

The Oil Market in Ireland: Duties, Prices and Consumption

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Executive Summary

Oil consumption represents an important source of tax receipts. Transport is a large consumer of oil, in particular petrol and auto-diesel. Much attention of stakeholders in the transport and fuel industries has focused on diesel laundering, the resulting unfair competition for legitimate traders and the associated tax loss from illicit consumption.

In recent years Revenue has taken a series of initiatives to address diesel laundering and to improve compliance in the oils area. From mid-2012 onwards, strengthened licensing and reporting arrangements for traders in mineral oils were implemented. A new monthly Return of Oil Movements (the ROM1) was introduced from 1st January 2013. This was followed from December 2013 with new reckless trading provisions that strengthen Revenue's ability to address those traders involved in the supply of fuel to launderers.

This report assesses the changes in the oil market following these initiatives. The report begins with an overview of the payments from oil to Excise Duty receipts and examines the contribution of different oil products. The analysis shows the diesel market is in a state of transition, with reductions in demand from the freight sector and increases from a significant shift from petrol to diesel in the car market.

By its nature, directly observing or even estimating the size of any illicit market is difficult. All methods that purport to estimate the shadow economy or the tax gap are subjective and limited by the data available. For these reasons, Revenue does not measure the shadow economy in Ireland. As an alternative approach, this analysis assesses trends prior to 2013, following which Revenue compliance activity in the oils area increased, and extrapolates these trends forward. This presents a counterfactual of what may have occurred in the absence of change, against which the 2013 and 2014 outturn is compared.

The analysis shows significant changes in the patterns of Marked Gas Oil (MGO) and diesel clearances from 2013. Diesel clearances rose 5 per cent in 2013 and 6.3 per cent in 2014. There is also 9.1 per cent decrease in MGO clearances in 2014.

Extrapolating trends pre-2013 against current clearances suggests that Revenue's compliance activities may be responsible for lowering MGO clearances by around 40 million litres in 2014 (product that could otherwise have been destined for being laundered) and increases of legitimate diesel clearances in a range of 245 million to 295 million litres per annum. Such additional clearances could represent increased yields in a range of €150 to €200 million in taxes and duties to the Exchequer.

1 Introduction

Oil consumption represents an important source of tax revenue and this has remained the case during the economic downturn and in more recent years. Transport activities are large consumers of oil, in particular petrol and auto-diesel. Much attention of stakeholders in the transport and fuel industries has focused on the topic of diesel laundering, the resulting unfair competition for legitimate traders and the associated tax loss from the resulting illicit consumption.¹

In recent years Revenue has put in place a series of initiatives to address diesel laundering and improve compliance in the oils area generally. From mid-2012 onwards, strengthened licensing and reporting arrangements for traders in mineral oils were implemented.

A new monthly Return of Oil Movements (the ROM1) was introduced from 1st January 2013. This return is mandatory for authorised warehousekeepers, distributors and forecourt retailers. The oil information required in the return covers opening and closing balances, each inward and outward movement of stock by product type, with information on date, quantity, invoice, customer and supplier. Using this information, a detailed supply chain analysis can be constructed of all major movements of oil within the state. The ROM1 data are already providing valuable information at operational level for Revenue.

This was followed from December 2013 with new reckless trading provisions that strengthen Revenue's ability to address those traders involved in the supply of fuel to launderers, whether directly or indirectly. Throughout these initiatives, there has been ongoing engagement by Revenue with the main oil suppliers.

This analysis, after presenting an overview of recent trends in the oil market in Ireland, assesses the impact of Revenue compliance activities on oil clearances.² This research is primarily based on data for 2013 or earlier, with limited use of 2014 data where available. There has been a significant reduction in oil prices towards the end of this period and 2014 has also seen a significant increase in car sales. Future analysis will be required to review the impact of these developments on the research findings.

Section 2 of this report reviews the contribution of oil to Excise Duty. Section 3 assesses trends in the price and consumption of petrol and diesel. Section 4 examines changes in trends following intensified Revenue compliance activities. Section 5 concludes.

¹ Laundering involves the removal of the dye from Marked Gas Oil (MGO or "green diesel") primarily intended for use in agriculture, construction or certain non-road activities.

² Oil clearances are the duty paid amounts of oil removed from tax warehouses.

2 Oil and Excise – An Overview

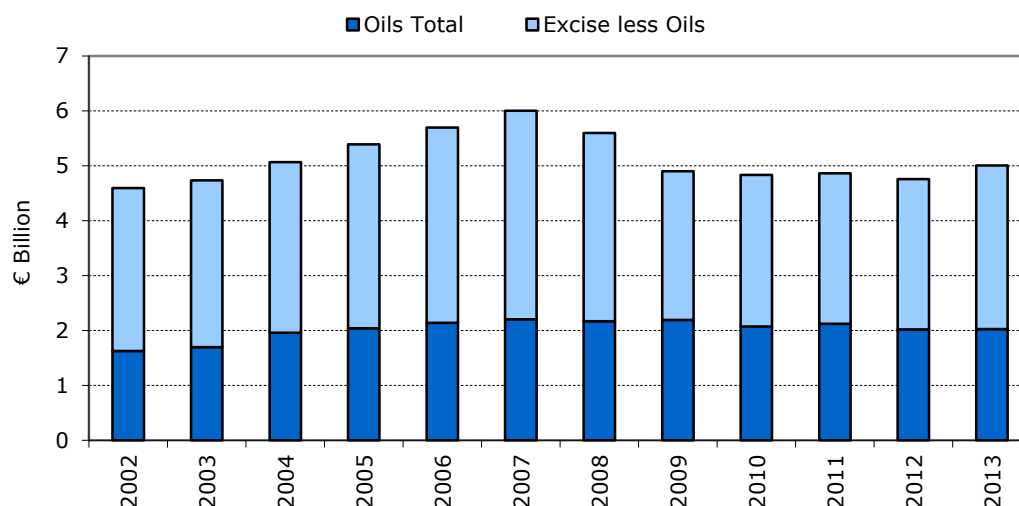
2.1 Excise Duty Receipts

Total Excise Duty receipts fell over the course of the recession, from a peak of €6 billion in 2007 to around €5 billion in both 2013 and 2014.³

Most of the decrease since the peak is in Vehicle Registration Tax (VRT) revenues. Other sources of Excise Duty have been relatively stable. This reflects the nature of the products on which Excise is levied: oil, alcohol and tobacco are important sources of Excise receipts and demand for these products, with some exceptions, is fairly unresponsive to changes in incomes, prices and other factors.

As Figure 1 shows, 40 per cent of Excise Duties are from oil. This increased in recent years with the fall in VRT but the share from oil is over a third across the last decade.

Figure 1: Excise Duty Receipts

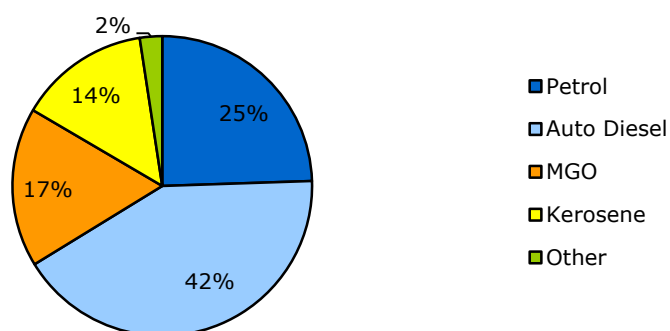


Source: Authors' analysis of Revenue data.

In volume terms, as shown in Figure 2, petrol and auto-diesel together account for 67 per cent of all oils. Kerosene and Marked Gas Oil (MGO) combined equal just over 30 per cent of the market. However, when assessed in receipts terms, light oils (mainly petrol) and diesel contribute €850 million and €1.13 billion respectively of the total €2.03 billion in Excise Duty from oil in 2013. The rate of duty on MGO is low and the associated tax revenue is about €46 million in 2013 (exclusive of the Carbon Tax element of Excise).

³ Data referenced here and throughout the following sections are from Revenue statistics (<http://www.revenue.ie/en/about/statistics/index.html>) unless otherwise indicated. In most cases, 2013 is the most recent year for which data are available, any figures for 2014 are provisional and subject to revision.

Figure 2: Excisable Oils by Volume in 2013



Source: Authors' analysis of Revenue data.

2.2 Excise Duty Rates on Oil

The Excise Duty on oil, Mineral Oil Tax (MOT), varies by product as shown in Table 1. Light oils, including petrol, have the highest rates. Diesel is taxed at slightly lower rates. The MOT rate on MGO is just under a fifth of the auto-diesel rate.

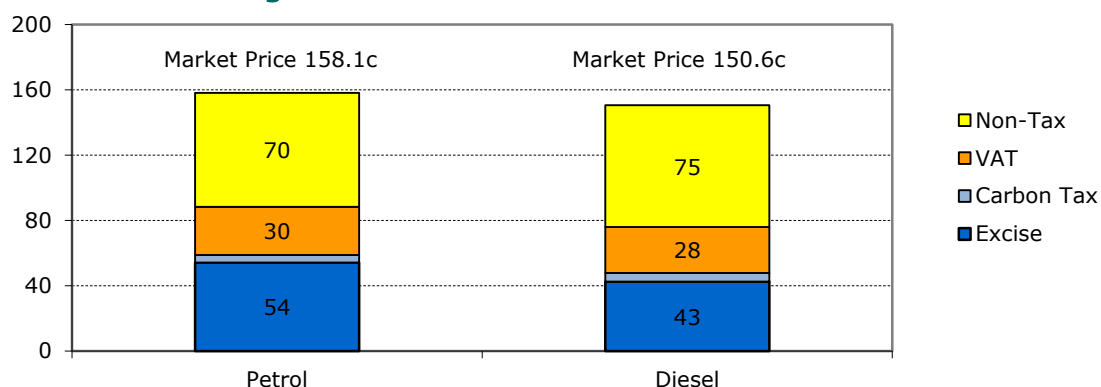
Table 1: Mineral Oil Tax Rates

€ per 1,000 litres	Non-Carbon	Carbon Charge	Total MOT Rate
Petrol	541.84	45.87	587.71
Aviation Gasoline	541.84	45.87	587.71
Heavy Oil (Auto-Diesel)	425.72	53.30	479.02
Heavy Oil (MGO)	47.36	54.92	102.28
Fuel Oil	14.78	61.75	76.53

Source: Revenue. Notes: Post-Budget 2012 MOT rates are shown, rates unchanged in Budgets 2013/14/15; Carbon charges are an integral component of MOT but are shown separately here for information purposes.

VAT is applied on the sale of oil, at the standard rate (23 per cent) except for 13.5 per cent on MGO and Kerosene. VAT applies on the Excise-inclusive price. Figure 3 compares the market price of petrol and diesel, illustrating the tax contributions to their price levels.

Figure 3: Tax Content of Petrol and Diesel



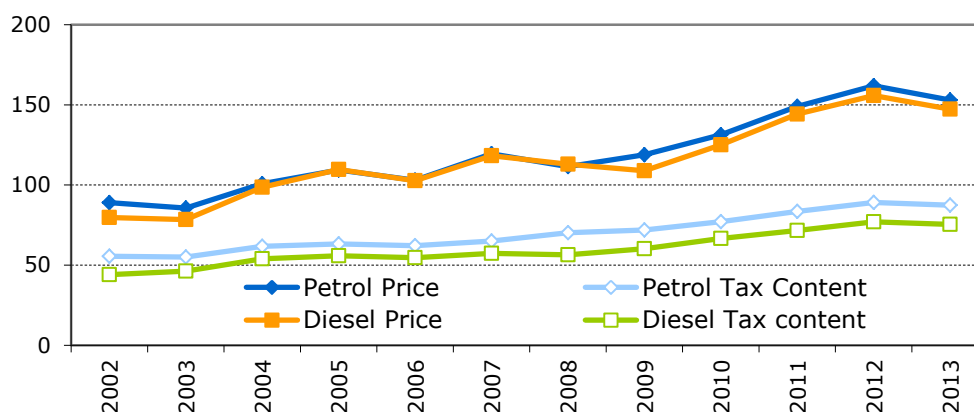
Source: Authors' analysis of Revenue data. Notes: Based on average prices in 2013; Carbon Tax is an integral component of Excise Duties but shown separately here for information purposes.

3 Market Trends – Consumption and Prices

3.1 Price and Tax Trends

Figure 4 shows the price of petrol and diesel in Ireland since 2002 (based on national average retail prices). Broadly, they are stable and move together over time, in most periods diesel is slightly cheaper than petrol. The lower two lines in Figure 4 indicate the tax content of price in each case and the trend is similar.

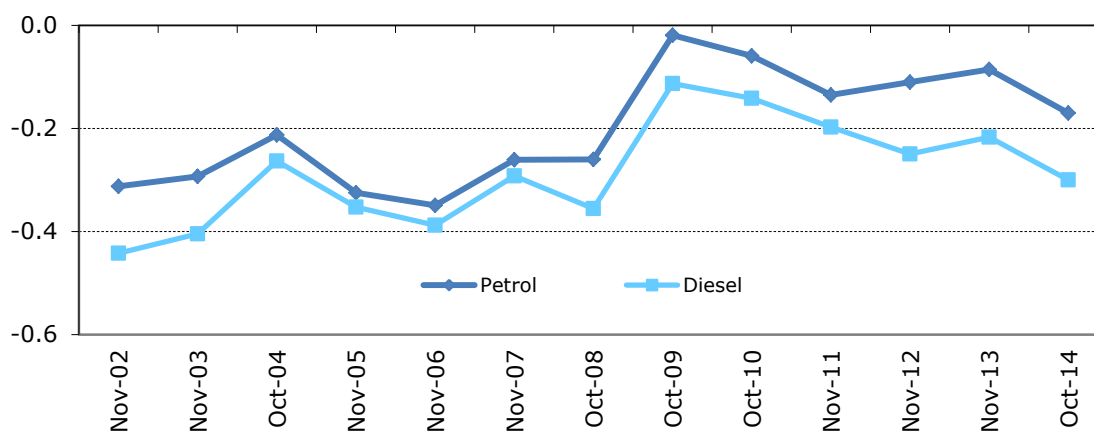
Figure 4: Prices and Tax Content



Source: Authors' analysis of Revenue data. Note: Prices and taxes (Excise and VAT) are cent per litre.

Given the land border between the Republic and Northern Ireland and the potential for cross border purchases, it is also useful to compare prices in both jurisdictions. The price differentials in Figure 5 show that petrol and diesel are consistently cheaper in the Republic and the differences have widened since 2009. Diesel is now about 30 cent per litre cheaper in the Republic. Exchange rate fluctuations influence the differential, as well as changes in prices and taxes in both regions and other supply and demand factors.

Figure 5: Republic / Northern Ireland Price Differential

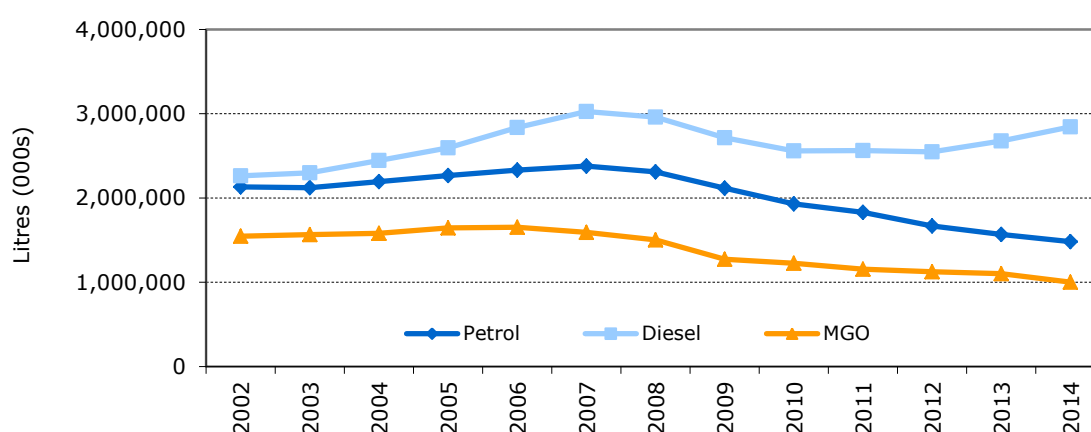


Source: Authors' analysis of Revenue data. Note: Prices in Euro; differential is ROI price less UK price.

3.2 Petrol and Diesel Consumption

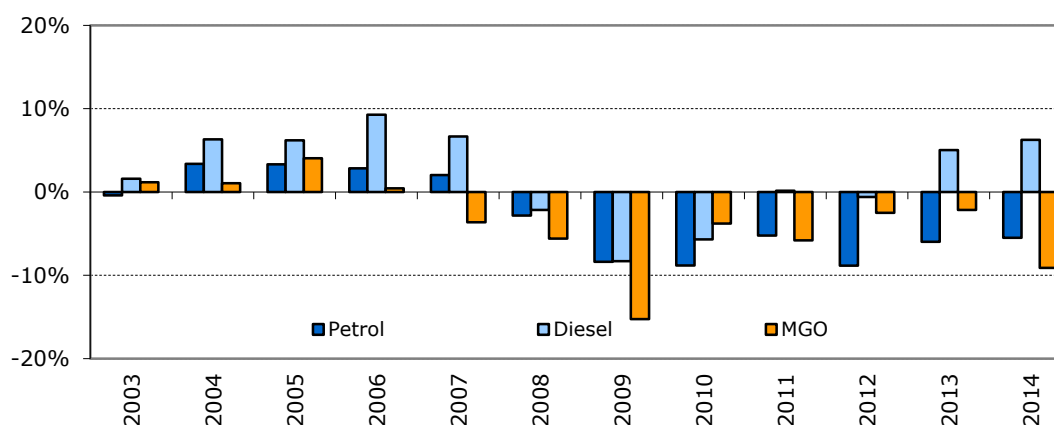
From 2002 to 2006, based on Revenue clearances, diesel consumption in Ireland increased by over 25 per cent. Since the onset of the recession, consumption has fallen by 11.5 per cent since 2007. However, a 5 per cent year-on-year increase is recorded in 2013 and 2014 is up a further 6.3 per cent (provisional). As shown in Figures 6 and 7, changes in petrol and MGO remain in negative territory in 2013 and provisional data show the same pattern continuing in 2014 also. MGO is down 33.3 per cent since 2006.

Figure 6: Consumption Levels



Source: Authors' analysis of Revenue data. Note: 2014 is provisional.

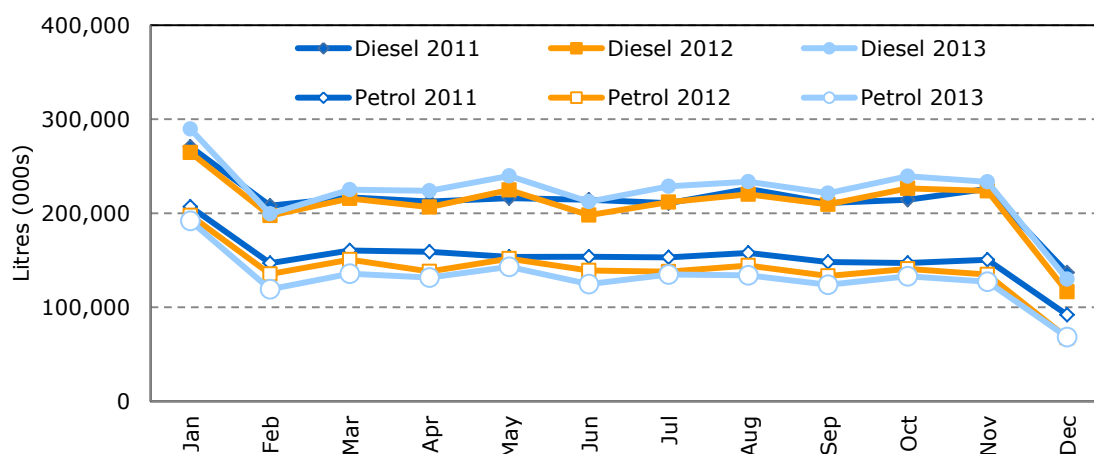
Figure 7: Annual Change in Consumption



Source: Authors' analysis of Revenue data. Note: 2014 is provisional.

Figure 8 examines petrol and diesel consumption by month over the last three years. Diesel remains fairly stable, with increases in 2013 (and in 2014), but petrol consumption is lower year-on-year. Both feature some degree of monthly and seasonal variation.

Figure 8: Monthly Diesel and Petrol Consumption

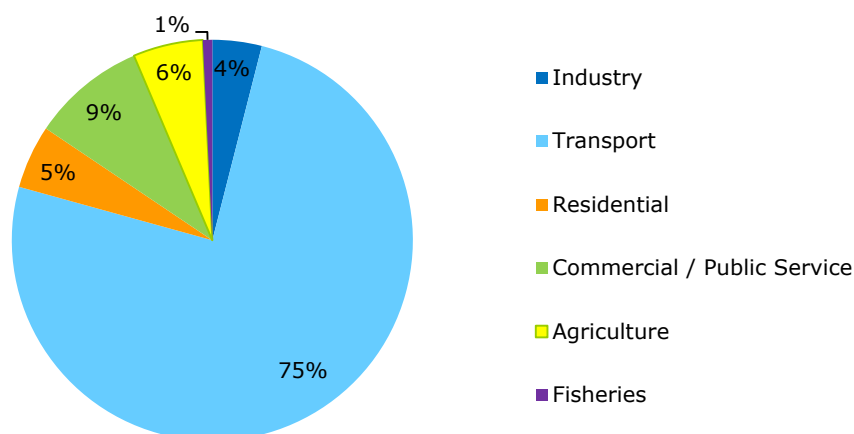


Source: Authors' analysis of Revenue data.

The analysis in Figures 6 through 8 is based on Revenue data on duty paid quantities of oil (i.e., clearances from tax warehouses). For comparison, it is useful to look at other sources that may also capture non-duty paid consumption. The Sustainable Energy Authority of Ireland (SEAI) produces data on fuel consumption based on surveys.

Figure 9 shows the SEAI consumption of diesel by sector in 2013.⁴ Transport is by far the largest consumer. All categories show continuing decreases since their 2007 peak. The reduction in diesel consumption is 20.0 per cent between 2007 and 2012 overall, compared to 15.8 per cent from the Revenue clearances for the same period.

Figure 9: Diesel Consumption by Sector in 2013

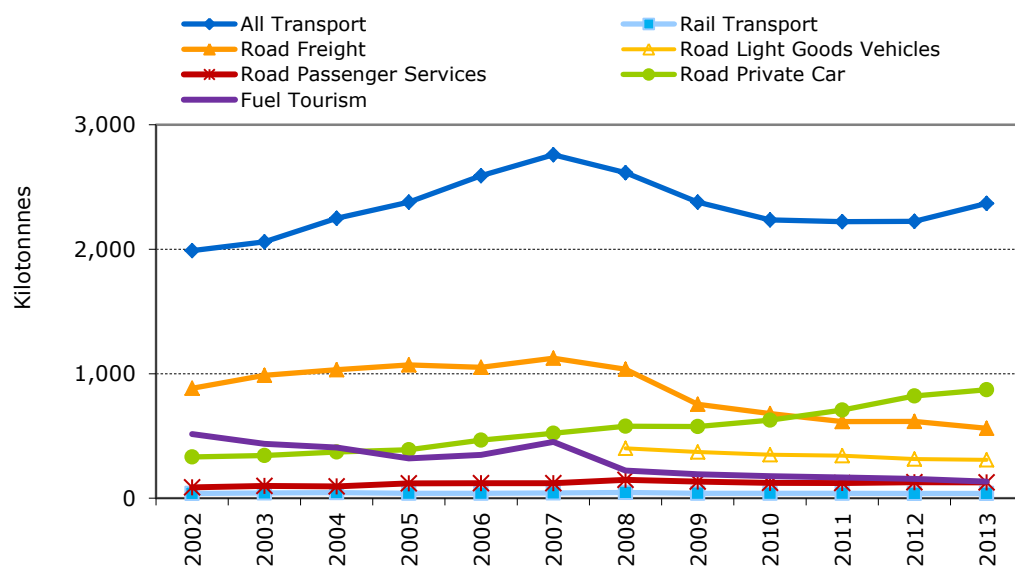


Source: Authors' analysis of SEAI data. Note: Consumption in kilotonne of oil equivalent.

⁴ SEAI report total consumption of Gasoil / diesel / DERV combined. Gasoline (petrol), kerosene and other fuels are reported separately.

The SEAI data provide a breakdown of the change in consumption by type of transport, shown in Figure 10. For the period 2007 to 2013, transport consumption is down 14 per cent but there are divergent trends within this category. Road freight consumption is down 50 per cent while private car road consumption is up 67 per cent.

Figure 10: Diesel Consumption in Transport



Source: Authors' analysis of SEAI data. Notes: "Road Light Goods Vehicles" information is not available prior to 2008; Consumption in kilotonne of oil equivalent.

The analysis above illustrates two important trends in the vehicle market in Ireland in recent years: the severe impact of the recession on road freight and the switch to diesel vehicles (particularly for private cars). From CSO data, annual new vehicle licences in 2013 are down 62 per cent since 2007. For goods vehicles the fall is 76 per cent. However, licences of new diesel cars are 2 per cent higher.⁵

Table 2 confirms the trend in the car market. While the total stock of registered cars has remained at around 1.9 million across the period 2008 to 2012, the share of petrol cars has fallen from 81 per cent to 68 per cent. The reduction in distances travelled by petrol cars is even more severe.

⁵ Data from Northern Ireland suggest a similar increase in diesel vehicles in that jurisdiction.

Table 2: Car Registrations by Fuel Type

Fuel Type	Measure	2008	2009	2010	2011	2012	Change 2008-2012
Petrol	Number of Cars	1,560,021	1,497,081	1,419,790	1,342,433	1,278,509	-18%
	Distance Travelled (km million)	23,750	22,700	20,934	19,371	17,466	-26%
Diesel	Number of Cars	366,772	410,088	459,541	530,392	601,679	64%
	Distance Travelled (km million)	8,754	9,752	10,610	12,027	13,324	52%

Source: Authors' analysis of CSO data.

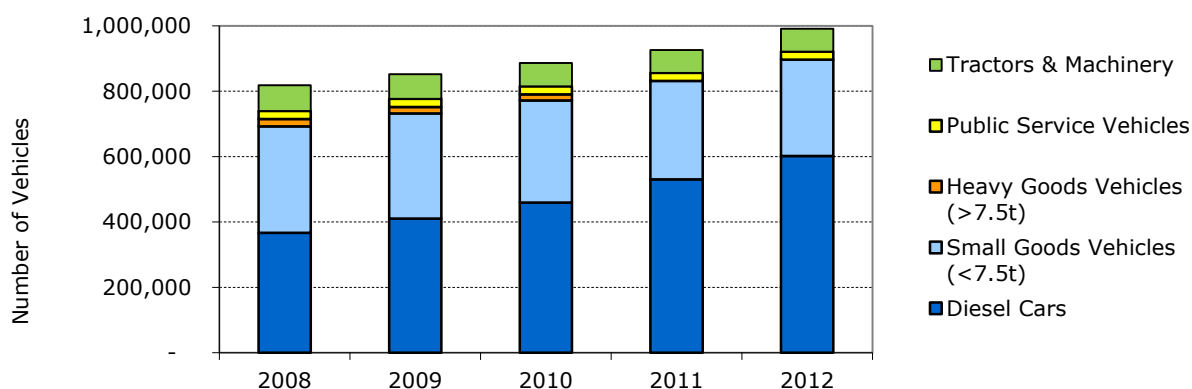
Table 3 shows the distribution of diesel vehicles by type (cars, goods, public service, tractors and machinery) and size (or unladen weight for goods vehicles). The CSO also measures the total distance travelled by each category of vehicles. This, combined with some data and assumptions around fuel efficiency, allows an indicative measure of diesel consumption to be estimated. The results are also shown in Figures 11 and 12.

Table 3: Estimates of Diesel / MGO Consumption by Vehicle Type

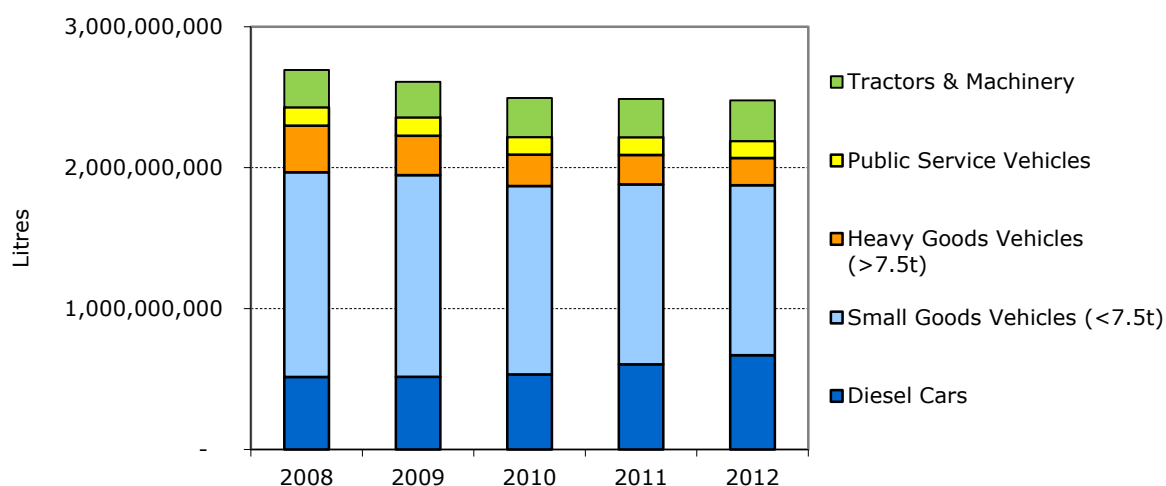
Vehicle Type	2009		2010		2011		2012	
	Number	Diesel Consumed (litres)	Number	Diesel Consumed (litres)	Number	Diesel Consumed (litres)	Number	Diesel Consumed (litres)
Diesel Cars	410,088	515m	459,514	532m	530,392	603m	601,679	668m
Goods Vehicle 0-2 tonnes	255,512	1,087m	246,242	1,009m	236,052	953m	230,445	904m
Goods Vehicle 2-5 tonnes	61,225	314m	61,125	300m	60,638	299m	60,291	280m
Goods Vehicle 5-7.5 tonnes	5,182	28m	4,787	26m	4,458	24m	4,317	21m
Goods Vehicle 7.5-10 tonnes	5,892	49m	5,268	41m	4,873	39m	4,714	37m
Goods Vehicle 10-12.5 tonnes	7,810	88m	6,558	67m	6,031	59m	5,647	53m
Goods Vehicle >12.5 tonnes	9,049	141m	7,798	113m	7,479	110m	7,454	130m
Small PSV	16,240	29m	16,096	28m	15,933	30m	16,110	28m
Large PSV	8,679	101m	8,373	96m	8,184	95m	8,223	92m
Tractors & Machinery	75,512	252m	71,547	278m	70,010	271m	69,852	288m
Other Vehicles & Rail	27,862	146m	29,400	134m	30,558	121m	31,334	111m
Total	883,051	2,755m	916,708	2,629m	974,608	2,609m	1,040,066	2,599m

Source: Authors' analysis of data from Revenue, SEAI, CSO data (vehicle number and travel distances) and UK Department of Transport (fuel efficiency estimates). Note: "Rail" is based on figures from internal Revenue data, these are indicative and incorporated together with "Other Vehicles" to protect confidentiality.

A full set of CSO data for 2013 are not yet available, therefore the Table 3 analysis cannot currently be updated to reflect the year. However, some preliminary data for 2013 from the CSO indicate that freight activity continued to decrease in that year.

Figure 11: Diesel / MGO Vehicles

Source: Authors' analysis of CSO, SEAI and UK Department of Transport data.

Figure 12: Estimated Diesel / MGO Consumption by Vehicle Type

Source: Authors' analysis of CSO, SEAI and UK Department of Transport data. Note: "Other Vehicles & Rail" are excluded due to their small estimated consumption.

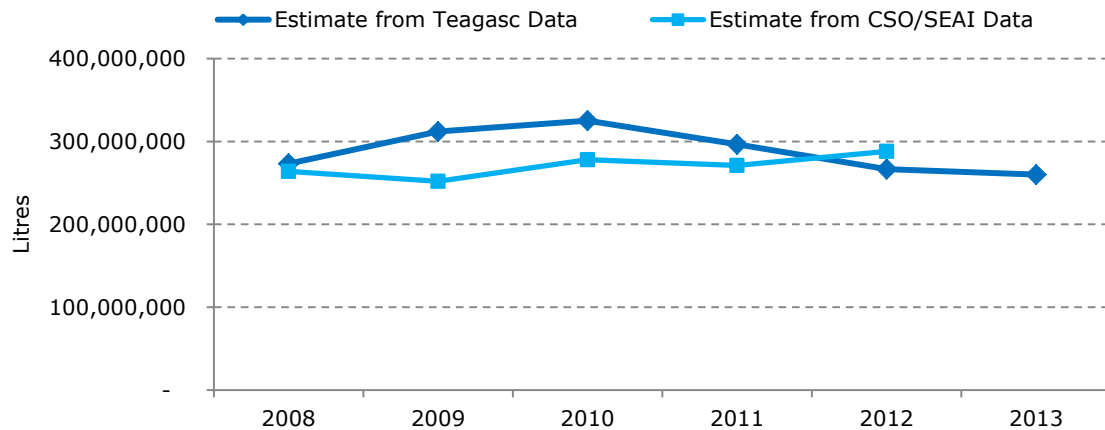
The analysis suggests that while heavy goods vehicles (defined as those with an unladen weight greater than 7.5 tonnes) are substantial consumers of diesel, their share is relatively low in the total population of diesel vehicles and their numbers declined from 26,900 in 2008 to 17,800 in 2012. For this reason, they appear to account for only around 10 per cent of diesel consumption. Private cars and small goods vehicles account for far greater shares of the stock of diesel vehicles and so also account for much larger proportions of diesel consumption in Ireland.

Given there is an element of estimation in the above calculations, it is useful to benchmark against third party sources where available.

As an example, Figure 13 shows the estimated usage of MGO for tractors and machinery (from Table 3) compared to estimates extrapolated from the National Farm Survey

information provided by Teagasc. While a perfect match would not be expected, the comparison does indicate both sets of estimates are of the same magnitude.

Figure 13: Estimates of Agricultural MGO Consumption



Source: Authors' analysis of CSO, SEAI, UK Department of Transport and Teagasc data. Note: Teagasc figures are based on expenditure on fuel and lubricants for machinery as reported in the NFS survey (car fuel is a separate heading), this is assumed to be entirely on MGO and converted to litres using an average MGO price in each year.

In terms of further validating the Table 3 estimates, it should be noted that Figure 10 (itself extrapolated from survey evidence) indicates consumption of diesel by cars is greater than that by road freight, which is somewhat contradictory to the estimates in Table 3 (albeit based on differing definitions of vehicle types). As Figure 9 shows, there are other significant consumers of diesel beyond the transport sector, which is the focus of the estimates in Table 3. However, much of the consumption in Figure 9 not included in the "Transport" category relates to activities that are also included in the Table 3 analysis (agricultural vehicles for example) and so making the two more comparable.

Overall, it should be recognised that broad assumptions are required in the calculations for the estimates in Table 3 and the analysis is conducted on aggregated data. As such any results should be treated as indicative. However, it can be assumed that the estimates are reasonable given the available evidence.

4 Assessing Recent Developments in the Oil Market

4.1 The Illicit Market in Oils

The oil market is a valuable source of tax revenue for the Irish Exchequer. This importance rose in relative terms given the fall in receipts from other taxes during the recession. However, there is a view that diesel laundering captured a significant share of the oil market in the Republic, in particular during the recession years.

The sale of laundered diesel causes losses to the Exchequer, directly in Excise Duty, VAT and Carbon charges, and indirectly via other taxheads. There are other important consequences, especially the undermining of legitimate businesses.

It is clear that oil laundering is occurring. There were 67 commercial marked oil seizures and 9 laundry marked oil detections in 2013 equating to approximately 875,000 litres of fuel.⁶ About 202,000 litres of oil were seized from 2 laundry detections and 32 commercial premises seizures in 2014.⁷

By its nature, directly observing or even estimating the size of any illicit market is difficult. All methods that purport to estimate the shadow economy or a tax gap are subjective and limited by the data available. For these reasons, Revenue does not measure the shadow economy in Ireland.

As an alternative approach, the analysis in this report assesses trends prior to 2013 when, as noted in the Introduction, Revenue intensified its activity in the oils area, and extrapolates these trends forward into 2013 and 2014. This presents a counterfactual of what may have occurred in the absence of Revenue's actions, against which the 2013 and 2014 outturn can be compared.

4.2 Comparing Consumption and Clearance Trends 2008 to 2012

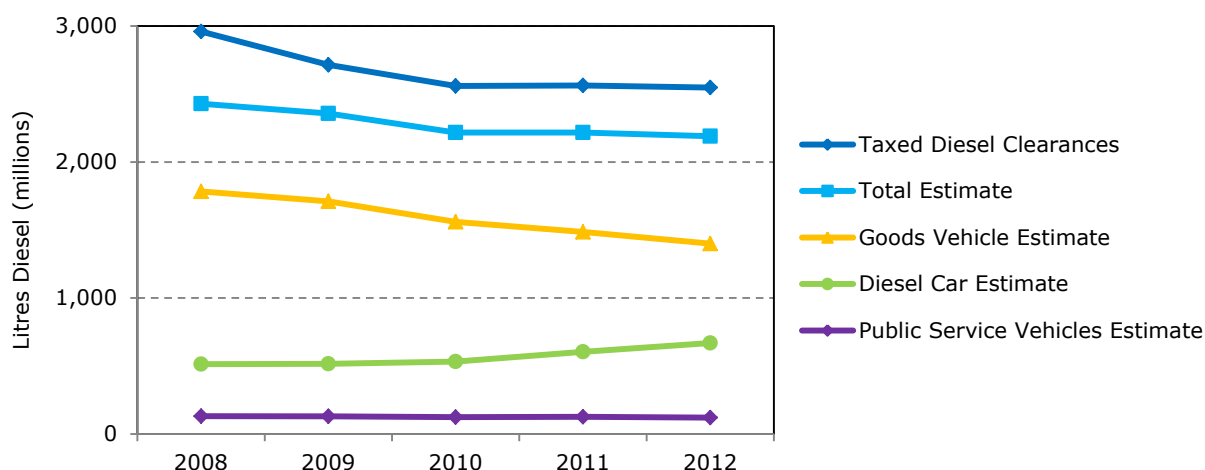
Figure 14 compares the estimated diesel consumption levels (from CSO data primarily) for cars, goods vehicles and public service vehicles to taxed diesel consumption (based on Revenue clearances). Total estimated consumption is below Revenue clearances. While there could be reasons for this, for example foreign vehicles consuming Irish clearances, it should be taken as an indication that estimates of consumption from CSO data are perhaps on the low side.⁸ Nevertheless, the trends over time are informative.

⁶ Revenue, *Headline Results 2013*.

⁷ Revenue, *Headline Results 2014*.

⁸ In addition, as noted in Section 3, these estimates focus on consumption in transport related activities.

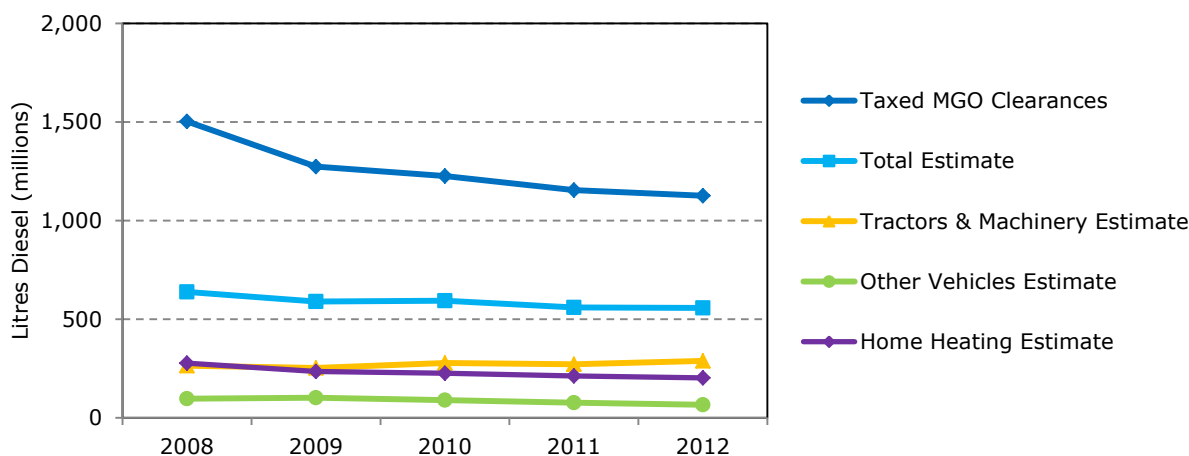
Figure 14: Estimated and Taxed Diesel Consumption Comparison



Source: Authors' analysis of Revenue and CSO data.

Figure 15 compares estimated consumption by tractors and machinery (based primarily on CSO data in Table 3) to MGO clearances. Estimates for home heating use of MGO are also included.⁹ These are simple comparisons, it should not be expected that tractor and machinery estimated consumption would exactly match total MGO clearances. However, the difference between clearances and estimated consumption is large. MGO is the source produce for laundered diesel and the scale of this difference could be indicative of product being sourced for the illicit market.

Figure 15: Estimated and Taxed MGO Consumption Comparison



Source: Authors' analysis of Revenue and CSO data.

⁹ While petroleum products contribute a significant share of residential energy consumption, Kerosene, rather than MGO, accounts for the majority of this according to SEAI data.

4.3 Developments in 2013 and 2014

It is clear from anecdotal evidence and seizures that laundered diesel consumption is an issue in the Irish market. Despite this, taxed diesel consumption (warehouse clearances) appears stable or increasing since 2010.

As discussed in Section 3, in recent years two opposing pressures are affecting diesel consumption in Ireland, substantial reductions in demand from the road freight sector (due to the economic downturn) and increases from a significant (and ongoing) shift from petrol to diesel in the car market.

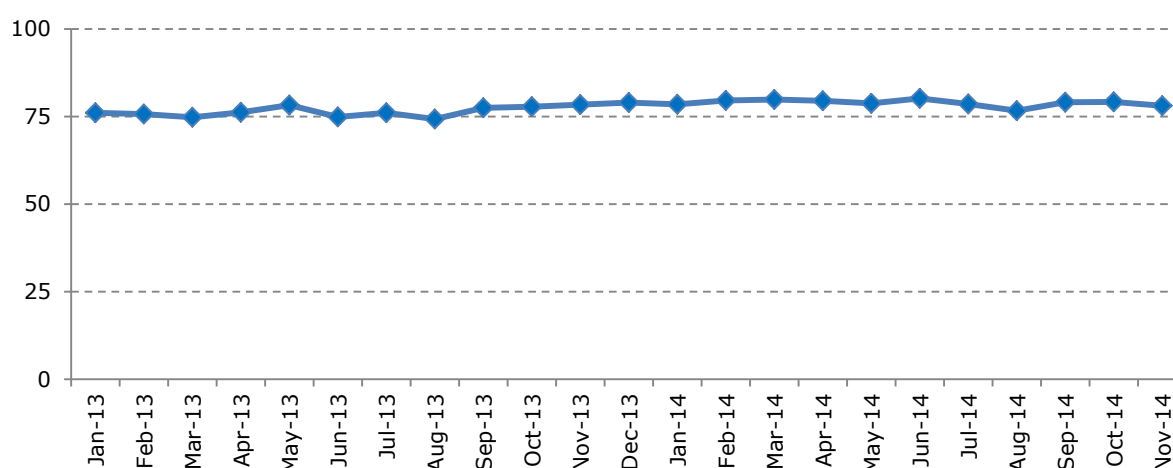
These conflicting impacts may be part of the reason why diesel clearances do not show a clear impact of illicit consumption. However, a number of recent Revenue initiatives have also changed behaviour significantly in the oil market.

Licensing requirements for mineral oils traders were strengthened from mid-2012 onwards. The monthly ROM1 was introduced from 1st January 2013. New reckless trading provisions were implemented from December 2013. Also in 2013, Diesel Rebate Scheme (DRS) came into effect for purchases made on or after 1st July 2013.¹⁰

Estimated diesel consumption is decreasing or stable in recent years (Figure 14, from CSO data up to 2012). Furthermore, SEAI data for 2013 indicate only a 0.7 per cent increase in diesel consumption in the year, despite the upturn in the economy in this period.¹¹ On a volume basis, retail sales of automotive fuel, as measured by the CSO (Figure 16), also show only very moderate increases through 2013 and 2014.

¹⁰ The effect of DRS on diesel clearances is not examined further in this report. At a macro level, as shown in Figure 8, patterns in diesel clearances seem broadly unchanged compared to the previous year post-July. Data from CSO, that may allow analysis of consumption by vehicle type, are not yet available for 2013.

¹¹ Within this total diesel figure, the SEAI data suggest diesel consumption in transport rose by 6 per cent in 2013 but this is driven by a rise in "Transport – unspecified (excluding road, rail and aviation)" and therefore the source of this change is unclear.

Figure 16: Index of Retail Sales of Automotive Fuel

Source: Authors' analysis of CSO data. Note: Seasonally adjusted volume of retail sales.

Against these indications of broadly stable diesel consumption, Revenue clearances of diesel are up 5 per cent and 6.3 per cent in 2013 and 2014 respectively, as shown in Figure 7 above. Petrol is down about 6 per cent in both years. MGO clearances continue their downward trend, falling 2 per cent in 2013 and accelerating to 9 per cent in 2014.

Diesel clearances in 2013 and 2014 are increasing strongly, above what might be expected from economic conditions, and this suggests a persuasive argument that the Revenue initiatives to improve compliance in the sector have materially impacted on the consumption of illicit diesel and subsequently boosted legitimate clearances.

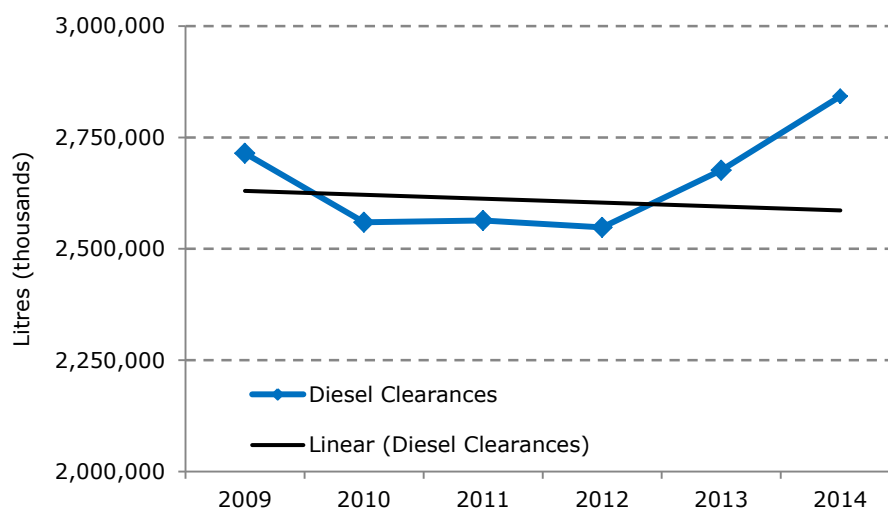
Clearances rose 5 per cent in 2013 and 6.3 per cent in 2014. The end year 2014 diesel clearances are 2.84 billion litres. Given clearances are stable in 2010 through 2012, it could be assumed that all of the increase on 2012 levels (2.55 billion litres, a rise of 295 million litres) is due to the ROM1 introduction and coordinated compliance activities.

As noted above, the SEAI data for 2013 suggest diesel consumption increase by around 1 per cent in 2013 – likely due to improving economic conditions. If 1 per cent increases on the 2012 levels were assumed in both 2013 and 2014, the expected clearances in 2014 would be 2.60 billion litres. The actual clearances in 2014 (2.84 billion) exceeded this by approximately 245 million litres.

An alternative approach, shown in Figure 17, is to consider that the "Linear" trend line, calculating the expected trend from the previous four years' of data. This shows the expected clearances in 2014, if patterns in preceding years continued, of 2.59 billion litres.

This would attribute a smaller increase, around 255 million litres, to Revenue's compliance initiatives since 2013.¹²

Figure 17: Diesel Clearance Projections



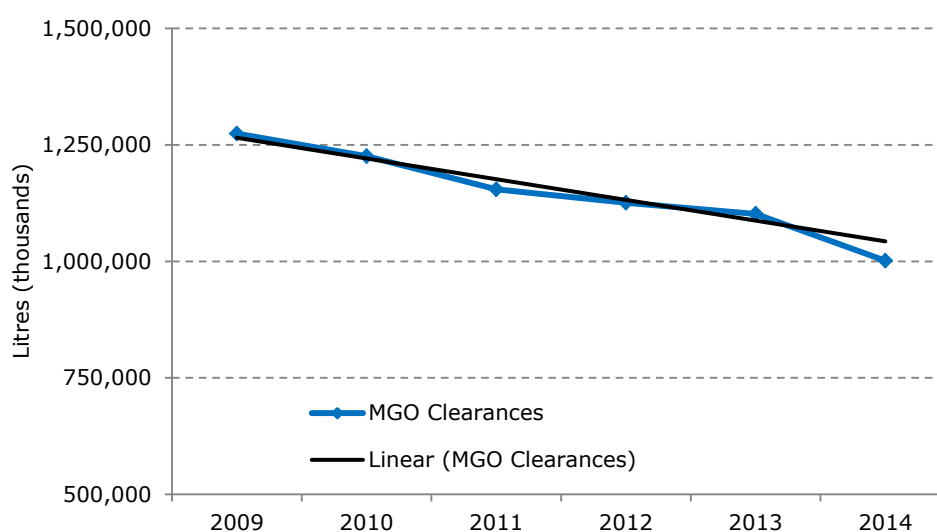
Source: Authors' analysis of Revenue data. Note: 2014 figures are provisional.

Overall, these three estimates suggest that diesel clearances in 2014 are significantly higher than would have been expected, in a range of 245 million to 295 million litres for the year. An additional 245 million to 295 million litres in diesel clearances would represent increased yield in a range of €150 to €200 million in taxes and duties to the Exchequer (the estimate is also dependent on prevailing oil prices).

The pattern of the Revenue diesel clearances appears to have diverged from various other consumption indicators in 2013. Given this coincided with the Revenue initiatives highlighted above to improve compliance in the sector, it is reasonable to assume there may be a relationship between the two.

Similarly for MGO, clearances in 2014 are showing far greater decreases than would be expected from economic indicators. MGO clearances have been decreasing steadily for the past number of years as shown in Figure 18. This trend is stable over 2009 through 2013, an average yearly decrease of 3.5 per cent. The "Linear" trend line indicates the level of MGO clearances expected in 2014 had the existing pattern from previous years continued. Given that current economic conditions have remained relatively stable, it would be expected that these estimated decreases would continue or perhaps stabilise. This would also be in line with estimated MGO consumption (Figure 15).

¹² It should be noted that this calculation is sensitive to the number of back years chosen. For example, using a linear trend based on 2008-2012 produces an increase over 300 million litres. However, given the stability observed in 2010 through 2012 in particular, the preferred estimate is based on 2009 to 2012.

Figure 18: MGO Clearance Projections

Source: Authors' analysis of Revenue data. Note: 2014 figures are provisional.

MGO clearances in 2014 show a year-on-year decrease of 9.1 per cent. Based on the "Linear" trend, expected MGO clearances would equate to approximately 1.043 billion litres. However, actual end 2014 MGO clearances are 1.00 billion litres.

This would represent a difference of 4 per cent or 42 million litres less MGO cleared than expected based on trends in the market prior to 2014. Given the market is otherwise relatively stable, it can reasonably be assumed the decrease has been largely driven by the impact of Revenue's compliance initiatives since early 2013. While the effect was not immediate in 2013 (perhaps due to stockpiling), it suggests less MGO is now being taken out of tax warehouses intended for laundering, in particular as the ROM1 system means that such product is identifiable when it leaves the legitimate supply chain.

Also supportive of this finding are changes in Ultra Low Sulphur MGO (ULSMGO) clearances. ULSMGO remains the "product of choice" for diesel laundering. Clearance data are not readily available to distinguish ULSMGO from other MGO but internal Revenue figures for 2013 and 2014 show stark decreases in ULSMGO clearances in relative terms.¹³

In 2013 ULSMGO clearances represent 40 per cent of total MGO (both in the first six months and at year end). At end June 2014, ULSMGO clearances account for only 15 per cent of MGO. This is a year-on-year drop of 66 per cent or 159 million litres.

Another factor to consider in the changes in diesel and MGO clearances is the role of the

¹³ In addition, in year-on-year terms, to mid-2014 there has been a 54 per cent decrease in the quantity of sludge finds compared to 2013, also indicative of reduced diesel laundering.

Northern Irish market. Given that diesel is cheaper in the Republic compared to the North, increased purchases of diesel cross border may be a factor in the increase in diesel clearances. Likewise, decreasing MGO clearances in the Republic could reflect a switch in product being sourced for laundering in the North instead (where there is not currently an equivalent of the ROM1 system).

Data on cross border purchases are limited, so their impact on clearances is difficult to measure. However, price differentials are relatively stable (as shown in Figure 5) and have changed little in 2013 and 2014. Furthermore, the SEAI data include an estimate of the level of diesel consumption in the transport sector from fuel tourism (shown in Figure 10). The accuracy of the estimate is uncertain, given its nature it is difficult to observe, but the trend is clear with fuel tourism decreasing consistently since 2008, with no evidence of any effect from changes in the price differential over the same period.

From the available data, it does not appear that Northern Ireland is a significant factor in the changes in diesel and MGO clearances in the Republic in recent years. However, further research or enhanced data is required to confirm this.

5 Conclusion

Oil consumption represents an important source of tax revenue for the Irish Exchequer. There is a view that diesel laundering and illicit consumption had become significant, particularly during the recession.

The diesel market is in a state of transition, suffering reductions in demand from the freight sector, while simultaneously seeing increases from an important (and ongoing) shift from petrol to diesel in the car market. These trends may be disguising the impact of laundered diesel on overall consumption data.

Notwithstanding the estimation challenges, the analysis in Section 4 shows that a series of Revenue compliance initiatives from mid-2012 onwards are followed by significant changes in the patterns of MGO and diesel clearances. Diesel clearances rose 5 per cent in 2013 and 6.3 per cent in 2014. There is also show a decrease of 9.1 per cent in MGO clearances in 2014.

Extrapolating trends pre-2013 against current clearances suggests that Revenue compliance initiatives may be responsible for lowering MGO clearances by around 40 million litres in 2014 (product that could otherwise have been destined for being laundered) and increases of legitimate diesel clearances in a range between 245 million to 295 million litres per annum.

It is difficult to know what would have occurred in the absence of Revenue's actions in recent years or to what extent the changes in the market can be directly attributed to these initiatives. It is likely that improving economic conditions and the shift to diesel in cars explain some of the uplift observed but the modelling approach reflects that, based on third party sources (SEAI data), diesel consumption in 2013 was broadly unchanged. Given diesel is cheaper in the Republic compared to the North, increased purchases of diesel cross border may be a factor too. However, price differentials are relatively stable.

The Northern Irish market may also be important in the context of the sharp falls in MGO clearances in the Republic in 2014. Publicly available data are limited but smugglers could be sourcing increased product for laundering in that jurisdiction.

Despite these caveats the Revenue compliance initiatives, at the very least, coincided with significant changes in the oil market and it is reasonable to assume a causal relationship between the two. In addition, cross border movements of ULSMGO have decreased and

Revenue engagement with trade representative organisations as well as individual traders over the last two years is positive and indicates that road diesel sales are increasing in line with clearance trends.

A substantial proportion of the increase in diesel clearances in 2013 and 2014 is likely due to the successful implementation of Revenue's compliance strategy in oils.

With regard to further research to extend the analysis in this report, there are a number of areas that could be assessed.

This research is primarily based on data for 2013 or earlier, with limited updated information for 2014 where available. Ongoing monitoring will be required to review clearances in the coming months to see if patterns from 2013 and 2014 continue.

A new marker to prevent laundering of MGO will be introduced from April 2015 onwards, with a similar product being introduced at the same time in the UK. This may have important impacts on the oil market and both diesel and MGO clearances.

Operational data generated from the ROM1 system continue to provide cases for Revenue compliance interventions and information will be gathered from the outcomes of these. The ROM1 data will be further assessed to evaluate whether the data at retail forecourt level allow for spatial analysis of demand patterns (based on surrounding economic and demographic factors), including assessing the impact of fuel tourism in border areas. This will be particularly important to understand linkages between oil markets in the Republic and Northern Ireland, and the extent to which changes in one market impact the other.

The update of the CSO data for 2013 will provide a richer source of information on the oil market in that year. These data provide the detailed information for estimates of diesel consumption by vehicle type (as shown in Table 3 above) and, when available, may assist with a deeper understanding of the changes in the oil market in 2013. It may also allow further analysis of the impact of the Diesel Rebate Scheme.