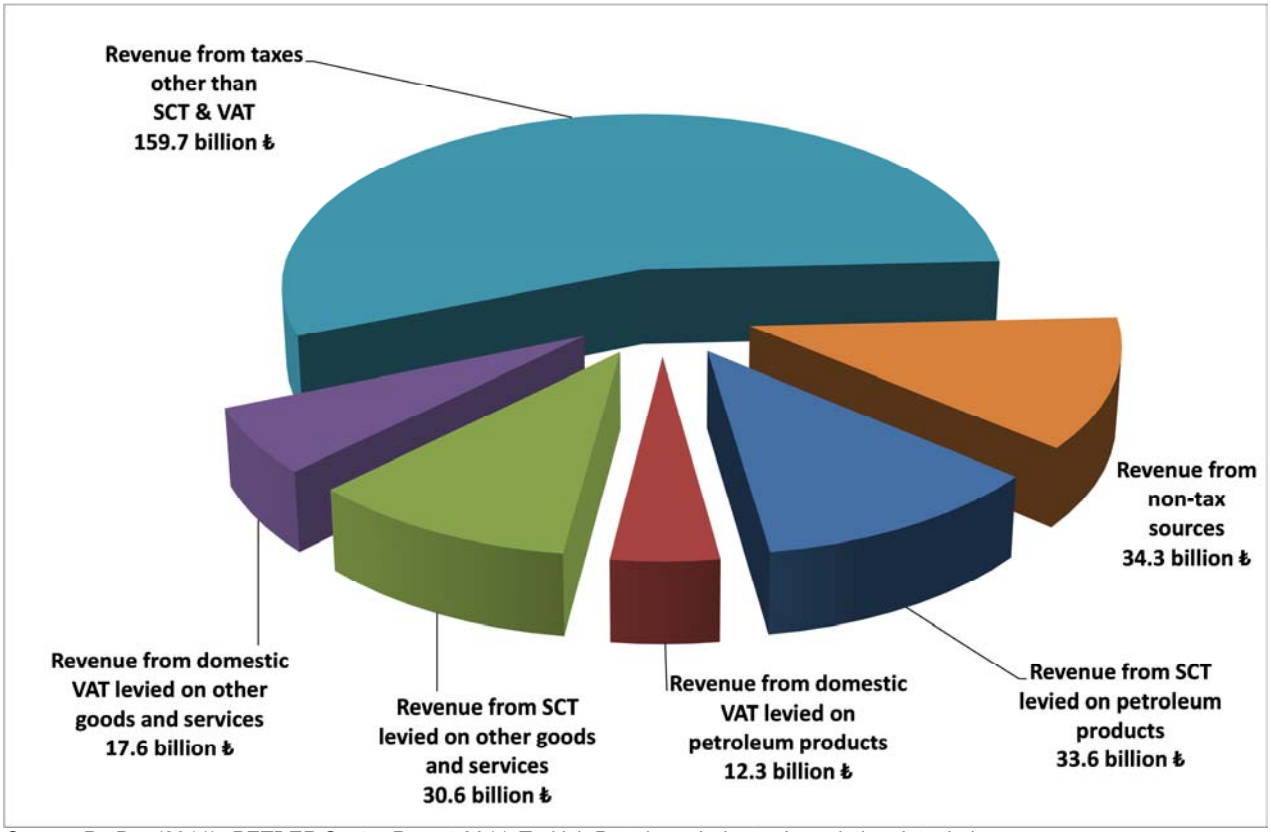
Figure 4. The share of total taxes in end-user fuel prices as of 30 January 2013



Source: Revenue Administration (2013), *The Decisions of Council of Ministers on Special Consumption Tax Levels*, Revenue Administration of Turkey, Ankara.

13. Figure 5 shows the distribution of Turkish central government revenues in 2011 (PetDer, 2011). Total revenues amounted to TRY 288.1 billion, 15.9% of which was derived from the VAT and SCT levied on motor vehicle fuels (gasoline, diesel and LPG). In OECD countries, the share of environmentally related taxes in total tax revenue is around 6-7% (OECD/EEA, 2013), but in Turkey, the SCT alone raised 13.2% of total tax revenue in 2011. The domestic VAT levied on petroleum products accounted for 41.2% of total revenues from domestic VAT that year, while the SCT on petroleum products accounted for 52.3% of total SCT revenues. It is therefore obvious that revenues from motor vehicle fuel taxes are a vital component of the Turkish fiscal system and that any change in them has considerable repercussions on public finances and the budget balance.

Figure 5. Distribution of central government revenues in 2011
Billion TRY

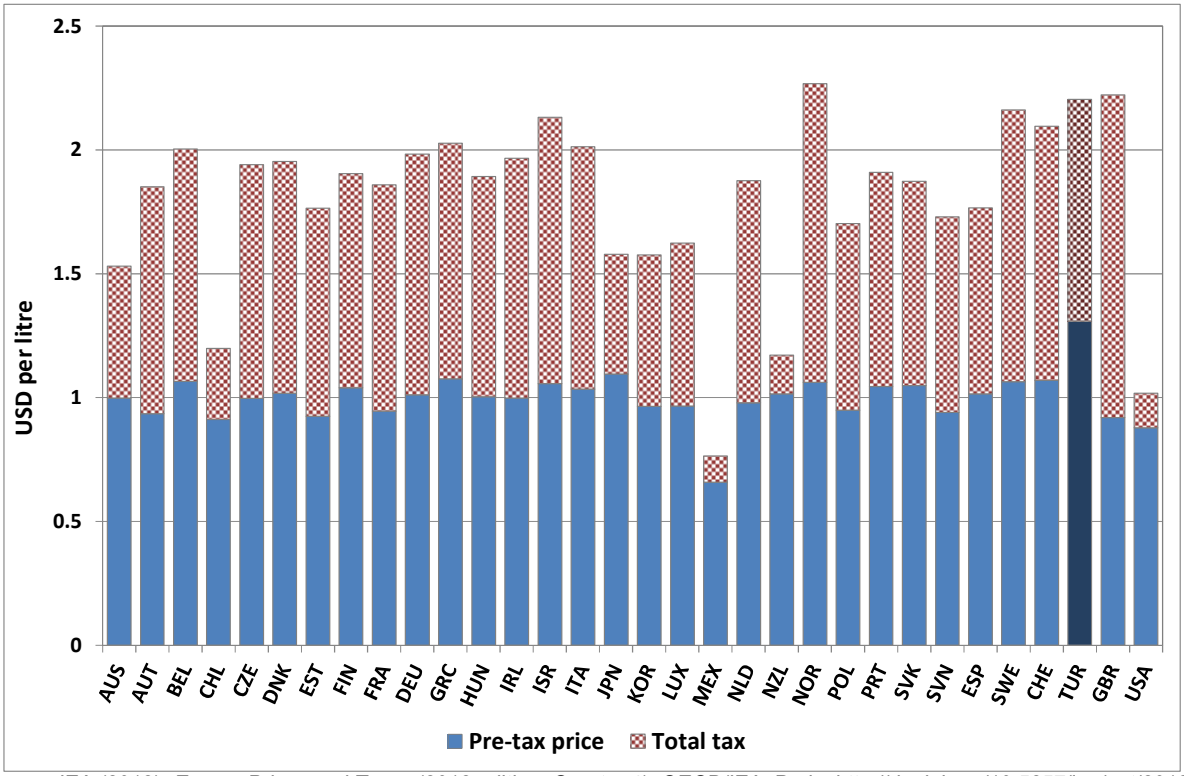


Source: PetDer (2011), *PETDER Sector Report 2011*, Turkish Petroleum Industry Association, Istanbul.

14. Turkish fuel prices are among the highest in the OECD. Figure 6, Figure 7 and Figure 8 compare the prices for diesel, gasoline and LPG among OECD countries. They show that in 2011, Turkey had the highest gasoline and LPG prices and the third-highest diesel price after Norway and the UK (IEA, 2012e). Although taxes are obviously relatively high in Turkey,[6] it bears noting that the country also had the highest pre-tax prices for all three fuels in 2011, mainly due to relatively high transportation and distribution costs. The high pre-tax prices and high taxes explain why Turkey is an 'outlier' among OECD countries in terms of fuel prices.

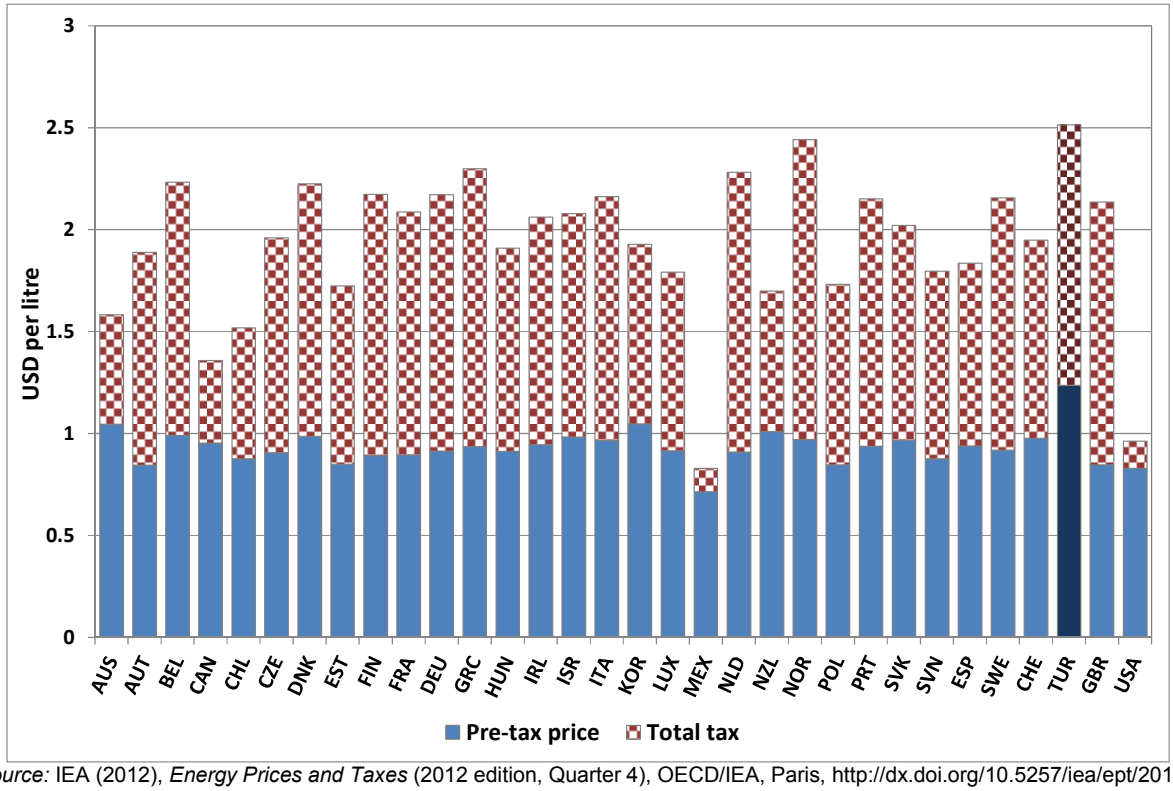
6. It is relevant that the tax rate on diesel used for agriculture is the same as the tax rate for diesel used in other sectors of the economy.

Figure 6. Price of diesel for households
2011, USD per litre



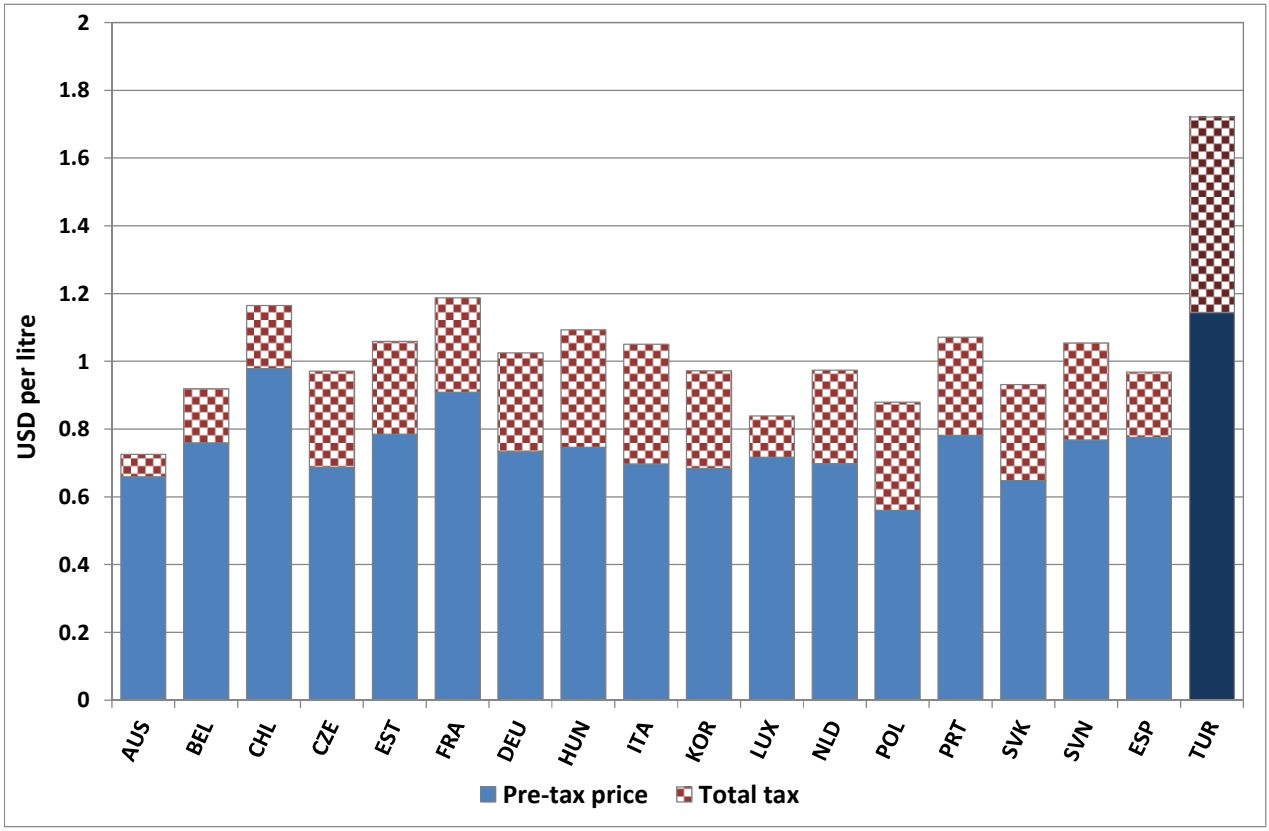
Source: IEA (2012), *Energy Prices and Taxes* (2012 edition, Quarter 4), OECD/IEA, Paris, http://dx.doi.org/10.5257/iea/ept/2012q4.

Figure 7. Price of gasoline for households
2011, USD per litre



Source: IEA (2012), *Energy Prices and Taxes* (2012 edition, Quarter 4), OECD/IEA, Paris, http://dx.doi.org/10.5257/iea/ept/2012q4.

Figure 8. Price of LPG for households in 2011
USD per litre



Source: IEA (2012), *Energy Prices and Taxes* (2012 edition, Quarter 4), OECD/IEA, Paris, http://dx.doi.org/10.5257/iea/ept/2012q4.

3. The impact of fuel tax rate increases on income distribution

15. Most countries use various kinds of fuel taxes. These are motivated by environmental concerns, but more commonly by fiscal concerns, as with Turkey. Irrespective of motivation, fuel taxes have distributional effects in Turkey, which this section focuses on.

16. Fuel taxation leads to a rise in the price of fuel (as well as energy-intensive goods and services) which is passed on to final consumers. This price increase may fall disproportionately on low-income households. In other words, the tax can be regressive (although this is not the case in Turkey).

17. Tax incidence measures the ultimate impact of a tax on the welfare of members of society. Such an analysis begins by setting out numerous required assumptions and the methodology. First, an appropriate unit of observation, i.e. the individual or the household, must be determined. Since the well-being of individuals often depends on the income of the entire household rather than the individual, this study uses the household unit. Second, the appropriate period of analysis must be chosen. Here, the focus is on fuel tax incidence in Turkey in 2011, the last year for which data were available at the time this case study was being prepared. Due to its limited nature, this study ignores changes in fuel tax incidence over the years. Third, an income or an expenditure approach must be selected. An income approach uses the total annual income of households in classifying household groups. An expenditure approach takes into account the total annual expenditure of households while ordering the households into subgroups. This study adopts an income approach based on total household income (rather than expenditure). Fourth, the study evaluates the costs of higher fuel taxes and their distribution across households classified by income, size, type, income source and region of residence. Finally, the study does not take into account consumer

demand response to fuel tax increases, which is acceptable if one takes into account the possibility of relatively inelastic fuel demand in the short- to medium term.

18. Assuming zero consumer demand response means that consumers are not expected to change their consumption levels, even when fuel prices rise as a result of higher fuel taxes. This assumption does not usually hold true in practice, and thus constitutes an important limitation of the analysis. If it were removed, the results would probably change considerably due to the different demand response patterns of rich and poor households. Due to the limited resources available, other approaches not based on this assumption (e.g. change in consumer surplus and average demand elasticity) could not be applied to this study.

19. The Turkish Statistical Institute (TurkStat) does not provide detailed data on household fuel expenditure alone; instead, it reports total transportation expenditure, including motor vehicles purchases, private transportation (including fuel) and public transportation costs. Since an increase in fuel taxes raises the cost of transportation (including the cost of using a motor vehicle and the cost of private and public transportation), it is assumed that transportation expenditure may be used as a proxy for motor vehicle fuels expenditure. However, vehicle selling and purchasing usually accounts for more than half of total transportation expenditure and fuel price elasticity of vehicle demand may not be very high. Hence, this otherwise reasonable and necessary assumption may hinder discovering the full impact of fuel tax increases on income distribution.

20. Finally, in terms of methodology, it is determined whether a given fuel tax is progressive or regressive simply by comparing whether the budget shares for the consumption of that particular fuel are higher or lower among higher and lower income households. For instance, *if* the rich spend 3% of their income on a fuel while the poor spend 5%, one would say that a tax on this item will hit the poor relatively harder, even though the rich actually consume larger physical quantities.

21. In Table 1 and Table 2, income quintiles are arranged according to household incomes, from the first (the richest 20%) to the fifth (the poorest 20%) (TurkStat, 2011). The data show that the budget share of urban households for vehicle selling and purchasing and operation of personal transportation vehicles (including fuel costs) is highest in the richest group and lowest in the poorest group. The budget share of public transportation services is marginally higher in middle income groups. In rural households, the budget share for all three components of transportation expenditure is highest in the richest group and lowest in the poorest group. In Turkey, 70.1% of all households live in urban areas. An increase in fuel taxes indirectly hits the middle income households slightly harder than other groups by raising the cost of public transportation. That aside, fuel taxes clearly seem to have a more negative impact on richer households. Hence, any increase in fuel taxes (and therefore in transportation costs) hits the rich harder than the poor. In other words, Turkish fuel taxes seem to be quite progressive and the evidence indicates that high motor fuel prices do not create income inequalities. This also explains why no specific measures are taken to compensate for potential income inequalities. On the contrary, by taxing motor vehicle fuels, public authorities manage to “tax the rich” without much affecting lower income people.

Table 1. Consumption expenditure by quintiles, ordered by income, in urban households
Million TRY, 2011

Subgroups of consumption expenditure	1st 20% (The richest)	2nd 20%	3rd 20%	4th 20%	5th 20% (The poorest)
Total transportation expenditure	2 507.0	1 353.9	852.7	627.9	267.3
→ Vehicle selling and purchasing	1 392.6	688.8	380.6	275.5	75.7
- % of total expenditure	*(12.1)*	*(9.6)*	*(6.8)*	*(6.1)*	*(2.4)*
→ Operation of personal transport vehicles	690.4	323.1	209.2	141.6	53.7
- % of total expenditure	*(6.0)*	*(4.5)*	*(3.7)*	*(3.1)*	*(1.7)*
→ Public transportation services	424.0	342.0	262.9	210.7	137.9
- % of total expenditure	*(3.7)*	*(4.8)*	*(4.7)*	*(4.6)*	*(4.4)*
Other expenditure	9 025.6	5 833.9	4 757.6	3 905.3	2 883.7
Total expenditure	11 532.7	7 187.8	5 610.3	4 533.1	3 151.0

Source: TurkStat (2011), *Household Budget Surveys*, TurkStat, Turkish Statistical Institute, Ankara.

Table 2. Consumption expenditure by quintiles, ordered by income, in rural households
Million TRY, 2011

Subgroups of consumption expenditure	1st 20% (The richest)	2nd 20%	3rd 20%	4th 20%	5th 20% (The poorest)
Total transportation expenditure	645.0	392.4	212.6	127.7	72.4
→ Vehicle selling and purchasing	309.3	160.3	67.2	32.2	14.6
- % of total expenditure	*(10.1)*	*(5.2)*	*(2.2)*	*(1.0)*	*(0.5)*
→ Operation of personal transport vehicles	245.4	149.0	83.0	44.2	17.6
- % of total expenditure	*(8.0)*	*(4.8)*	*(2.7)*	*(1.4)*	*(0.6)*
→ Public transportation services	90.4	83.1	62.4	51.3	40.2
- % of total expenditure	*(2.9)*	*(2.7)*	*(2.0)*	*(1.7)*	*(1.3)*
Other expenditure	2 430.4	1 738.0	1 427.9	1 082.8	794.0
Total expenditure	3 075.4	2 130.4	1 640.5	1 210.5	866.5

Source: TurkStat (2011), *Household Budget Surveys*, TurkStat, Turkish Statistical Institute, Ankara.

22. Table 3 and Table 4 present consumption expenditure by urban and rural household size (TurkStat, 2011). As Table 3 shows, an increase in fuel taxes hits urban households with 3 or 4 persons most (52.7% of the total 13.5 million urban households), followed by households with 2, 5 or 6 persons. In rural households, the negative impact of fuel taxes is felt most by those with three persons (17.5% of the total). The negative impact of fuel taxes is relatively limited for urban households with nine or more persons, but still relatively high for rural households with nine or more persons.

23. Table 5 and Table 6 show consumption expenditure by household type for urban and rural households respectively (TurkStat, 2011). Table 5 indicates that an increase in fuel taxes hits couples with one child or two children (44.5% of the total 13.5 million urban households). In rural households, the negative impact of fuel taxes is felt most by couples with one child. Unlike in urban areas, the cost of a fuel tax increase seems to be distributed more evenly among different household types.

Table 3. Household consumption expenditure by urban household size

Expenditure shares, 2011

Main groups of consumption expenditures	Total	Household size, persons									
		1	2	3	4	5	6	7	8	9	10+
Number of households (million)	*13.54*	*0.79*	*2.45*	*3.46*	*3.68*	*1.73*	*0.75*	*0.33*	*0.16*	*0.09*	*0.10*
Total consumption expenditure	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*
Food and non-alcoholic beverages	18.7	15.3	17.5	17.2	18.0	20.9	24.3	25.8	23.6	29.1	30.0
Alcoholic beverages, cigarettes and tobacco	4.0	3.3	3.4	3.7	4.1	4.0	5.2	5.3	5.5	7.2	4.2
Clothing and footwear	5.1	4.2	4.9	5.1	5.1	5.4	4.9	6.1	5.5	7.3	8.1
Housing and rent	26.9	39.8	30.4	27.0	24.8	25.3	25.7	25.2	18.9	24.4	21.5
Furniture, home appl. and home care serv.	6.4	6.8	7.4	6.1	6.0	6.5	5.5	5.4	6.5	5.6	12.4
Health	1.9	1.7	2.3	1.9	1.8	1.7	1.7	1.3	1.9	2.6	1.6
Transportation	**17.5**	**11.2**	**16.3**	**19.0**	**19.7**	**15.7**	**16.2**	**13.2**	**13.4**	**8.4**	**7.8**
Communication	4.1	4.1	4.0	4.3	4.2	4.3	3.6	3.6	3.2	2.6	3.6
Entertainment and culture	2.9	2.9	3.5	3.0	2.9	2.7	2.4	1.7	2.7	0.8	1.4
Educational services	2.3	0.8	1.1	2.2	3.2	2.6	1.6	2.2	1.2	1.3	0.6
Restaurant and hotels	6.0	6.5	5.9	6.1	6.0	6.1	5.3	5.9	7.2	7.2	5.5
Misc. goods and services	4.2	3.5	3.5	4.4	4.3	4.7	3.6	4.5	10.5	3.4	3.3

Source: TurkStat (2011), *Household Budget Surveys*, TurkStat, Turkish Statistical Institute, Ankara.

Table 4. Household consumption expenditure by rural household size

Expenditure shares, 2011

Main groups of consumption expenditures	Total	Household size, persons									
		1	2	3	4	5	6	7	8	9	10+
Number of households (million)	*5.77*	*0.43*	*1.31*	*1.01*	*1.17*	*0.78*	*0.45*	*0.23*	*0.14*	*0.10*	*0.16*
Total consumption expenditure	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*
Food and non-alcoholic beverages	28.0	29.2	29.8	24.7	24.6	27.8	27.6	32.5	37.5	36.4	40.0
Alcoholic beverages, cigarettes and tobacco	4.8	3.0	4.1	5.1	5.2	5.1	4.6	5.0	5.0	5.4	5.3
Clothing and footwear	5.3	4.4	3.5	5.0	5.7	5.9	6.1	5.6	7.0	5.6	8.1
Housing and rent	21.8	37.1	25.9	22.1	21.6	20.2	17.3	19.8	19.1	13.8	12.4
Furniture, home appl. and home care serv.	6.3	4.8	7.2	6.0	5.9	6.8	5.9	5.7	5.1	7.9	5.1
Health	2.0	2.2	2.4	1.8	1.9	1.9	1.6	3.0	1.7	2.2	1.5
Transportation	**16.3**	**6.8**	**15.6**	**19.4**	**16.8**	**15.7**	**17.1**	**14.0**	**12.3**	**16.8**	**14.5**
Communication	3.7	3.1	3.5	3.9	4.0	3.7	3.4	4.0	3.0	3.5	2.9
Entertainment and culture	2.0	1.4	1.8	1.9	2.3	1.9	2.7	1.6	1.2	0.8	1.3
Educational services	1.1	0.1	0.4	1.1	2.0	1.1	0.7	1.0	0.7	0.3	1.2
Restaurant and hotels	4.6	3.9	3.5	5.4	5.4	4.6	5.0	4.2	3.0	3.1	4.8
Misc. goods and services	4.4	4.1	2.3	3.7	4.8	5.3	8.1	3.7	4.5	4.2	2.8

Source: TurkStat (2011), *Household Budget Surveys*, TurkStat, Turkish Statistical Institute, Ankara.

Table 5. Household consumption expenditure by urban household type
Expenditure shares, 2011

		Type of household						
Main groups of consumption exp.	**Total**	**Couple with one child**	**Couple with two children**	**Couple with three or more children**	**Couple without children**	**Patriarchal or extensive household**	**Single adult household**	**Persons living together**
Number of households (million)	*13.54*	*2.87*	*3.16*	*1.84*	*1.79*	*1.80*	*1.77*	*0.32*
Total consumption expenditure	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Food and non-alcoholic beverages	18.7	17.1	18.0	22.6	19.0	21.8	16.6	11.2
Alcoholic beverages, cigarettes and tobacco	4.0	3.6	4.0	4.1	3.1	4.9	3.8	5.6
Clothing and footwear	5.1	5.1	5.1	5.5	4.5	5.2	5.3	5.9
Housing and rent	26.9	26.6	24.8	24.8	30.2	25.3	34.0	25.8
Furn., home appl.& home care serv.	6.4	6.0	6.1	6.5	8.0	6.4	6.4	4.2
Health	1.9	1.8	1.8	1.6	2.2	1.8	1.9	2.6
Transportation	**17.5**	**19.8**	**19.6**	**16.2**	**17.2**	**15.4**	**12.5**	**18.2**
Communication	4.1	4.2	4.1	4.0	3.5	3.9	4.4	6.4
Entertainment and culture	2.9	3.0	2.9	2.3	3.2	2.6	3.3	4.6
Educational services	2.3	2.3	3.3	2.6	0.6	1.8	2.0	1.5
Restaurant and hotels	6.0	6.1	5.9	5.5	5.4	6.3	6.0	10.5
Misc. good and services	4.2	4.6	4.4	4.3	3.2	4.6	3.8	3.6

Source: TurkStat (2011), *Household Budget Surveys*, TurkStat, Turkish Statistical Institute, Ankara.

Table 6. Household consumption expenditure by rural household type
Expenditure shares, 2011

		Type of household						
Main groups of consumption exp.	**Total**	**Couple with one child**	**Couple with two children**	**Couple with three or more children**	**Couple without children**	**Patriarchal or extensive household**	**Single adult household**	**Persons living together**
Number of households (million)	*5.77*	*0.82*	*0.92*	*0.85*	*1.12*	*1.26*	*0.71*	*0.08*
Total consumption expenditure	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Food and non-alcoholic beverages	28.0	23.7	24.6	30.9	30.6	29.6	28.0	21.4
Alcoholic bev., cigarette and tobacco	4.8	5.2	5.3	4.3	3.7	5.4	4.4	3.7
Clothing and footwear	5.3	5.0	6.2	6.8	3.3	5.1	5.3	6.0
Housing and rent	21.8	21.7	21.9	19.8	25.4	18.2	30.9	22.1
Furn., home appl. and home care serv.	6.3	5.8	5.9	6.0	7.0	6.5	5.8	6.6
Health	2.0	1.4	1.8	1.8	2.5	2.3	1.8	1.9
Transportation	**16.3**	**20.8**	**16.5**	**14.4**	**16.5**	**16.3**	**9.3**	**16.3**
Communication	3.7	4.0	4.2	3.6	3.4	3.4	3.3	5.0
Entertainment and culture	2.0	1.8	2.3	1.7	1.8	2.0	1.6	4.6
Educational services	1.1	1.1	2.3	1.3	0.4	0.7	0.7	0.3
Restaurant and hotels	4.6	5.7	5.7	4.7	3.2	4.1	4.4	6.6
Miscellaneous good and services	4.4	3.9	3.4	4.7	2.2	6.3	4.4	5.5

Source: TurkStat (2011), *Household Budget Surveys*, TurkStat, Turkish Statistical Institute, Ankara.

24. Table 7 and Table 8 present household consumption expenditure by main source of income for urban and rural households (TurkStat, 2011). The data show that an increase in fuel taxes hits hardest urban households with income from entrepreneurship and rural households with income from rent, interest, and dividends. Urban and rural households with transfer income (including retirement) are the least affected.

Table 7. Household consumption expenditure by main source of income in urban households
Expenditure shares, 2011

		Main source of household income				
Main groups of consumption expenditures	**Total**	**Wages and salaries**	**Entrepreneurship income**	**Rent, interest, dividends**	**Income from retirement**	**Other transfer income**
Number of households (million)	*13.54*	*8.38*	*1.77*	*0.21*	*2.13*	*1.06*
Total consumption expenditure	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Food and non-alcoholic beverages	18.7	17.6	18.9	15.1	23.4	20.9
Alcoholic beverages, cigarette and tobacco	4.0	4.1	4.0	2.5	3.7	3.9
Clothing and footwear	5.1	5.4	5.6	3.7	4.0	4.4
Housing and rent	26.9	25.5	24.0	30.4	32.4	37.1
Furniture, home appl. and home care serv.	6.4	6.5	5.9	6.9	6.8	5.5
Health	1.9	1.7	2.1	3.1	2.0	2.2
Transportation	**17.5**	**18.2**	**21.1**	**21.4**	**12.4**	**10.3**
Communication	4.1	4.2	4.0	3.3	3.9	4.0
Entertainment and culture	2.9	3.0	2.6	3.2	3.1	2.7
Educational services	2.3	2.3	2.8	2.5	1.6	2.1
Restaurant and hotels	6.0	7.2	4.9	3.2	3.4	3.5
Miscellaneous good and services	4.2	4.4	4.3	4.7	3.4	3.6

Source: TurkStat (2011), *Household Budget Surveys*, TurkStat, Turkish Statistical Institute, Ankara.

Table 8. Household consumption expenditure by main source of income in rural households
Expenditure shares, 2011

		Main source of household income				
Main groups of consumption expenditures	**Total**	**Wages and salaries**	**Entrepreneurship income**	**Rent, interest, dividends**	**Income from retirement**	**Other transfer income**
Number of households (million)	*5.77*	*1.97*	*1.88*	*0.07*	*1.06*	*0.78*
Total consumption expenditure	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Food and non-alcoholic beverages	28.0	25.1	29.6	20.9	30.1	30.5
Alcoholic beverages, cigarette and tobacco	4.8	5.1	5.5	2.5	3.8	3.2
Clothing and footwear	5.3	6.3	5.1	2.9	3.9	4.6
Housing and rent	21.8	20.3	19.9	24.3	25.4	28.3
Furniture, home appl. and home care serv.	6.3	6.2	6.2	6.9	6.5	6.4
Health	2.0	1.8	2.0	3.7	2.0	2.4
Transportation	16.3	17.8	17.1	21.9	14.0	9.0
Communication	3.7	3.8	3.8	3.1	3.5	2.8
Entertainment and culture	2.0	2.1	1.8	2.2	1.7	2.4
Educational services	1.1	1.0	1.3	3.4	0.7	0.9
Restaurant and hotels	4.6	6.3	4.2	4.0	3.2	2.4
Various good and services	4.4	4.3	3.3	3.8	5.2	7.2

Source: TurkStat (2011), *Household Budget Surveys*, TurkStat, Turkish Statistical Institute, Ankara.

25. The analysis above reveals that fuel taxes in Turkey have a direct progressive impact on household income distribution. In urban areas, any increase in fuel taxes (and therefore in transportation costs) hits relatively hardest rich and middle income households, households with three or four persons, couples with one child or two children and households with entrepreneurship income. In rural areas, those most negatively affected by fuel tax increases are households in the highest income group, households with 3 persons, couples with one child and households with income from rent, interests and dividends.

26. Although the analysis demonstrates that fuel taxes in Turkey have significant progressive effects (with the highest income groups bearing the largest tax burden relative to their income), the actual distributional impact depends on (among other things) the object of taxation. A full assessment of the impact of fuel taxes on income distribution should also include the indirect effects of both price increases

on taxed products and the use of fuel tax revenues and/or compensational measures. The distribution of the environmental benefits resulting from the fuel taxes should also be studied.

4. The impact of fuel tax rate increases on competitiveness

27. Despite its apparent simplicity, the concept of "competitiveness" is rather complex and varies according to whether it is applied at the national, sectoral or firm level. At the firm level, competitiveness designates the ability of firms to sell their products in competitive markets at home or abroad. At the sectoral level, it designates the ability of a sector in a particular country to maintain its market share in domestic or international markets. At the national level, it means a country's ability to maintain positive, or at least sustainable, balances in its international accounts or maintain a high standard of living for its population. Due to lack of data and limited resources, this case study focuses on sectoral competitiveness impacts.

28. There is no single measure of competitiveness. The factors identified in the literature as relevant to competitiveness are costs of production, market share (share of global production), import and export intensity, and sector profitability. All share that they are quantifiable compared to non-price factors – including the quality of the workforce and infrastructure, the legislative and regulatory framework (how it is implemented and whether it is adhered to) and corruption. All of these factors can affect the competitiveness of firms, sectors or nations.

29. A relatively simple logic underlies the prevalent fear that fuel taxes will result in loss of competitiveness. Fuel taxes make fuels used in production processes more expensive, leading (other things being equal) to higher production costs. If these taxes are implemented unilaterally, the extra production costs may impair the competitiveness of the affected firms and industrial sectors.

30. Input-output tables provide a picture of the flows of goods and services in the economy for a given year through the inputs of goods and services used by each industry to produce their own output. Table 9 presents the input-output table for Turkey in 2002 (TurkStat, 2002). TurkStat (2002) does not provide detailed data on the contribution of motor fuels to each sector. It is therefore assumed that the item "motor vehicles and retail sale of automotive fuel" can be used as a proxy for the impact of motor vehicle fuel taxes, which influence retail fuel prices directly and the cost of using motor vehicles indirectly. Table 9 lists the sectors to which the item contributes 1% or more of total input costs. The item contributes above 10% in only two sectors, forestry (18.9%) and land transport (13.6%); its average contribution to other sectors is 2.6%. To summarise, since the cost of fuel constitutes a very small fraction of total input cost in most Turkish sectors, fuel taxes cannot be said to cause significant reductions in any sector's competitiveness. Besides, there is no convincing evidence that fuel taxes have influenced the location of businesses in Turkey. It is clear that other factors (e.g. exchange rates and export taxes) influence location more than fuel taxes.

31. When evaluating the impact of an increase in a fuel tax on competitiveness, it should also be kept in mind that firms may discover and implement previously overlooked cost-effective energy efficiency measures, or seek to reduce their energy use by purchasing energy-efficient equipment. In other words, fuel taxes can stimulate innovation related to cost-saving and market-creation, with multiple economic consequences. First, such innovation will reduce the energy use of the company implementing the measures, thereby wholly or partly offsetting the increased tax payments. Second, increase in a fuel tax may add to the output of energy-efficient companies, wholly or partly offsetting any reduction in output from the increased fuel taxes.

Table 9. Input-output table for Turkey
2002, billion TRY

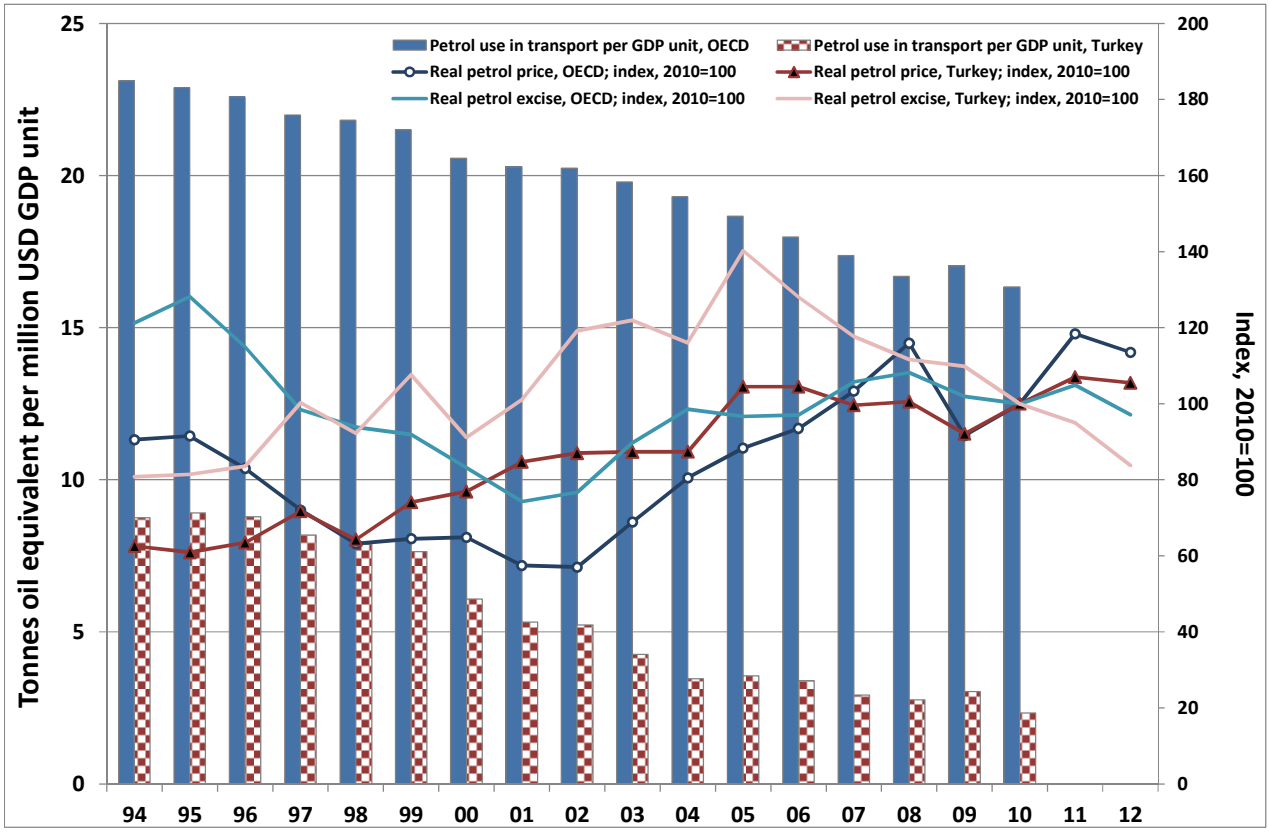
Products	Motor vehicles and retail sale of automotive fuel	% of Total	Other products	Total
Forestry, logging and related service activities	29 813	18.87	128 137	157 950
Land transport; transport via pipelines	2 620 093	13.64	16 588 780	19 208 873
Motor vehicles and retail sale of automotive fuel	613 705	9.17	6 077 638	6 691 342
Mining and quarrying	81 647	8.28	904 682	986 329
Manufacture of motor vehicles, trailers and semi-trailers	617 797	8.04	7 067 559	7 685 356
Rental of machinery and equipment without operator; rental of personal and household goods	24 111	5.79	392 567	416 678
Air transport	160 656	5.75	2 630 966	2 791 622
Water transport	114 552	5.69	1 900 166	2 014 718
Fishing, operating of fish hatcheries and fish farms; service activities incidental to fishing	10 790	5.49	185 913	196 702
Wholesale trade and commission trade, except of motor vehicles and motorcycles	603 462	5.14	11 143 530	11 746 993
Mining of coal and lignite; extraction of peat	30 202	4.93	582 136	612 338
Manufacture of coke, refined petroleum products and nuclear fuels	257 548	3.93	6 303 815	6 561 362
Agriculture, hunting and related service activities	602 707	3.58	16 217 131	16 819 838
Supporting and auxiliary transport activities; activities of travel agencies	247 252	3.43	6 961 676	7 208 928
Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	283 184	3.18	8 618 536	8 901 720
Financial intermediation, except insurance and pension funding	232 135	3.12	7 219 519	7 451 654
Mining of metal ores	7 773	3.02	249 973	257 746
Manufacture of other transport equipment	18 439	2.53	709 645	728 084
Education	54 599	2.09	2 556 177	2 610 776
Construction	363 721	2.06	17 264 898	17 628 620
Manufacture of other non-metallic mineral products	128 422	2.00	6 288 912	6 417 334
Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction excluding surveying	3 062	1.61	186 973	190 035
Public administration and defence; compulsory social security	157 178	1.60	9 696 513	9 853 691
Activities of membership organisations not classified elsewhere	35 640	1.49	2 363 703	2 399 343
Research and development	12 581	1.35	915 944	928 525
Real estate activities	99 081	1.20	8 146 964	8 246 045
Manufacture of rubber and plastic products	67 050	1.12	5 913 571	5 980 621
Other service activities	5 453	1.04	520 359	525 812
Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear	23 545	1.01	2 310 085	2 333 630
Other Sectors	*1 040 621*	*0.60*	*171 325 232*	*172 365 853*
Total	8 546 817	2.59	321 371 700	329 918 517

Source: TurkStat (2002), *Input-Output Table for Turkey*, 2002, Turkish Statistical Institute, Ankara.

5. Environment-related impacts of the fuel tax rate increases

32. The strong increase in fuel taxes in Turkey clearly had positive environmental impacts, even if the pursuit for such benefits was not the primary motivation behind the increase. As can be seen in Figure 9, in *real* terms, the tax rate on petrol increased more than 50% between 2000 and 2005. End-user petrol prices (which is what primarily affects consumer behaviour) are also influenced by developments in pre-tax fuel prices; in particular the international crude oil prices. The latter decreased from 2000 to 2002, but increased significantly from 2002 to 2005. Together with the tax increase, this contributed to an overall increase in the *real* price of petrol for consumers by more than 35% from 2000 to 2005. This real price increase contributed to a 27% reduction in petrol use in absolute terms, and to a 42% reduction in the use of petrol in the transport sector, per unit of GDP, between 2000 and 2005, cf. Figure 9.

Figure 9. Real petrol taxes and prices and the use of petrol per unit of GDP
Turkey and OECD, 1994-2012



33. Because the tax increase was more for petrol than for diesel, and (especially) LPG, there the use of petrol was substituted by other vehicle fuels – the share of these fuels in total fuel use in the transport sector increased from 65% in 2000 to 75% in 2005. However, measured in oil equivalent tonnes, the use of vehicle fuels other than petrol nevertheless decreased about 4% over the period.

34. Figure 9 also compares trends in Turkey with those in OECD countries. Even if fuel efficiency increased in OECD countries on average, the increase in fuel efficiency in the sense described here was much more in Turkey between 2000 and 2005 than elsewhere. Whereas the average fuel tax across OECD countries (weighted by the size of GDP in each country) increased 16% from 2000 to 2005, petrol use per unit of GDP decreased only 9%, compared to 42% in Turkey.

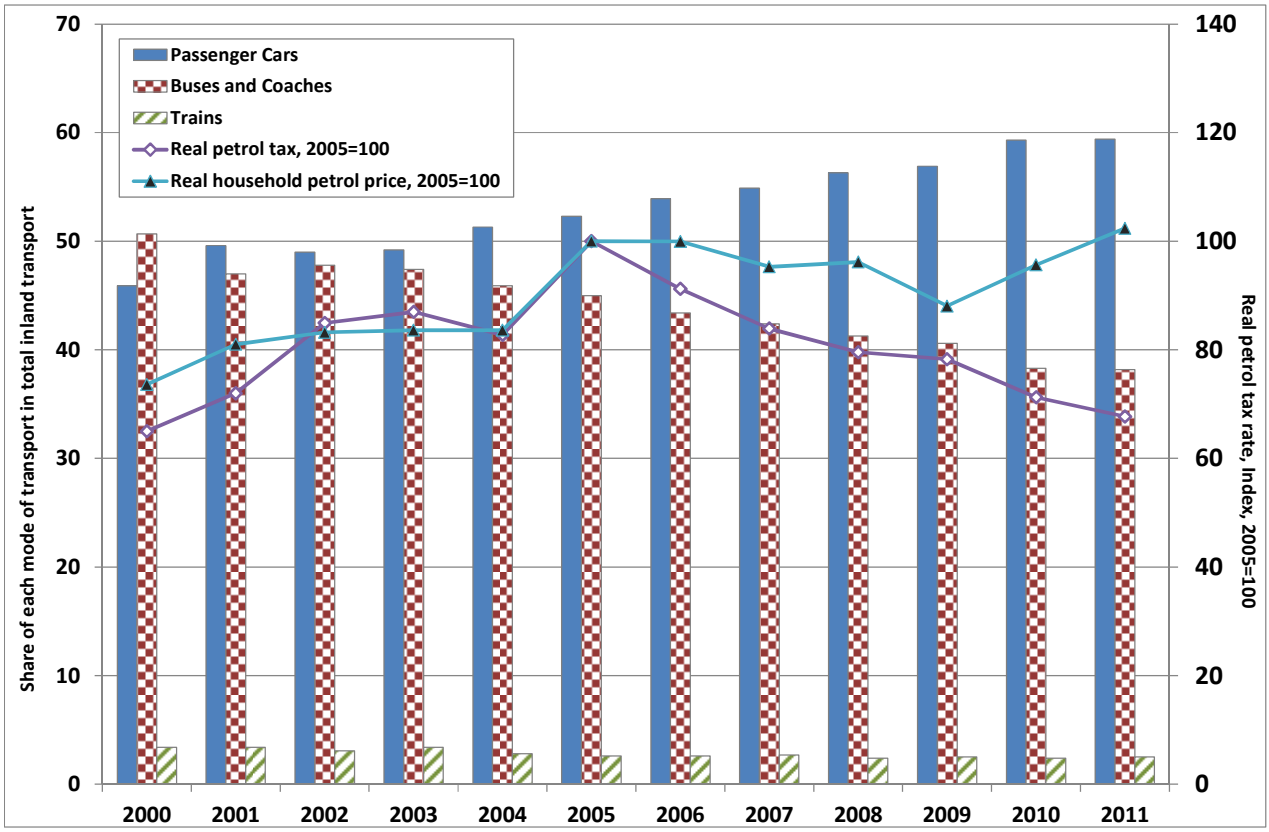
35. However, even if Figure 2 shows continued increases in the *nominal* petrol taxes after 2005, the tax increases were not high enough to compensate for inflation.[7] Hence, between 2005 and 2012, the *real* petrol tax rate decreased more than 40%, and it was only due to the international crude price increases over that period that the *real* end-user petrol price was marginally higher in 2012 than in 2005. The stabilisation in end-user prices caused the earlier fuel efficiency gains to largely come to a halt between 2005 and 2009, but a new price increase from 2009 to 2010 triggered renewed efficiency improvements.

36. Households will tend to modify the modes of transport they use (partly) in response to the relative prices they are facing. Transport mode choices are also affected by changes in income levels.

7. Whereas the consumer price index increased 7.5% in 2013, there was a 15% increase in the nominal tax rate on petrol from 01.01.14. It is too early to judge the impacts of this tax increase.

Between 2000 and 2012, GDP per capita[8] increased 39%, from a relatively low level compared to other OECD countries. In isolation, this income increase could be expected to contribute to a shift from the use of public transport towards the use of passenger cars. Such a shift has indeed been observed. However, Figure 10 indicates that between 2001 and 2005, GDP per capita increased 17%, and the real petrol tax rate and real end-user petrol price rose significantly. The result was that the share of passenger cars in inland transport rose relatively modestly. After 2005, the real petrol tax rate decreased a lot, and the share of passenger cars increased more strongly.

Figure 10. Real petrol taxes, real end-user petrol prices and shares of different modes of transport



Sources: IEA (2012), *Energy Prices and Taxes*, OECD/IEA, Paris, http://dx.doi.org/10.5257/iea/ept/2012q4; Consumer price data from http://dotstat.oecd.org/Index.aspx; and Eurostat (2013), *Modal split of passenger transport*, Eurostat, Luxembourg. http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsdtr210.

37. Assessing the environmental impacts of changes in fuel taxes would benefit from further econometric analysis. Nevertheless, the present discussion suggests that the strong real increase in the excise tax on petrol from 2000 to 2005 had beneficial impacts on the environment – as one *a priori* would expect. The tax increases contributed to increase energy efficiency in the transport sector and to limit the shift from public to private modes of transport. The subsequent decrease in the real petrol tax rate after 2005 had the opposite effect, contributing i.a. to stimulate further the shift from public transport to private car use.

8. Measured in USD, constant prices and constant 2005 purchasing power parities, data taken from http://dotstat.oecd.org/Index.

6. Acceptability of fuel tax rate increases

38. Public acceptance of any tax can be gained by creating a common understanding of the nature, causes and impact of the problem at hand and the possible instruments to combat it. Since the main purpose of fuel taxes in Turkey is not to address environmental concerns, but rather to raise revenue for the central government budget, building acceptance has proven highly problematic.

39. As previously mentioned, end-use fuel prices in Turkey increase in line with any of its three components: pre-tax price, VAT and SCT. The first two are easy to justify politically and not the main target of criticism. The pre-tax fuel price is determined by free market forces and usually follows trends in international oil markets. Since the most common VAT is 18%, an 18% VAT on motor fuels is politically justified and acceptable. Although both are important components of the relatively high Turkish fuel prices, the government is not held directly responsible for them; it usually blames increases in pre-tax prices on developments in international oil markets outside of its control.

40. The politically problematic component of end-use fuel prices is the SCT, in effect since August 2002. Turkey has been in a rather static cycle for the last decade. The cycle begins with a given pre-tax fuel price. If pre-tax fuel prices increase due to developments in international oil markets, so does the revenue from VAT, which is used to balance the public budget. As mentioned, this paper assumes zero consumer demand response to fuel price changes (i.e. perfectly inelastic motor fuel demand) throughout. In reality, consumer demand behaviour generally changes in the face of rising pre-tax fuel prices. While these raise VAT revenues, they also triggers a shift away from motor vehicle fuels towards other less taxed goods and services, potentially causing tax revenues to drop. The net outcome of these counteracting effects will depend on the magnitude of the relevant price elasticities. However, when pre-tax fuel prices decrease or the budget deficit increases, the government increases the rate of the SCT not only on motor fuels, but also on many other products (e.g. cars, alcohol, tobacco and telecommunication). The cycle then continues, with some protests being held, especially in the big cities. After a while, people get used to new fuel prices with a new pre-tax fuel price level, a proportional VAT and a higher SCT rate. And the cycle perpetuates itself.

41. In Turkey, a parliamentary decision to increase the SCT on motor fuels is not required. Based on the advice of the Ministry of Finance, the cabinet may (with the above-mentioned limitations) increase the SCT at any time. The process takes place exclusively within the government and the opposition does not have a say. After almost every tax increase, the finance minister publishes an official statement indicating that the SCT has been adjusted for inflation in order to maintain the public budget balance. Table 10 and Figure 11 show the development of the SCT and inflation (consumer price index, CPI) in Turkey in the last decade (RA, 2013; TurkStat, 2013a). The data indicate that although the SCT increases do not closely follow the inflation rate in the short run, a common trend appears over the longer run. In some years, the tax rate increases considerably in real terms. This level is maintained over the next years to ensure that tax increases are much higher than inflation.

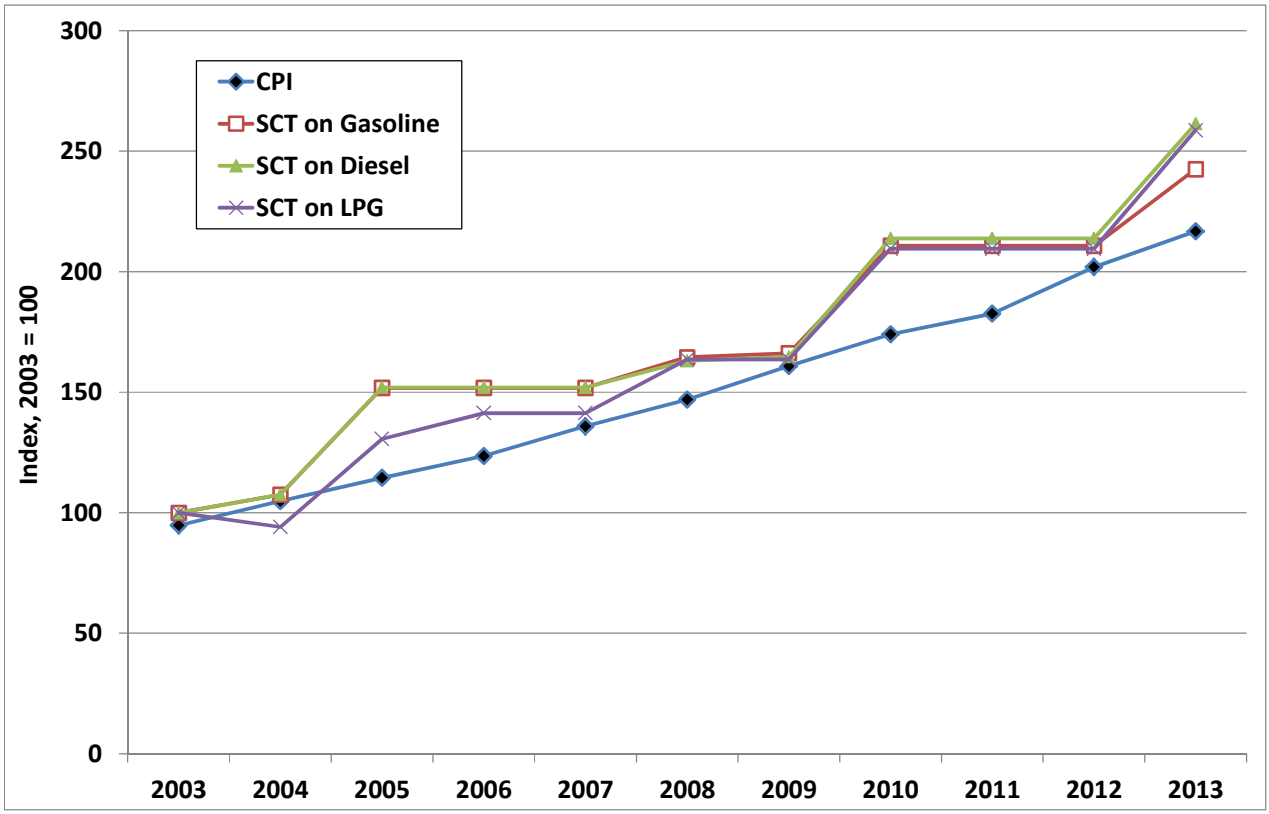
42. Other than that (i) SCT is only adjusted for inflation and rarely increased in real terms and (ii) this adjustment is necessary to balance the public budget, the government does not rely on any other substantial argument to defend or justify fuel tax increases and placate the opposition. Even successive Turkish finance ministers have on many occasions publicly admitted that fuel prices are extremely high, mainly due to high taxes (Hurriyet, 2013). But they have also underlined that motor fuel taxes are essential to meeting the revenue requirement of the central government budget. Since the level of motor fuel taxes is only marginally important in Turkish politics, tax increases have a negligible impact on the re-election of either the ruling party or the choice of finance minister.

Table 10. Development of SCT and inflation in Turkey since 2003

Date	CPI (base year = 2003)	SCT on Gasoline	Index (2003=100)	SCT on Diesel	Index (2003=100)	SCT on LPG	Index (2003=100)
January 2003	94.77	0.8975	*100.00*	0.6100	*100.00*	0.6880	*100.00*
January 2004	104.81	0.9650	*107.52*	0.6555	*107.46*	0.6470	*94.04*
January 2005	114.49	1.3625	*151.81*	0.9270	*151.97*	0.7965	*130.57*
January 2006	123.57	1.3625	*151.81*	0.9270	*151.97*	0.8620	*141.31*
January 2007	135.84	1.3625	*151.81*	0.9270	*151.97*	0.8620	*141.31*
January 2008	146.94	1.4765	*164.51*	0.9945	*163.03*	0.9980	*163.61*
January 2009	160.9	1.4915	*166.18*	1.0045	*164.67*	0.9980	*163.61*
January 2010	174.07	1.8915	*210.75*	1.3045	*213.85*	1.2780	*209.51*
January 2011	182.6	1.8915	*210.75*	1.3045	*213.85*	1.2780	*209.51*
January 2012	201.98	1.8915	*210.75*	1.3045	*213.85*	1.2780	*209.51*
January 2013	216.74	2.1765	*242.51*	1.5945	*261.39*	1.5780	*258.69*

Source: TurkStat (2013), *Consumer Price Index Database*, Turkish Statistical Institute, Ankara.

Figure 11. Development of the SCT and inflation indices in Turkey since 2003

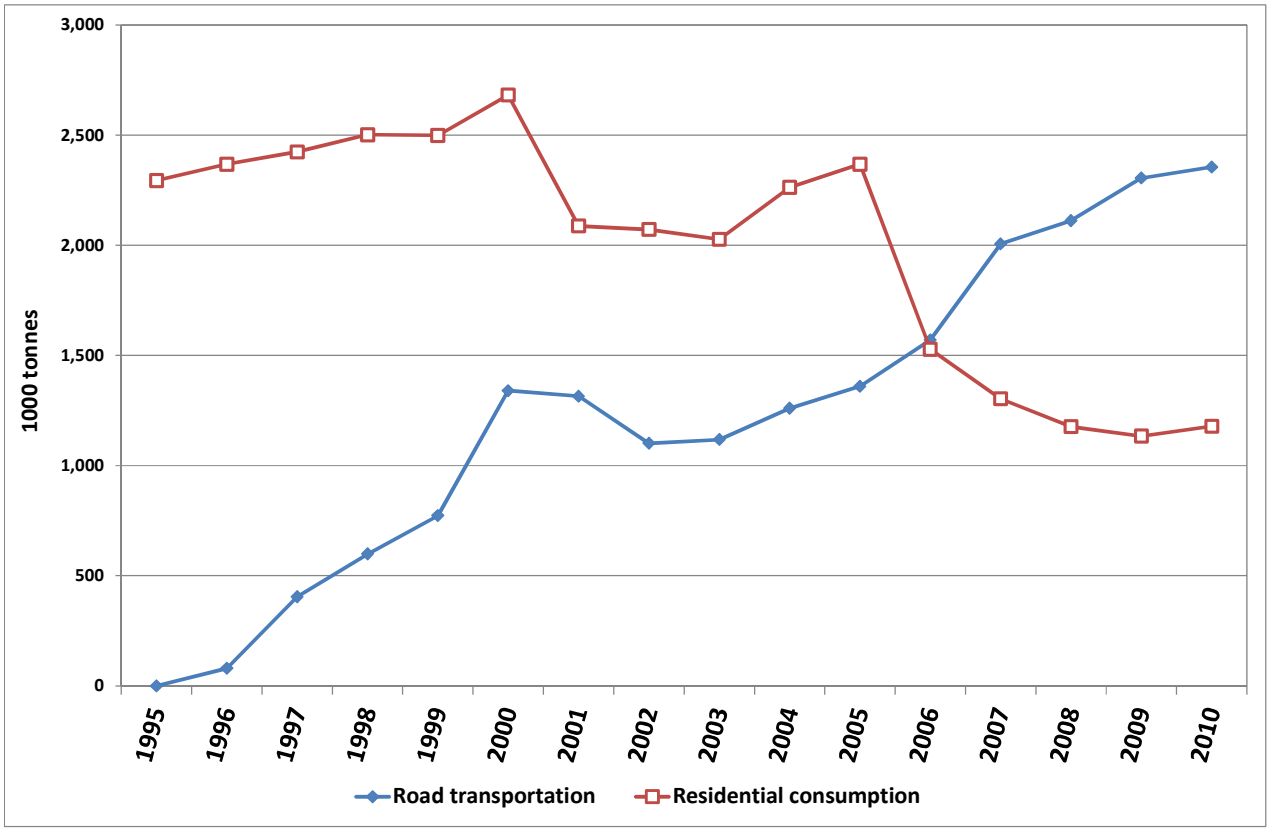


Sources: Revenue Administration (2013), *The Decisions of Council of Ministers on Special Consumption Tax Levels*, Revenue Administration of Turkey, Ankara; and TurkStat (2013), *Consumer Price Index Database*, Turkish Statistical Institute, Ankara.

43. Apart from the Ministry of Finance and some other public officials, no other institution or person publicly defends fuel tax rate increases in Turkey. Nevertheless, other sectors do benefit from the high fuel taxes. The main beneficiary is the industry that produces LPG-compatible gasoline engines. Although motor fuel taxes are also levied on LPG, the per kilometre cost of transport using LPG is about 30-40% less than using gasoline. With a payback period of about a year, converting motor vehicles to LPG has spread rapidly, resulting in significant increases in LPG consumption. LPG is used mainly for household cooking and as fuel. Figure 12 shows the development of LPG consumption since 1995 (IEA, 2012f), with

consumption as fuel doubling over the last decade. High fuel taxes also benefit manufacturers of fuel-efficient cars by raising the numbers sold.

Figure 12. LPG consumption in Turkey
1995-2010



Source: IEA (2012), *Oil Information* (2012 edition), OECD/IEA, Paris, http://dx.doi.org/10.5257/iea/oil/2012.

44. But the most important beneficiaries of high motor fuel prices in Turkey are oil smugglers, mainly motivated by the huge margin between pre- and after-tax motor fuel prices. Oil smuggling is a perennial problem on Turkey's borders with Iraq and Iran. Combined with the Turkish government's limited enforcement capabilities, high taxes encourage oil smugglers to operate in almost every region and a huge black oil market has developed.

45. Due to the high level of corporate and individual tax evasion in Turkey and the narrow corporate tax base, the government relies heavily on the simplest means of collecting tax revenues, i.e. indirect taxes (including fuel taxes). Thus the government is not expected to reduce any of the fuel taxes in the short term, nor perhaps in the long term. Such a measure would only be possible if it succeeded in lowering the fraud rate to the global average and was more successful at collecting taxes.

46. Depending on exchange rate fluctuations, a fuel tax hike in Turkey frequently earns the country the dubious honour of having the most expensive motor fuel in the world, with the two combined taxes (VAT and SCT) accounting for almost 70% of the pump price. It is therefore no surprise that not only Turkish consumers but also the opposition are uneasy with the amount of money flowing out of their pockets. Each tax increase on fuel leads a number of deputies from the opposition to criticise the government's action, while some citizens challenge it in court. For instance, one Member of Parliament stated: "The government is punishing the people for its inability to balance its revenues and expenditures. The increased prices will further entangle the national economy, causing its wheels to turn even more

slowly. These hikes will strain the budgets of families that are already crushed under a pile of debt. The construction, automotive and transportation sectors that have been facing difficulties because of the economic slowdown will see more hardships in sales and production. They will eventually have to make layoffs and the unemployment rate will increase. All this will further slacken the economy and reduce tax revenues, obliging the government to impose even more tax hikes" (Zaman, 2012). Meanwhile, the deputy chairman of the Consumers' Union stated: "The government is overtaxing the people indirectly because it fails to collect direct taxes, that is, income and corporate tax. If a government is going to make some savings, it should not do so from people's bread. Today, our government is depending on people to fix some imbalances, whereas it is supposed to take measures for people's well-being in the first place. These increases must not only be cancelled, but also followed by reductions from the previous level. Otherwise a reduction in public support for the government will be observed at the ballot box" (Zaman, 2012).

47. In short, the degree of political acceptance of any tax depends on its perceived "fairness", related to its distributional and competitiveness impacts. Fuel tax increases in Turkey serve a twin purpose, albeit at the risk of stoking inflation. They reduce the country's current account deficit (more than 80% of which is due to energy imports) and help plug the country's much smaller budget deficit. Since Turkish fuel taxes have a mainly fiscal objective and the government has never addressed concerns over their distributional and competitiveness impacts, the general public perceives them as unfair; even if this paper documents that they are in fact highly *progressive*. It is also impossible to reduce fuel taxes in Turkey before tackling the informal economy and the vast amount of uncollected taxes. Turkish governments do not undertake tax cuts simply because they like to keep the budget deficit under control. The central government's growing revenue requirements, combined with resource scarcity and supply bottlenecks, are likely to lead to new hikes in fuel prices. Besides, lowering taxation on motor fuels to combat increasing oil prices would send the message to producing countries that they can raise their prices. Turkish citizens would have to pay for this.

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