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May 5, 2016

Approved By
Western Hemisphere Department

Prepared By Xin Li (RMU) and Elie Canetti (WHD) with editorial support from Heidi Canelas (WHD) and Kate Jonah (RMU).

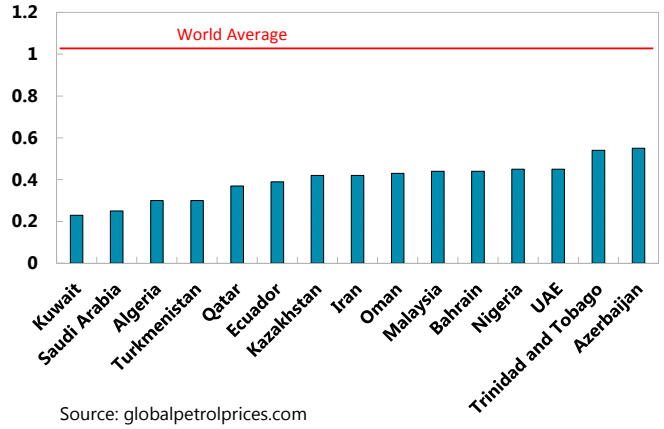
CONTENTS

FUEL SUBSIDIES IN TRINIDAD AND TOBAGO: FISCAL, DISTRIBUTIONAL, AND ENVIRONMENTAL IMPACTS

A. Introduction

1. **Fuel subsidies in Trinidad and Tobago, established in 1974, increased dramatically due to rising global crude oil price in the past few years and led to a growing debate on the costs and benefits of subsidy reform.** Between 2009 and 2014, the fuel subsidy averaged over TT$3.5 billion per year or about 2.3 percent of GDP, resulting in Trinidad and Tobago's fuel prices being among the lowest in the world.[1](Fig. 1) This paper aims to quantify the impact of the fuel subsidies and discuss, in light of the government's stated intention to phase them out, how that might best be achieved.[2]

Figure 1. Top 15 Countries with the Lowest Gasoline Prices
(U.S.$ per liter, as of May 2, 2016)



Source: globalpetrolprices.com

2. **Historical and cross-country experience indicate that energy subsidies impose substantial fiscal, economic, and environmental costs, including in Trinidad and Tobago**. In particular, fuel subsidies are not the most effective/equitable way to distribute a country's resource wealth to its population. They have imposed a considerable fiscal burden, contributed to procyclical fiscal policy, and were an important reason for under-saving in the Heritage and Stabilization Fund (HSF). In addition, the subsidies have been regressive, primarily benefiting higher income people. The subsidies have also generated excessive reliance on fossil fuels and automobiles, leading to

[1] The average gasoline price in Trinidad and Tobago (US$ 0.54 per liter of Super gasoline) ranked 14th lowest in the world in 2016.

[2] In addition to fuel subsidies, energy subsidies in Trinidad and Tobago also include electricity subsidies through the Utilities Assistance Program (UAP). Nonetheless, this paper will only focus on fuel subsidies due to the unavailability of electricity subsidy data.

congestion and pollution; on a per capita basis, Trinidad and Tobago is one of the highest energy users and, also on a per capita basis, CO_2 emitters in the world.

3. **More recently, the cost of the fuel subsidy has fallen sharply given declining global oil prices, which affords an opportune time to remove the subsidies before their cost again rises in the future.**[3] Removal now will have little immediate impact on domestic fuel prices and will make it clear that future price movements are the result of movements in the global market, rather than due to policymaker actions. While reforming energy subsidies will help reduce fiscal pressures, it will not be enough to offset deficits resulting from low oil prices. However, reforms will lead to efficiency gains, reduce distortions caused by excessively low prices and cut domestic energy consumption.

4. **The paper proceeds as follows.** Section B reviews the historical background of fuel subsidies in Trinidad and Tobago. Section C discusses their fiscal impact and the inflationary impact of subsidy reform. Section D summarizes the regressive distribution of subsidy benefits. Section E focuses on the negative externalities caused by fuel subsidies and the environmental and traffic benefits of phasing them out. Section F discusses key factors contributing to successful reforms and Section G concludes.

B. History and Mechanics of Trinidad and Tobago's Fuel Subsidies

5. **In 1974, the Government of Trinidad and Tobago passed the Petroleum Production Levy and Subsidy Act (PPLSA) to provide petroleum subsidies in response to the global oil price shock of the early 1970's.** This Act provided the means through which fuels such as gasoline (Premium, Super and Regular), diesel and kerosene could be sold to consumers at fixed below market prices (as directed under the Petroleum Act of 1969). The subsidies were initially meant to cushion the burden of high oil prices on consumers (Baksh 2008). But over time, they came to be seen more as a way for the population to share in the country's resource wealth (Chester 2015).

6. **The Petroleum Production Levy (PPL) was imposed on petroleum production businesses to finance the difference between the international market and domestic prices for the different types of fuel.** From its 1974 inception until 1992, the PPL covered the entire value of the subsidy. However, an amendment in 1992 constrained the levy to 3 percent of producers' gross income while in 2003 it increased to 4 percent, where it currently stands. Moreover, in 2003, businesses that produced less than 3,500 barrels of oil per day were no longer required to pay the levy.

7. **The subsidy is now financed through a burden-sharing mechanism. The primary source is still** the PPL, calculated as 4 percent of the revenues of crude oil Production Businesses. But any shortfall is financed by the Government directly from the Consolidated Fund. Over the last seven years, the Government was obligated to contribute an average of 71 percent of total petroleum subsidy payments.

[3] References to fuel subsidy removal in this paper refer to removal of current "pre-tax" subsidies.

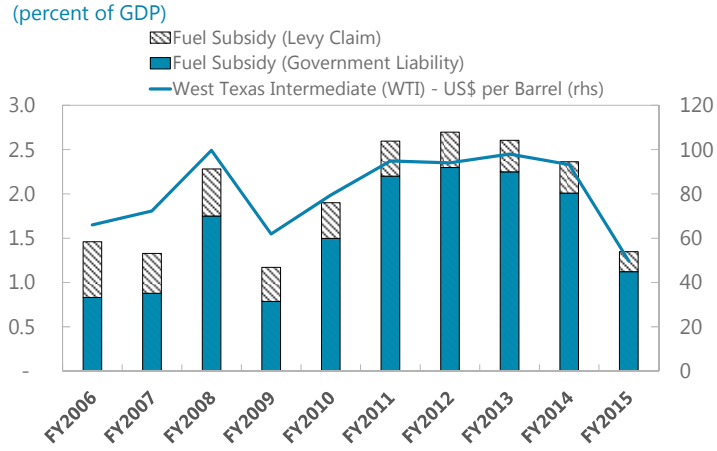
C. Implications for the Budget and Inflation

8. **It is useful to distinguish between "pre-tax" and "post-tax" subsidies.** Pre-tax subsidies arise when the price paid by consumers (that is, firms and households) is below the cost of supplying energy.[4] Post-tax subsidies arise when the price paid by consumers is below the supply cost of energy plus an appropriate "Pigouvian" (or "corrective") tax that would reflect the negative externalities associated with energy consumption, plus an additional consumption tax that should be applied to all consumption goods (i.e., in the case of Trinidad and Tobago, the value added tax).[5, 6]

Summary

9. **During the past ten years, aggregate fuel subsidies have amounted to TT $31 billion, or an average of 2 percent of GDP per year.** There is a strong positive correlation between total subsidies and global crude oil prices. As oil prices trended up between 2009 and 2014, fuel subsidies amounted to nearly TT$3.6 billion per year or about 2.3 percent of GDP.[7] As crude oil prices plummeted in 2015, subsidies also dropped, to TT$2.1 billion, or 1.4 percent of GDP, the lowest since the Global Financial Crisis (Fig. 2).

Figure 2. Crude Oil Price and Fuel Subsidy, 2006-2015
(percent of GDP)



Sources: Ministry of Energy and Energy Industries; and Fund staff calculations.

10. **At the national level, auto diesel and Super 92 gasoline subsidies accounted for 54 and 36 percent of the total subsidies since 2006, respectively, while the subsidy on Premium 95 gasoline has been declining due to price adjustments in 2008 and 2012.**[8] However, at the household level about 70 percent of total subsidies to petroleum consumers were on Super 92

[4] For a description of measuring fuel subsidies by the price-gap approach, see Box 1 in "Energy Subsidies in Latin America and the Caribbean: Stocktaking and Policy Challenges" (IMF working paper, WP/15/30).

[5] IMF working paper (WP/15/105) Post-tax consumer subsidies are typically much higher than pre-tax consumer subsidies, primarily due to the large environmental cost of energy consumption (IEA 2014; Clements and others 2013; Clements and others 2014; Parry and others 2014).

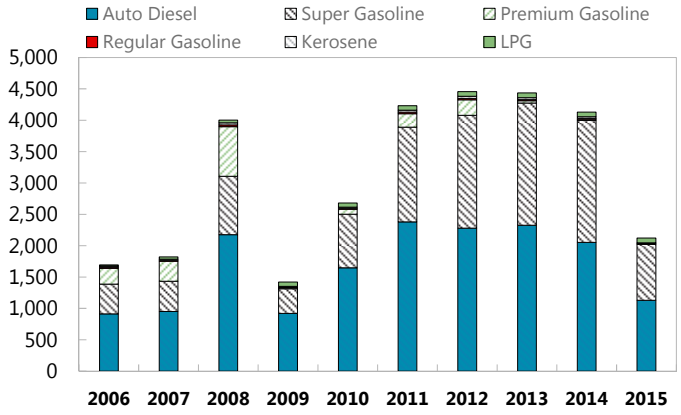
[6] This section and the next focus on pre-tax subsidies while the externality attributable to fuel subsidies in Trinidad and Tobago is analyzed in Section E. It is worth noting that post-tax subsidies also have implications for fiscal accounts and households, but the analysis of these is beyond the scope of this paper.

[7] Estimates of fuel subsidies vary across different data sources. For example, the International Energy Agency (IEA) estimated the average fuel subsidy in Trinidad and Tobago to be 2 percent of GDP between 2011 and 2013.

[8] The price at the pump for Premium 95 gasoline was adjusted to TT$ 4.00/liter from TT$3.00/liter in September 2008, and then raised further to TT$ 5.75/liter in October 2012.

gasoline in 2014 (Chester 2015) (Fig. 3). The discrepancy between the national level and household level outcomes implies a large share of subsidies goes to non-consumers.

Figure 3. Composition of Fuel Subsidy, 2006-2015
(TT$ million)



Source: Ministry of Energy and Energy Industries.

Fiscal implication

11. **Fuel subsidies have imposed a significant fiscal cost.** Given the burden-sharing mechanism laid out to cover subsidy payments, an increasing share of fuel subsidies has been financed by the government in recent years, whereas the PPL has covered less than 20 percent during the past five years.

12. **At times, the Government had difficulty covering the subsidy through revenues, and thus financed it in part by running arrears to the national oil company, Petrotrin.** The level of arrears peaked at TT$7.1 billion (4.3 percent of GDP) by the end of 2012. As a result, Petrotrin withheld tax payments to the government until the bulk of the subsidy arrears were cleared in subsequent years through budget provisions. As of December 2015, outstanding arrears stood at only TT$549 million.

13. **The government's recent efforts to phase out fuel subsidies are in line with its broader strategy for managing public finances.**[9] In fact, fuel subsidies work in contradiction to one of the pillars of the government's long-term fiscal strategy, the Heritage Stabilization Fund (HSF).[10] While the HSF is aimed at strengthening fiscal discipline, saving for future generations and stabilizing the economic impact of commodity price volatility, the fuel subsidy does the opposite, weakening fiscal

[9] Since October 2015, Super 92 gasoline and diesel prices were raised by a cumulative 30 percent (15 percent in October 2015 and 15 percent in April 2016) to TT$ 3.58/liter and TT$ 2,00/liter, respectively. This implies that super gasoline will no longer be subsidized at current oil prices of US$ 45 per barrel, whereas diesel will continue to be subsidized by approximately $1 per liter.

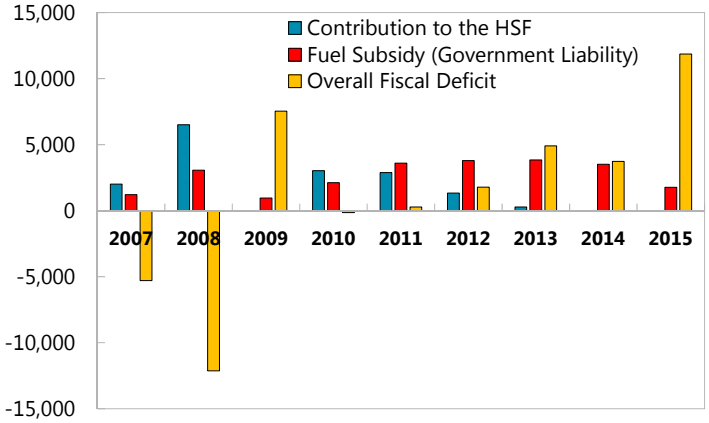
[10] At the end of June 2015, the net asset value of the HSF was US$5,775 million (23 percent of GDP).

discipline and providing a strong inducement to consume the country's resource endowment now rather than save it for future generations.

14. **Fuel subsidies have significantly contributed to the country's procyclical fiscal stance**.[11] As a resource-rich economy, energy revenue windfalls make spending pressures difficult to resist. In particular, driven by rising oil prices since 2009 and a boom in auto imports, the cost of fuel subsidies to the government was trending upward until recently, contributing to fiscal deficits and slowing the buildup of financial buffers in good times.

15. **Accompanying the surge in fuel subsidies, the contribution to the HSF has been declining since the global financial crisis** (Fig. 4). Had the government contributed the amount spent on fuel subsidies since 2008 to the HSF instead, the HSF would now be worth an additional US$ 3.6 billion, or 62 percent higher than where it currently stands.

Figure 4. HSF and Fuel Subsidy, FY2007-FY2015
(TT$ million)



Sources: Ministry of Finance; and Fund staff calculations.

Inflationary impact of removing fuel subsidy

16. **Phasing out fuel subsidies will lead to a rise in the level of fuel prices (and hence the level of transportation prices as well as the overall price level).** In terms of the pass-through to transportation prices, Baksh (2008) showed, based on historical fuel price adjustments in 2003 in Trinidad and Tobago, that a one percent change in fuel prices should lead to a 0.5 percent increase in transport prices.[12]

[11] The saving (withdrawal) rule of the HSF is triggered when actual energy revenue exceeds (falls below) budgeted revenue by at least 10 percent.

[12] Using U.S. price data over 1995-2015, Badel and McGillicuddy (2015) found a remarkably stable relationship that a one percent increase in oil prices yielded a 0.46 percent increase in the energy component of the CPI in the United States.

17. **However, the impact on inflation should be short-lived.** The increase in fuel prices should constitute a change in relative prices, and incentivize consumers to shift expenditure from fuel to other goods (including those that are domestically produced). That said, given the one-off impact of increases in energy prices on the level of the inflation index, this may give rise to expectations of further increases in prices and wages unless appropriate macroeconomic policies are in place.[13] The history of Trinidad and Tobago's high and volatile measured inflation may make it more difficult for the country to anchor inflation expectations. However, there is nothing inherently inflationary in fuel price adjustments beyond the initial impact, and in fact, if price and wage inflation expectations can be contained, then the reduced disposable income could possibly lead to a drop in overall inflation after the initial effect of removing the fuel subsidy is over.

D. Who Benefits from Energy Subsidies?

18. **While there is broad agreement that subsidies to households have risen significantly during the past decades, particularly between 2009 and 2014, it is difficult to reconcile quantitative differences in estimates of how subsidies were distributed among different income group**. This is due to differences in data sources, methodology, and time horizon. Cotton, Cox, and Ramrattan (2013) examined how households in different income groups benefited from petroleum subsidies, based on the 2008/2009 Household Budgetary Survey (HBS) conducted by the Central Statistical Office (CSO). Chester (2015) looks at the direct impact from the fuel subsidy plus the indirect impact through lower transport fares, based on a recent survey of 495 households attained from the CSO's Continuous Sample Survey of Population (CSSP) (Fig. 5 and Fig. 6).

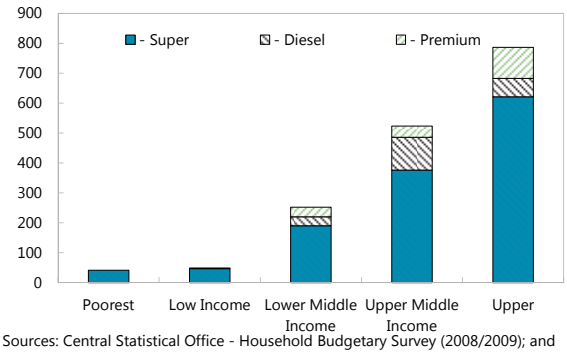
19. **These studies find that the total fuel subsidy has a very regressive impact.** Cotton, Cox, and Ramrattan (2013) calculated that in 2008 it was worth TT$492 annually for households in the lowest income group but TT$9,436 annually for households in the highest income group.[14] Chester (2015) estimated the total subsidy benefit to be about TT$12,000 a year for households in the lowest income group, and about TT$24,000 a year for those in the highest income group.[15]

[13] Chen (2009) investigated oil price pass-through into inflation and estimated the long run oil price pass-through coefficient is 0.17. That is, a 1 percent increase in oil prices will lead to a 0.17 percent increase in inflation over the long run.

[14] Cotton, Cox, and Ramrattan (2013) divided the population into five income groups: Poorest (Household income lower than TT$1,500 per month); Low Income (Household income between TT$1,500-TT$4,999 per month); Lower Middle Income (Household income between TT$5,000-TT$14,999 per month); Middle Income (Household income between TT$15,000-TT$24,999 per month); and Upper Income (Household income in excess of TT$25,000 per month).

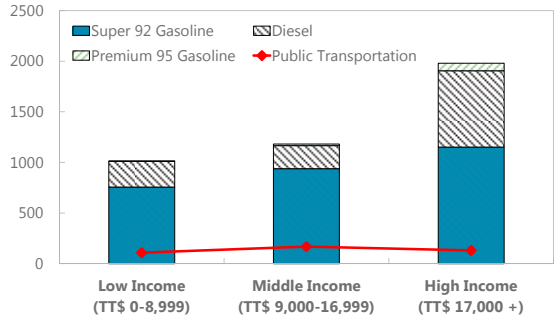
[15] In Chester (2015), population is divided into three income groups: Low Income (Household income lower than TT$9,000 per month); Middle Income (Household income between TT$9,000-TT$16,999 per month); and High Income (Household income greater than TT$17,000 per month).

Figure 5. Average Fuel Subsidy by Income Group, 2008
(TT$ per month)



Sources: Central Statistical Office - Household Budgetary Survey (2008/2009); and Cotton, Cox, and Ramrattan (2013).

Figure 6. Average Fuel Subsidies by Income Group, 2014
(TT$ per month)



Sources: Central Statistical Office - Continuous Sample Survey of Population (2014); and Chester (2015).

Private transportation

20. **There is strong evidence that fuel subsidies on private transportation disproportionately benefit rich people.** According to CSSP (2014) and Chester (2015), in 2014 the low income group, accounting for 50 percent of the population, gained only 27 percent of total fuel subsidies compared to 36 percent for the richest 15 percent of all households. On average, the monthly subsidy received by a household of the high income group was found to be 95 percent and 68 percent higher compared to households of the low and middle income groups, respectively.

21. **The regressive nature of the subsidies in Trinidad and Tobago has particularly reflected the greater consumption of Premium 95 Gasoline, as well as diesel, by higher income groups.** According to the 2014 CSSP and Chester (2015), a representative household in the richest group gained triple the diesel subsidies (TT$755/month) and five times the premium gasoline subsidies (TT$575/month) compared to a representative household from the middle income group. In turn, middle income households on average received almost three times the premium gasoline subsidies (TT$15/month) than poor households. Such local findings are in line with cross-country experience that energy subsidies in resource-rich countries tend to benefit upper-income groups disproportionately. In addition, the fiscal cost of the subsidy may divert public resources away from anti-poverty efforts and other much more equitable means to share energy wealth (Clements, Coady, et. al. 2013).

Public transportation

22. **Fuel subsidies on public transportation are much smaller and less regressive, relative to subsidies on private transportation.**[16] The public transportation subsidies received by a representative household amounted to TT$133 per month, roughly 9 percent of the average private

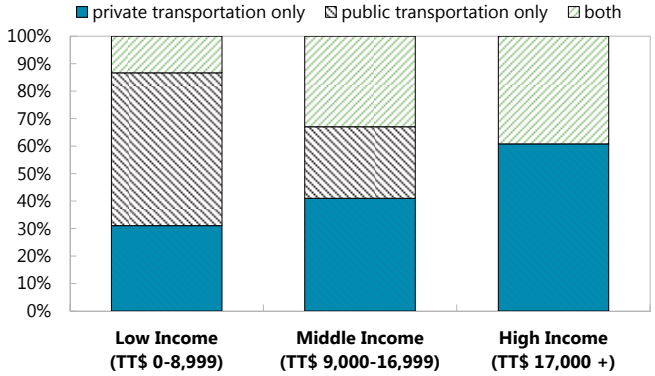
[16] Subsidies on public transport arise from subsidized public transportation fares as well as subsidized diesel fuel prices.

transportation subsidies. Middle income households received more benefit on average (i.e., TT$168 monthly) than the low and high income groups.

Impact of transportation preferences

23. **The regressiveness of fuel subsidies is amplified by the different transportation preferences of people in different income groups.** The percentage of people taking public transportation decreases as income levels increase. Public transportation is the first preference among the low income group, with 55 percent of people taking public transportation only, whereas only 3 percent of high income households use public transportation only. On the other hand, more than 60 percent of high income households utilize private transportation only, whereas only 30 percent of low income people do (Fig. 7).

Figure 7. Preference over Transportation Modes, 2014
(percent of households, by income group)



Sources: Central Statistical Office - Continuous Sample Survey of Population (2014); and Chester (2015).

E. The Environmental Impact of Fuel Subsidies

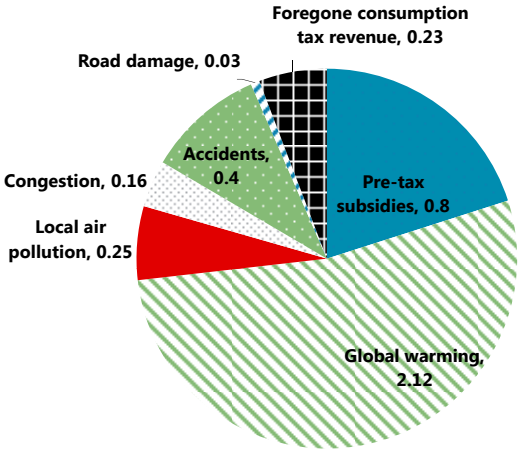
Summary of post-tax subsidies in Trinidad and Tobago

24. **Post-tax consumer subsidies represent the amount by which the cost borne by the consumer falls short of the total economic cost of consumption**. This excess cost (or subsidy) is either covered by governments in the form of budgetary support or foregone revenues, or passed to society in the form of negative externalities. Post-tax consumer subsidies are comprised of pre-tax subsidies plus the economic damage caused by global warming, vehicle-related externalities, local air pollution, and the under-collection of consumption taxes.[17]

[17] Vehicle-related externalities include traffic congestion, accidents, and road damage, all caused by the additional usage of vehicles due to the fuel subsidies, which, by reducing the cost of vehicle transport, increase demand for it.

25. **In contrast to countries that are intensive coal users, post-tax subsidies in Trinidad and Tobago are mostly driven by the negative externality caused by natural gas and petroleum products** (Fig. 8).[18] The subsidies' contribution to global warming accounts for more than 50 percent of post-tax subsidies, or the equivalent of around US$2.1 billion in Trinidad and Tobago in 2015. Pre-tax subsidies account for US$0.8 billion, one fifth of the total; meanwhile vehicle externalities accounts for US$0.6 billion, around one sixth of the total. The rest are attributed to local air pollution (US$ 0.25 billion) and foregone consumption tax revenue (US$ 0.23 billion, or 0.9 percent of GDP).[19]

Figure 8. Composition of Post-Tax Subsidies, 2015
(billions of US dollars)

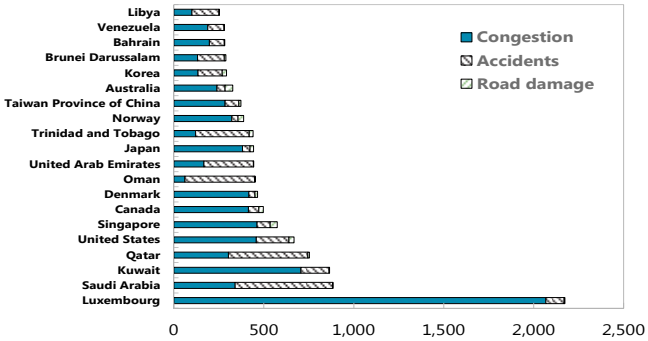


Source: Fund staff calculations.

Vehicle related externalities

26. **Trinidad and Tobago is one of the top subsidizers for vehicle-related externalities per capita in the world**. The total cost of vehicle-related externalities in Trinidad and Tobago was US$ 598 million in 2015, amounting to an annual per capita traffic externality of US$ 441, placing the country among the top 12 subsidizers in the world (Fig. 9).

Figure 9. Estimated Vehicle Externalities
(US$ per capita, top 20 countries in 2015)



Source: IMF Fiscal Affairs Department.

27. **Phasing out the fuel subsidy is a practical way to reduce traffic congestion and other traffic externalities from vehicles.** Based on IMF estimates of fuel price elasticities, a complete removal of fuel subsidies would be estimated to reduce aggregate fuel demand by 29.7 percent,

[18] The externalities caused by natural gas and petroleum products are estimated at US$2.0 billion and US$4.7 billion, respectively, in 2015, about 85 percent of the post-tax energy subsidies (IMF 2015).

[19] Local pollution is mainly caused by SO_2 emissions from coal consumption. Fuel combustion produces only a small amount of SO_2, and thus the impact of petroleum on local pollution is negligible.

leading to a decrease of US$ 178 million in traffic congestion, accident, and road damage costs (Box 2).[20]

Box 1. Technical Details for Calculation of Vehicle-Related Externalities

Congestion: Parry and others (2014) established a statistical relationship between congestion delays, as indicated by average traffic speeds, and various transportation indicators, including real GDP per capita, annual car-kilometers, road capacity per car, and cars in use per capita. Then the average congestion delays are translated into a marginal congestion cost of one vehicle to other vehicles, taking into account its contribution to average congestion delays and the value of travel time (VOT).[1] This yields a marginal congestion cost of US$ 0.23/liter in 2015.[2] Trinidad and Tobago's total daily fuel consumption in 2013 is about 42.0 thousand barrels/day, of which 12 thousand barrels are motor gasoline.[3] Assuming fuel consumption remains unchanged in 2015, the aggregate cost of congestion is then approximately US$ 160 million (0.6 percent of GDP).

Accident cost: The main societal costs of road accidents include fatal and non- fatal injuries, medical costs, and property damage. Empirical studies show that higher-income countries tend to have a lower incidence of injuries per kilometer driven, but that is partly offset by higher valuations of fatality and injury risk in these countries. The external accident cost in Trinidad and Tobago is estimated to be US$ 0.36/liter and US$ 0.20/liter for gasoline and diesel, respectively. The total accident cost in Trinidad and Tobago in 2015 is estimated to be about US$ 405 million, reflecting both a high fatality valuation and rapid growth of the number of road vehicles.[4]

Road damage cost: Vehicle use causes an additional adverse side effect through wear and tear on the road network. Road damage consists both of the pavement repair costs incurred by the government and increased operating costs for vehicles attributable to bumpier roads. Based on peer country data from World Road Statistics 2009, road damage in Trinidad and Tobago is estimated at nearly US$ 29 million in 2015 (IMF 2015).

_____

[1] VOT is assumed to be a fixed proportion of the average income within the country. See Chapter 5 of Parry and others (2014) for a detail explanation.

[2] Some key variables that would normally be used to estimate congestion delays are not available in Trinidad and Tobago, such as average traffic speeds and annual car-kilometers. In these cases, regional averages are used as proxies. This approach is quite likely leading to a large underestimate of congestion costs, given the much higher than average incidence of automobile ownership in Trinidad and Tobago.

[3] EIA data http://www.eia.gov/cfapps/ipdbproject/iedindex3.cfm?tid=5&pid=54&aid=2

[4] Fatal road traffic accidents and death: http://www.arrivealivett.com/index.php?page=statistics

[20] The vehicle-related externalities of Trinidad and Tobago tend to be underestimated due to data limitations (see Box 1), which would lead to a proportional underestimate of the vehicle-related benefit of removing fuel subsidies.

Box 2. The Contribution of the Fuel Subsidy to the Vehicle Externality

To calculate the contribution of the fuel subsidy to the traffic externality from fuel consumption, we need to know the price elasticity of fuel consumption (gasoline and diesel). Following Parry (2011), we assume long run gasoline demand elasticity, η, is -0.4.[1] Then, the level of fuel consumption without the fuel subsidy can be derived from $C_i^{market} = C_i^{subsidy}\left(\frac{p_i^{market}}{p_i^{market-s_i}}\right)^{\eta}$, $where\ i = 1,2,3$ represent premium 95 gasoline, super 92 gasoline, and diesel, respectively. Therefore, the fuel subsidy leads to an additional $C^{subsidy} - C^{market}$ liters of fuel consumption per day, and thus contributions to traffic externalities can be estimated as $\left(1 - \frac{C^{market}}{C^{subsidy}}\right) \times$ US$ 598 million, where $C^{subsidy} = \sum_{i=1}^{3} C_i^{subsidy}$ and $C^{market} = \sum_{i=1}^{3} C_i^{market}$. Substituting in the numbers below yields that a complete removal of fuel subsidies would reduce aggregate fuel demand by 29.7 percent, leading to a decrease of US$ 178 million in traffic congestion costs.

	Premium 95 Gasoline	Super 92 Gasoline	Auto Diesel
Subsidized retail price	5.75	2.7	1.5
Subsidy	0.73	3.2	4.1
Market retail price without subsidy	6.5	5.9	5.6
Demand volume under subsidized price (aggregate demand for all three types of fuels normalized to 100)[2]	16.7	36.9	46.4
Demand volume under market price	15.9	26.9	27.4

[1] Parry 2011, "How Much Should Highway Fuels Be Taxed?"

[2] The share of demand for each type of fuels is obtained from Table 4 in Ram (2012).

Global warming

28. **The value of the total contribution of Trinidad and Tobago's carbon emissions to global warming is estimated to have been in the range of US$ 0.6–US$ 4.2 billion in 2015.** Of this, US$ 0.1–0.6 billion was attributable to the consumption of petroleum. These figures are based on estimates of global warming damage caused by CO_2 emissions, which vary from US$12 per ton (Nordhaus, 2011) to $85 per ton (Stern, 2006).[21] The Energy Information Agency (EIA) estimated total CO_2 emissions in Trinidad and Tobago to be 51 million metric tons in 2012, of which 6.4 million tons came from the consumption of petroleum and 40 million tons from the consumption and flaring of natural gas. We further assume Trinidad and Tobago's CO_2 emissions have been slightly decreasing, to 50 million tons in 2015. Employing the same price elasticity approach as noted above, phasing out

[21] One reason for the different estimates is that—due to long atmospheric residence times and the gradual adjustment of the climate system—today's emissions have intergenerational impacts and the present value of their damages is highly sensitive to assumed discount rates. A second reason for different CO_2 damage assessments (though not between Nordhaus and Stern) has to do with the treatment of extreme catastrophic risks.

fuel subsidies on the consumption of petroleum would reduce CO_2 emissions by 1.9 million metric tons, and thus Trinidad and Tobago's contribution to global warming by an amount valued at US$ 46 million in 2015.

Climate finance

29. **Trinidad and Tobago has a significant financing gap for infrastructure investment needed to shield it from the catastrophic impact of climate change-related natural disasters.** According to the IDB (2014), 9 out of 19 identified damage adaptation actions for Trinidad and Tobago are related to infrastructure investment, with a total cost of US$579 million (Annex I), three times as large as the environmental externality from Trinidad and Tobago's CO_2 emissions. However, the government's capacity to increase capital spending is constrained by declining fiscal revenues driven by the plummeting of global energy prices from the second half of 2014.

30. **As part of the 2015 Paris Agreement on climate change, advanced economies have pledged to mobilize funds rising to US$ 100 billion a year by 2020 for climate mitigation and adaptation in developing countries**, in particular for the least developed countries and small island developing States, in the context of their national climate strategies and plans.[22] Against this background, phasing out fuel subsidies could not only improve the government's fiscal balance, but also could help reduce the obstacles to unlocking climate financing for Trinidad and Tobago.[23]

F. Policy Recommendations

31. **International experience holds many lessons for how to conduct a successful reform of energy subsidies** (see Clements, Coady, et. al., 2013). Among the critical elements are a comprehensive reform plan, a far-reaching communications strategy, appropriately phased energy price increases (which may be differentiated by product), appropriately targeted measures to mitigate the impact on the poor, and introducing mechanisms to depoliticize future energy price changes.

32. **The Trinidad and Tobago government's current strategy for energy subsidy reform follows best practice in a number of respects, but other elements could still be put in place**.

- *Comprehensive Reform Plan*: Until recently, energy subsidy reforms have been piecemeal and were not embedded in a fully comprehensive plan with clearly stated rationales, goals and timelines. The hike in the price of "premium" grade gasoline in late 2012 may actually have increased the total fiscal cost of fuel subsidies as it incentivized consumers to switch to the

[22] Between 2010 and 2012, climate financing flows to developing countries, through both public and private channels, have been estimated at US$ 40 million to US$ 175 million per year. (see UNFCCC, 2014) http://unfccc.int/cooperation_and_support/financial_mechanism/items/2807.php

[23] IMF 2015, "The Managing Director's Statement on the Role of the Fund in Addressing Climate Change", SM/15/275.

more heavily subsidized "super" grade. Moreover, the intent to pursue a "gradual reduction in the fuel subsidies" to be "progressively introduced during the fiscal year 2013" never materialized beyond that initial move, undercutting the government's credibility on the issue.[24]

- *Communications Strategy:* Prior increases in fuel prices were poorly explained and came with little to no national discussion. The current government has embarked on a national dialogue on the removal of fuel subsidies, while having clearly articulated the case for subsidy removal (including fiscal savings, impacts on income distribution and reducing environmental and congestion externalities) and stating its intent to phase out the fuel subsidy over time. Undertaking stakeholder consultations and clarifying the benefits of reform are critical elements to fostering an understanding of, and therefore broad support for, phasing out subsidies. However, a more transparent budgetary accounting of the cost of subsidies, including the arrears to Petrotrin, would help the government to better explain to the population the alternative uses to which the forgone resources could have been put. In its national dialogue, the government should be as clear as possible about the possible impacts of reform, a goal that this paper is intended to further.

- *Phasing:* So far, the phasing of energy subsidy reductions has not been embedded in a comprehensive strategy. Until recently, the goal was to have in place an alternative cheap fuel source in the form of transforming the nation's vehicle fleet to the use of compressed natural gas (CNG). The use of CNG does have environmental benefits and therefore can be worthy of government support. However, the strategy to try to transition to CNG without first removing energy subsidies was flawed in that the incentives for vehicle owners to convert existing vehicles to CNG (or favor the purchase of CNG vehicles over gasoline or diesel-fueled vehicles) were severely undercut by the existence of subsidized gasoline and diesel.

  That said, the practice of phasing out fuel subsidies gradually, starting with fuels that are more likely to be consumed by high-income groups (premium gasoline) has been in line with best practice. Gradual subsidy removal gives consumers time to adjust and can build support for the reform if the savings are seen to be put towards socially beneficial purposes. In that sense, the government can improve acceptability of reform if it can more clearly identify alternative uses for the amounts that had previously been spent on fuel subsidies (including deficit and debt reduction, as well as appropriately targeted poverty alleviation efforts).

- *Poverty Mitigating Measures*: As this paper has shown, the benefits of fuel subsidies have gone disproportionately to wealthier and middle class families. Thus, subsidy removal can combine some retargeting of benefits to the poor with net fiscal savings. In fact, targeted

[24] See Government of the Republic of Trinidad and Tobago, "Budget Statement 2013: Stimulating Growth, Generating Prosperity," October 1, 2012.

cash transfers can fully compensate the poor while still leaving room for contributing to the goal of fiscal deficit and debt reduction. While best practice indicates that targeted transfers are best, even less targeted transfers such as subsidies for modes of mass transit (such as buses and maxi-taxis) more likely to be used by lower-income groups can protect the poor while still affording net fiscal savings.[25] Some of the savings can also be directed towards social safety net programs that target low-income groups, although Trinidad and Tobago's social safety net needs to be streamlined with a view towards greater efficiency and better targeting of benefits towards society's most vulnerable citizens.

- *Depoliticizing Fuel Pricing*: The extent to which Trinidadian citizens are aware of how fuel prices are set is unclear, but changes in fuel prices in recent years have clearly been the result of discretionary government decisions. Not only does this mean that price signals from global energy prices are not passed through to consumers, but also leads to a deeply politicized process for fuel pricing. Accordingly, the current government's intention to "introduce a new fuel pricing regime in … 2016, that will result in price adjustments for fuel, up or down, based on changes in the price of oil and petroleum products" is most welcome, and fully in line with international best practice.[26]

G. Conclusion

33. **This paper has found that fuel subsidies in Trinidad and Tobago, which increased dramatically due to the surge in global oil prices during 2009-14, resulted in substantial fiscal, macro-social, and environmental costs.** Fuel subsidies imposed a significant fiscal cost and contributed to the country's procyclical fiscal stance, thus constituting an important reason for under-saving in the HSF during good times. Empirical studies have found that, in line with cross-country experience, fuel subsidies in Trinidad and Tobago disproportionately benefit rich people. Moreover, excessive consumption of petroleum due to low local fuel prices has contributed to severe traffic congestion, as well as global warming. More recently, the sharp fall of global energy prices offers an opportune time to remove the subsidies before their costs rise again, if and when global energy prices recover. The current government has embarked on a sound strategy to phase out fuel subsidies, but should further enhance transparency by trying to make the budgetary implications, including the financing of the subsidy by arrears, clearer, and by carefully evaluating possible mechanisms to compensate those most vulnerable to increases in fuel prices.

[25] In this connection, the current government has reduced taxes on maxi taxis and on taxis. The rationale for the former is clear since maxi taxis are a form of mass transit, but to the extent taxis have a limited carrying capacity and merely substitute for private automobiles, the logic is less clear. Concerns about the inefficiency of bus and maxi taxi services should also be alleviated to the extent less subsidized fuel reduces the number of private vehicles on the road.

[26] See Government of the Republic of Trinidad and Tobago, "2016 Mid-Year Budget Review", April 8, 2016.

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Annex I. Climate Change and Risk Mitigation Actions (IDB, 2014)

Table 1. Identified Climate Adaptation Actions for Trinidad and Tobago (in US Dollars)

Title	Sector	Total cost	Total benefit	Net present value	Pay back (years)	Cost-Benefit Ratio	infrastructure related
National Building Code	Human Settlement	4,529,327	72,151,025	43,923,883	1.9	15.9	N
Dike Construction in Trinidad	Coastal Zones	115,554,303	4,033,247	(79,223,470)	61.6	0.2	Y
Meteorological Alert System Connected to the Monitoring System	Human Settlement	41,000	3,935,834	2,830,906	0.1	96.0	N
Social Awareness Program	Human Health	198,787	98,240	(83,151)	∞	0.5	N
Emergency Protocols	Human Settlement	1,659,793	3,545,712	1,344,701	0.9	2.1	N
Institutional Training Program	Human Settlement						N
Rainwater Harvesting	Water Resources	1,714,977	1,180,476	(500,418)	24.9	0.7	N
Infrastructure and Building Reinforcement	Human Settlement	61,820,734	27,911,274	(27,646,239)	35.4	0.5	Y
Retention Ponds	Water Resources	279,616	47,027	(187,075)	∞	0.2	Y
Filter Strips	Agriculture	487,080	356,132	(121,338)	24.9	0.7	Y
Permeable Pavements	Human Settlement	375,536,762	38,897,785	(252,122,202)	∞	0.1	Y
Beach Nourishment in Tobago	Coastal Zones	23,688,332	20,736,386	(5,522,748)	19.4	0.9	Y
Mangrove Restoration in Trinidad	Coastal Zones	744,188	71,348,613	43,881,303	4.4	95.9	Y
Parametric Insurance Scheme	Agriculture	62,850	N/A	N/A	N/A	N/A	N
Agriculture & Climate Change Research Unit	Agriculture	4,455,439	986,772	(2,661,472)	∞	0.2	N
Green Roofs	Human Settlement	1,055,220	1,786,554	276,093	10	2	Y
Climate Change Survey for the General Public	Human Settlement	24,794	N/A	N/A	N/A	N/A	N
Mangrove Restoration in Tobago	Coastal Zones	35,325	5,193,043	3,402,443	4	147	Y
Coral Reef Protection and Restoration in Tobago	Coastal Zones	624,672	523,245	(89,772)	∞	1	N

Note: Figures in parentheses are negative.
Source: IDB report - "Understanding the Economics of Climate Adaptation in Trinidad and Tobago" (2014).