



Analysis of the Irish Retail Motor Fuel Market

November 2022



Coimisiún um
Iomaíocht agus
Cosaint Tomhaltóirí

Competition and
Consumer Protection
Commission

A large, abstract graphic on the right side of the page. It consists of several overlapping, semi-circular shapes in various colors: a large light green shape at the top, a grey shape below it, and several overlapping orange and brown shapes at the bottom. The shapes are layered, creating a sense of depth and movement.

1. Introduction

The Competition and Consumer Protection Commission (CCPC) is the statutory body responsible for promoting compliance with, and enforcing, competition and consumer protection law in Ireland. The CCPC strives to improve consumer welfare across the economy by enforcing over 40 legislative instruments, including product safety legislation.

In relation to cost of living issues, our mandate is to ensure that competing businesses set prices independently, that prices are accurately and honestly displayed, and to provide advice if we consider that markets are not operating effectively in the interests of consumers.

Executive Summary

- The CCPC conducted an in-depth analysis of the retail motor fuel market with particular focus on the 19-day period between 2 and 20 March 2022.
- Data relating to over 200 complaint stations¹ was analysed. In addition, a wider analysis of the market was undertaken using a significant sample size (50% of service stations in the State).
- Higher international prices drove increases in prices at the pump in the period leading up to the excise cut rather than a lack of competition.
- No indications of co-ordinated pricing behaviour by complaint stations in the data during the period of analysis.
- Analysis showed that across multiple locations there was price difference and competition between stations.
- Rules on visibility of pricing and price transparency were well enforced and obeyed by the market.
- International evidence indicates that excise cuts take time to work through a market and are often not seen immediately. This is reflected in Ireland as this analysis shows that the excise cut was largely passed on to consumers, albeit not instantly.
- Careful communication of the expectations and market realities is required when introducing such measures.

2. Background and overview of complaints

Petrol and diesel retail prices rose sharply in early 2022 putting pressure on consumers at the petrol pump. On 9 March 2022, the Government announced that there would be a “temporary reduction” of excise duty charged on petrol and diesel. This reduction took effect from midnight 10 March 2022¹ and amounted to a 20 cent and 15 cent per litre reduction (inclusive of VAT)¹¹ on petrol and diesel respectively.²

¹ For this analysis, ‘complaint station’ refers to contacts to the CCPC regarding over 200 service stations in the State.

¹¹ In Budget 2023 excise rate reductions of 16 cents per litre on diesel and 21 cents per litre on petrol (VAT inclusive) were extended until 28 February 2023.

The CCPC received over 200 complaints about the retail motor fuel market following the introduction of the excise cuts. There were a variety of issues raised within the complaints and we have categorised them as follows:

- Lack of competition contributing to higher prices;
- Service stations in the same area co-ordinating to charge the same retail price;
- Price of petrol and diesel not clearly and/or correctly displayed to the public;
- Co-ordinated behaviour amongst service stations in relation to passing on the excise cut;
- Service stations raising prices in anticipation of the excise cut, so that they could reduce prices once the cut was implemented and capture the benefit of the cut for themselves;
- The excise cut not passed on immediately and in full to consumers.

3. Approach to analysis

The CCPC conducted an analysis of the retail motor fuel market with particular focus on the 19-day period between 2 and 20 March 2022.

In April 2022, the CCPC requested pricing and operational information from seven of the main fuel companies operating in the retail motor fuel market about their company-owned, company-operated service stations. These companies are Circle K, Applegreen, Maxol, Top Oil^{III}, Texaco^{IV}, DCC^V and Greenergy^{VI}. The CCPC also asked approximately 800 dealer-owned, dealer-operated service stations for the same pricing and operational information. Relevant information was received for all ‘*complaint stations*’^{VII}. Overall the CCPC received viable information relating to 714 service stations, approximately 50% of service stations^{VIII} in the State.

In addition to the analysis undertaken, the CCPC carried out market surveillance on 277 service stations across 15 counties between 12 March and 4 April 2022. This was to ensure the road side displays showed the price for fuel and that it was legible and visible from the side of the road nearest to the premises. The CCPC also inspected prices on the fuel pumps to ensure the pump price matched the price on the road side display.

The remainder of the report is structured as follows:

- **Overview of the motor fuel market** provides a short background on how the market works, who the main players are and how the price to consumers is formed;

^{III} Owned by Irving.

^{IV} Owned by Valero.

^V Retailers as Certa and Emo.

^{VI} Retailers as Inver and Amber.

^{VII} For this analysis, ‘complaint station’ refers to contacts to the CCPC regarding over 200 service stations in the State.

^{VIII} In excess of 30% is considered to be a strong sample size (99% confidence interval).

- **Review of complaints relating to a lack of competition contributing to prices** analyses market concentration, in terms of number of stations and volume of sales, at a local level;
- **Review of complaints regarding service stations in the same area charging the same or similar prices** outlines the findings from the radius analysis of complaint stations and examines price variability across the wider market;
- **Review of complaints regarding retail prices not being clearly and/or correctly displayed to the public** provides an overview of the inspection work undertaken by the CCPC;
- **Review of complaints relating to service stations failing to pass on the excise cut to consumers** gives an overview of findings relating to: (i) co-ordination by service stations in passing on the excise cut; (ii) higher prices in advance of the excise cut; (iii) the extent to which the excise cut was passed on to consumers and; (iv) expectations relating to pass-through^{ix}.
- **Summary** recaps the key findings.

4. Overview of the motor fuel market

The main ownership structures^x of Irish retail service stations are:

- **Company owned, Company operated ('COCO')** – Owned and operated by a fuel company.
- **Dealer owned, Dealer operated ('DODO')** – Owned and operated by an independent dealer who purchases fuel from a fuel company.

The fuel that is sold in the various service stations across Ireland enters the market through a number of terminals^{xi} which are located around the country (including one refinery^{xii}) and can be supplied directly from these terminals or through company owned depots.^{xiii} A number of the fuel companies included in this analysis are involved in the operation of this supply chain within the country (through their own company owned depots) and into the country (through their ownership of fuel terminals and a refinery). Through these depots and terminals, these fuel companies may import and supply fuel to their own service station locations and to other service stations.^{xiv}

There are currently five terminals importing refined fuel products in the State:³

- **TOP Terminal**, Dublin port, is owned by Irving⁴
- **Joint Fuels Terminal**, Dublin port, is operated by Valero and jointly owned by Valero⁵ and Applegreen⁶
- **Circle K Terminal**, Dublin port, owned by Circle K Ireland Energy Group Limited
- **Foynes Terminal**, Limerick, owned by Atlantic Fuel Supply Company,⁷ which is jointly owned by Greenergy (Inver)⁸ and East Cork Oil, and operated by Inver⁹
- **Enwest Terminal**, Galway, operated by Circle K¹⁰ and owned by Edwards Holdings

^{ix} The extent to which wholesale price changes (inclusive of taxes) are “passed through” to retail prices

^x A small number of service stations operate under a CoDo (Owned by a fuel company, operated by an independent dealer) and DoCo (Owned by independent dealers but receive fuel on consignment from companies) structures.

^{xi} A terminal is a fuel storage and distribution facility which is supplied by motor vehicle, pipeline or marine vessel and from which motor fuels may be removed at a rack.

^{xii} A refinery is an industrial plant that refines crude oil into petroleum products such as diesel, gasoline, and heating oils.

^{xiii} A depot is a place used for the bulk storage for wholesale distribution of petrol, oil, petroleum or other inflammable liquid.

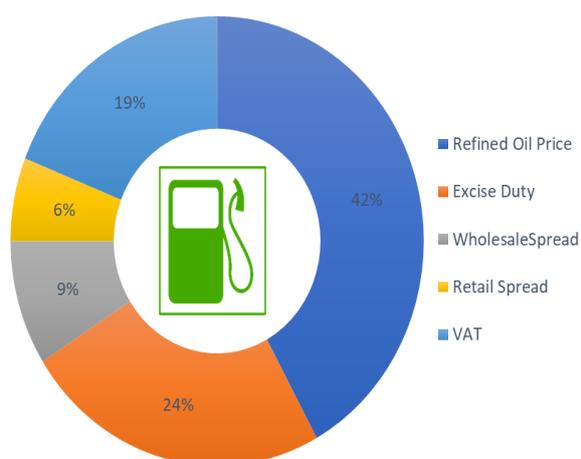
^{xiv} CoCo service stations can also be supplied by fuel companies other than its parent company

Dublin Port has the “largest throughput capacity, at over 100,000 tonnes of refined product per week”.¹¹ According to the Sustainable Energy Authority of Ireland, Dublin port capacity is “approximately one-third of the total throughput capacity of all of the facilities on the island of Ireland” and it “supplies approximately half of the Irish market”.¹² There are also a number of terminals in Northern Ireland, which may supply fuel to service stations in the State.^{xv} Some crude oil products are imported into the Irish State and refined at Whitegate refinery in Cork, which is owned by Irving.¹³

Ireland’s terminals are important entry points for fuel into the retail fuel market as there is only a small domestic production of biofuel on the island and Ireland imports the majority of its oil supply. Over time, the amount of oil imported and the countries of origin for Ireland’s oil supply has varied, however the UK and USA remain the main source for refined and crude products imports respectively. As such, Ireland is particularly vulnerable to fluctuations in international prices as approximately 60-70% of refined products are imported^{xvi}.

The retail price of a litre of petrol and diesel has several components as shown below in figure 1.

Figure 1: Retail Price* components of a litre of petrol



- Refined oil price is the spot price dictated by the international market (Platts Price Assessment).
- Excise dutyⁱ is charged at the point at which fuel leaves refineries or terminals.
- Wholesale spread is the difference between the price of refined oil entering the terminal and the wholesale price.
- Retail spread is the difference between the wholesale price that services stations pay for the product and the price at which they sell to the consumer, less VAT.
- VAT rate of 23% is added at the end point of sale to consumers.

*based on average price as at the end of March 2022 (Image source: CCPC)

It is important to note that a number of factors can influence the retail price of petrol and diesel at any given time. These include:

- (i) International price of crude oil/refined oil^{xvii};
- (ii) Exchange rate^{xviii};

^{xv} Northern Ireland terminals include: Exolum Terminal; Cloghan Point Oil Terminal; Derry Oil Terminal; Puma Energy Terminal; Valero Terminal.

^{xvi} Whitegate refinery supplies 30-40%.

^{xvii} Refined prices sourced from Platts and Argus Media.

^{xviii} The strength of the US dollar over the Euro between 2 and 20 March 2022 is relevant as oil is priced in US dollars. Changes in exchange rate will impact prices at the pump in Ireland. Ireland is heavily dependent on imports of crude and refined oil with approximately 74% of its crude oil supply from the US and 70% of refined product (diesel) from UK.

- (iii) Demand side factors (e.g. post Covid-19 recovery); and,
- (iv) Supply side factors (e.g. Russia’s invasion of Ukraine; post Covid-19 capacity issues with refineries worldwide).

Ireland is particularly exposed to changes in international refined prices due to our dependency on imports. Factors that generally influence pricing decisions across stations include: the wholesale price of fuel currently in stock (including the cost of delivery, handling fees and temperature gains or losses), variable overheads, daily/weekly volumes sold compared to target and margins realised compared to target. Importantly, retailers also set prices based on what other service stations in the local area are charging, with some choosing to price similar or undercut their competitors. Lower prices are generally seen in areas where there are a higher number of competitors.

5. Review of complaints about a lack of competition in the retail motor fuel market contributing to higher prices

Analysis shows the retail motor fuel market does not demonstrate significant competition problems

In order to consider whether there might be fundamental competition issues within a market the CCPC applies a number of tools. One of these is to look at market concentration^{xix}. Where a market is highly concentrated with few players competing against each other, this might be an indication that price competition is not strong and companies in such an industry may have the power to increase prices without the fear that competitors will react and take significant customer share away from them.

The CCPC’s analysis shows that 36% of the service stations in Ireland are owned and operated by the following fuel companies: Circle K (13%), Applegreen (10%), Maxol (6%), Top Oil (3%), DCC (3%), and Greenergy (1%). 64% of fuel stations are owned and operated by small traders or independent brands. However, the branded fuel companies tend to operate stations with larger sales and our analysis shows that the seven fuel companies shared approximately 66% of nationwide retail sales volume during 2 to 20 March 2022.

The Herfindahl-Hirschmann Index (HHI) is a measure of the competitiveness of an industry in terms of the market concentration of its participants.^{xx} Competition takes place at the local level in the retail motor fuel market. As such, we calculated the HHI for each county (see figure 2)^{xxi}. All counties with the exception of Dublin fall into the ‘competitive’ HHI category (below 1,500) in relation to number of

^{xix} Market concentration measures the extent to which market shares are concentrated between a small number of firms.

^{xx} Higher values of the index indicate higher market concentration and monopoly power as well as decreased competitiveness. A market with an HHI of less than 1,500 is considered a competitive marketplace, an HHI of 1,500 to 2,500 is moderately concentrated, and an HHI of 2,500 or greater is highly concentrated.

^{xxi} Only CoCo stations are included in HHI as fuel companies have no control over the retail price set by DoDo stations in its wider network.

stations per county. Dublin is classed as ‘moderately competitive’, largely as a result of the high number of CoCo stations active in this market in comparison to DoDo stations.

Figure 2: Retail Motor Fuel Market Concentration (number of stations per county)

	HHI (All Stations)	HHI (Volume of Retail Sales for stations included in analysis) - Unleaded	HHI (Volume of Retail Sales for stations included in the analysis) - Diesel	HHI (Volume of Retail Sales for stations included in analysis - petrol and diesel)
Munster				
Clare	100	963	1000	969
Cork	337	1726	1965	1870
Kerry	158	1696	1535	1554
Limerick	208	1051	1089	1070
Tipperary	212	1063	945	957
Waterford	843	1500	2794	2551
Connacht				
Galway	108	871	2837	1992
Leitrim	123	5421	35	53
Mayo	37	550	1868	1374
Roscommon	15	148	474	344
Sligo	247	2619	2420	2461
Leinster				
Carlow	297	2485	3163	2978
Kildare	542	2661	2475	2419
Kilkenny	230	3219	3024	3058
Offaly	226	2263	1454	1584
Louth	488	2173	2449	2372
Longford	39	320	516	473
Meath	554	3641	2930	3058
Laois	480	2259	2264	2067
Westmeath	130	1671	2335	2165
Wexford	227	1495	1410	1400
Wicklow	1230	3592	3636	3617
Dublin	2371	3582	3921	3767
Border				
Cavan	39	422	302	314
Donegal	22	477	352	377
Monaghan	78	1370	1897	1800
National	303	1306	2108	2093

Note: Green <1500; Orange 1500–2000; Purple > 2000

The analysis also produced a short-term snapshot of market concentration in terms of retail volume sales. In instances where sales were concentrated amongst one or two fuel companies in a particular location, the data showed that those companies were the most competitively priced in the local area during the period of analysis. This is consistent with a market where consumers can and do switch easily and where competitors with the lowest prices are rewarded with a significant share of volumes. Conversely it indicates that service stations which have higher prices will see consumers switch their business away if there are alternative options within a reasonable distance.

This combination of relatively low concentration levels, price transparency (with prices being required to be prominently displayed on the roadside), and customers actively switching^{xxii} between stations indicates that overall, the motor fuel market in Ireland does not exhibit characteristics that demonstrate significant or structural competition problems.

^{xxii} Data also shows that consumers delayed purchasing fuel in anticipation of the excise cut.

This analysis looked in very granular detail at retail and wholesale price movements over a short period of time. It required a substantial commitment of resource from the CCPC and also required significant input from the industry in providing data for analysis. Many aspects of the petrol and diesel markets are well understood – both from previous CCPC work and from international experience. Therefore, we would not expect to derive useful additional insights from a more in-depth market study.

The CCPC notes that the Competition and Markets Authority (CMA) in the UK are currently conducting a market study into the functioning of the UK wholesale motor fuel market. This follows from a Road Fuel Review published in July 2022 which found that the retail side of the market was functioning competitively but expressed concerns regarding recent increases in refinery spread.^{xxiii} Findings of this study will be of relevance to the Irish market given our dependency on imports from the UK. The CCPC will therefore engage with the CMA in relation to the outcome of its study.

6. Review of complaints regarding service stations in the same area charging the same or similar prices

There is no indication in the data of co-ordinated pricing behaviour during the period of analysis amongst 'complaint stations'

One of the CCPC's roles is to investigate allegations of anti-competitive behaviour and to determine whether there is sufficient evidence of a breach of competition law to warrant the initiation of enforcement action. If there is evidence suggesting that a breach of the law has occurred or is occurring, the CCPC may initiate an investigation and/or seek remedial action from the parties to bring the conduct to an end. If there is insufficient evidence to suggest that a breach of the law has occurred or is occurring, the CCPC will close its inquiries without affecting the right of complainants from taking private action.

As noted above, a number of the complaints alleged that stations in certain areas appeared to be charging the same price in a manner which could suggest price co-ordination or collusion in the market. In order to prove the existence of a cartel, the CCPC must have tangible proof of an agreement between competitors to coordinate their activity. Information showing that service stations charge similar prices does not, in itself, constitute evidence that a cartel is in existence.

In reviewing the potential for price co-ordination amongst a number of complaint stations around the time of the excise cut on 10 March, the CCPC conducted a radius analysis. The analysis considered fuel

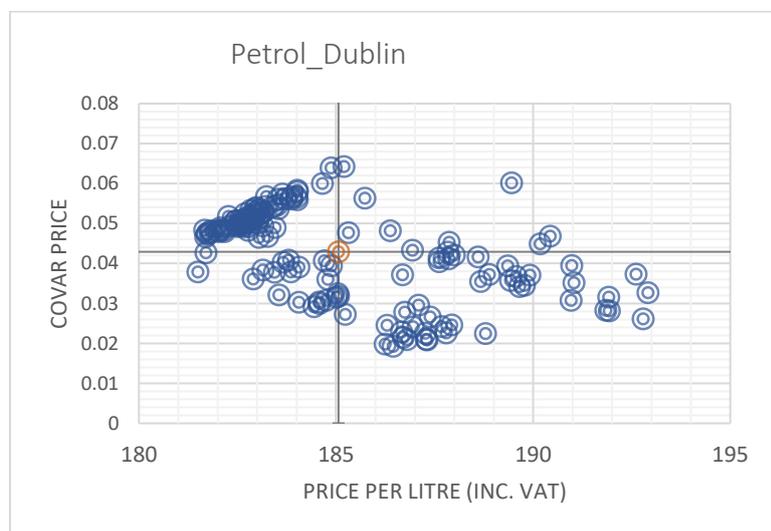
^{xxiii} See, Competition & Markets Authority (2022) *Road Fuel Review*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1089125/Road_fuel_review.pdf.

prices for those service stations neighbouring the complaint stations, within a 3km and 8km radius for urban and rural areas respectively^{xxiv} applying driving distance calculations.

The analysis considered variability^{xxv} in retail pricing and retail spread (i.e. the difference between wholesale and retail price) for stations within a 3km and 8km radius for each complaint station. Overall variation in pricing was observed for the majority of local areas. For example, on 10 March the average retail price in 'Area A' in Mayo ranged from 188c to 208c per litre, while the range in 'Area A' in Clare was 186c to 199c. While a small number of complaint stations had similar pricing for short periods of time (average period of 4 hours) on 9 and 10 March 2022 there was variation in the *retail price* and the *percentage change in retail price* both before and after this period for these stations and their neighbouring stations. Similar pricing over a short period of time is not necessarily indicative of anti-competitive behaviour.

The CCPC also analysed the wider retail fuel market to see if any other stations showed pricing behaviour that might be concerning. The average fuel retail price along with the variability in price for both petrol and diesel were calculated for each service station at a county level (see figure 3 for an example). Any service stations that fell into the lower right-hand quadrant (indicating a higher than average price and a lower than average variability in price) were marked as *outliers*. This is based on the theory that parties involved in co-ordinating their prices are likely to have higher prices and lower levels of price changes compared to the average level in the market. 56 outlier service stations, 8% of the sample, were analysed in greater detail to determine the factors influencing their pricing behaviour.

Figure 3: Retail Price and Covariance Dublin (Petrol)



^{xxiv} The CCPC has previously employed a 3km and 8km radius when considering competition for retail motor fuel in urban and rural areas respectively. An urban/rural method is commonly used in the international literature examining competition in the motor fuel market.

^{xxv} The coefficient of variation (CV) is a measure of relative variability and represents the ratio of the standard deviation to the mean.

The data implied no evidence of co-ordinated pricing behaviour during the period of analysis amongst these stations and instead found that:

- where similar pricing behaviour was evident by two or more service stations in a county, these stations were owned by the same entity.
- higher than average prices and lower than average variation were exhibited by service stations paying a higher than average wholesale price when compared to its competitors.
- higher than average prices and lower than average variation were exhibited for a small number of service stations where the nearest competitor was more than 5km away^{xxvi}.

7. Review of complaints regarding retail prices not being clearly and/or correctly displayed to the public

CCPC inspected service stations in relation to price displays. There was a high level of compliance underlining the effectiveness of the regulations

In addition to the analysis undertaken, the CCPC:

- carried out market surveillance on 277 fuel stations across 15 counties between 12 March and 4 April 2022. While conducting this surveillance, fuel stations were checked to assess compliance with S.I. No. 178/1997 - Retail Prices (Diesel and Petrol) Display Order, 1997 specifically to ensure the road side display showed the price for fuel and that it was legible and visible from the side of the road nearest to the premises. In addition, the CCPC checked prices on the fuel pump to ensure they matched the price on the road side display.
- subsequently conducted a further 15 fuel pricing inspections^{xxvii} in service stations in 2022 as a result of contacts from consumers to the CCPC helpline or through the intelligence received from the earlier market surveillance. Where breaches were identified, appropriate action was taken, including enforcement action. Outcomes from a number of these inspections remain ongoing.

8. Review of complaints relating to service stations failing to pass on the excise cut to consumers

A significant number of the complaints received by the CCPC were about whether service stations had fully passed on the cut in excise duty to consumers. Queries relating to the excise cut are outside the statutory remit of the CCPC, however there are a number of observations that can be gleaned from the analysis conducted.

^{xxvi} Primarily situated in the border region.

^{xxvii} Under its inspection powers as set out in section 36 of the Competition and Consumer Protection Act 2014, the CCPC can conduct inspections when investigating potential breaches of consumer protection legislation.

(i) Co-ordination by service stations in passing on the excise cut

No indication from the data of co-ordination amongst service stations in passing on the excise cut

In relation to service stations passing on the excise cut, the CCPC sought to determine if there was co-ordination amongst service stations regarding the timing and level. The retail spread across service stations in each county was analysed in addition to the time lag of changes in retail price. Significant variation in retail spread was evident at a local level with no indication from the data of co-ordination amongst service stations when passing on the excise cut.

(ii) Higher prices in advance of the excise cut

Based on the analysis conducted, retail price increases before the excise cut on 10 March 2022 were primarily driven by increases in international prices and not gains in retail spread. Average retail spreads observed during the period of analysis were not excessive in comparison to the market's longer term retail spreads.

In the week prior to the excise cut, refined petrol and diesel prices increased by 25% and 34% respectively (crude oil price increased by 13% in same period) which would explain significant increases in forecourt prices.

In addition, we did not see increases in retail spread in the period before the excise cut – if anything we found some evidence of a reduction in retail spread during that time. If service stations had increased their prices in anticipation of the excise cut, we would have observed higher retail spreads in the days before the cut. The data however shows that the retail spread did not contribute to a greater than average portion of retail price during the period of analysis.

(iii) Extent to which excise cut was passed on

Overall our analysis suggests that the excise cut was largely passed on to consumers, albeit not instantly

Analysis of the degree to which the excise cut was passed on to consumers is not straightforward. As discussed in section 4, the final retail price consumers pay is made up of a number of elements including excise and wholesale price, with the wholesale price changing daily for some service stations.

When more than one of these elements change at the same time it is difficult to isolate the influence of one from the other on retail price.

In addition, different retailers can face very different wholesale prices. Due to different supply arrangements, changes in wholesale price occur later for some petrol stations than for others. This timing difference means that some service stations pay higher wholesale prices than their competitors at times when retail prices are rising, and lower wholesale prices when they are falling.

For the majority of service stations, wholesale prices were rising rapidly before the beginning of the analysis period and this continued up to the date of the excise cut. After the excise cut, wholesale prices fell, reflecting both the excise cut and a stabilisation/fall in crude/refined oil prices. Service stations with two-week fixed wholesale prices experienced a similar pattern of change in wholesale prices, but with a delay. This meant that prior to the excise cut, they paid lower wholesale prices than their competitors, but this difference was reversed after the excise cut.

The stock of petrol and diesel also varies across service stations with some holding up to 30 days of stock at any point in time. Other service stations reported a shorter time delay between changes in the cost price being reflected in the retail price as they could only hold a maximum of 5 days' stock on site. Those service stations holding stocks for longer will have seen the benefit of the excise cut at a later stage than those with a faster turnaround of stock.

Given these factors it is not feasible to expect that all petrol stations would have responded to the excise cut by dropping their forecourt prices instantly. However, we have analysed the relationship between international, wholesale and retail prices over the period and a number of different behaviours relating to the excise cut^{xxviii} were evident in the data, whereby service stations:

- reduced retail prices within 1-2 days by an amount equal to or greater than the excise cut
- reduced retail prices within 6-7 days by an amount equal to the excise cut
- reduced retail prices during the period of analysis by amount between 55% and 85% of the excise cut

As previously discussed any analysis of the excise cut being passed on to consumers is complex and the data above could be explained by variation in supply agreements and/or stock held on-site. Further adjustment in prices may also have taken place after 20 March. Therefore, the data above do not provide evidence that service station margins increased as a result of the excise cut. To consider the issues further it is important to study the retail spread^{xxix}, however it should be noted that the retail spread is not a measure of the profits earned by the service station.^{xxx}

The retail spread per litre for petrol and diesel averaged 9c and 8c respectively^{xxxi} between 2 and 20 March 2022. Average retail spread can fluctuate daily with margins as low as 3% (6 cent) and 2% (3

^{xxviii} Computed tax pass-through (price change relative to tax change)

^{xxix} Retail fuel market analysis does not generally include fuel cards. Uncertain time delays associated with the pricing system or margin for operating fuel cards has meant that such sales are complex to capture in pass-through analysis. It is important to note that fuel cards can equate to anything between 25% and 50% of the total fuel sales in a service station.

^{xxx} Other factors such as operating costs need to be considered.

^{xxxi} It is important to note that these figures depict the national average and that our analysis finds that retail spread varies across location, brand and ownership structures (i.e. CoCo/DoDo).

cent) of the total average price of a litre of petrol and diesel respectively recorded for certain days^{xxxii}. We have not found evidence that the excise cut has resulted in an overall increase in the retail spread for the industry. Rather it led to short-term changes in retail spread at different service stations due to the variance in supply agreements discussed above. In addition, we would note that the levels of retail spread we have seen are broadly comparable with those identified in the UK market for the last 12 months at 9p to 11p¹⁴.

Overall our analysis suggests that the excise cut was largely passed through to customers, albeit not instantly.

(iv) Expectations relating to pass-through

Consumers may have assumed that the excise cut would be passed on immediately and in full by all service stations. However, this was not likely to be the case due to market structures as evidenced in our analysis. Variance in pass-through of tax changes across markets has also been addressed in wider economic literature. Careful communication is therefore essential for the introduction of these types of policies to ensure that consumers understand how they benefit.

The available empirical literature exhibits a wide range of pass-through estimates across industries when a cost change occurs. The literature that draws on firm-level data reveals that, even when facing an industry-wide cost shock (e.g. tax change), individual firms may adjust price at different rates.^{xxxiii} There is some evidence of asymmetries in cost pass-through, in particular that prices respond to increases in costs faster than to decreases in cost - often referred to as the 'rocket and feather' effect.^{xxxiv} Chesnes (2016) found evidence of pass-through asymmetry based on spot, rack^{xxxv}, and retail prices in the motor fuel market "though the largest effect is found in the rack (i.e. wholesale) to retail relationship". Bergman and Hansen (2009) examined six episodes of excise tax changes in the beverage market in Denmark. The authors found that taxes are more than fully passed through to consumers when there is a tax hike while there is less than full pass-through when taxes are cut. It is

^{xxxii} Daily retail spread should be interpreted with a degree of caution. Analysis of retail spread over an extended period would be more beneficial in understanding market dynamics.

^{xxxiii} For a detailed discussion see, RBB Economics (2014) *Cost pass-through: theory, measurement, and potential policy implications: A Report prepared for the Office of Fair Trading*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/320912/Cost_Pass-Through_Report.pdf.

^{xxxiv} See, Borenstein, E., De Gregorio, J. and Lee, J.W. (1998) 'How does foreign direct investment affect economic growth?', *Journal of International Economics*, 45, pp.115-135; Johnson, T.C. (2002) 'Rational Momentum Effects', *The Journal of Finance*, 57(2), pp. 585-608; Radchenko, S. (2005) 'Oil price volatility and the asymmetric response of gasoline prices to oil price increases and decreases', *Energy Economics*, 27(5), pp.708-730; Verlinda, J.A. (2008) 'Do rockets rise faster and feathers fall slower in an atmosphere of local market power? Evidence from the retail gasoline market', *The Journal of Industrial Economics*, 56(3), pp.581-612; and Asane-Otoo, E. and Dannemann, B. (2019) 'Rockets and feathers revisited: Asymmetric retail fuel pricing in the era of market transparency', *Oldenburg Discussion Papers in Economics*, No. V-426-19, available at: <https://www.econstor.eu/bitstream/10419/204554/1/1678828084.pdf>.

^{xxxv} Spot refers to price of oil products as dictated by the market. Rack refers to price at which refineries or terminals sell to clients.

noted that elasticity of demand^{xxxvi} determines the extent of pass-through. In a similar manner to the CCPC's analysis, significant variation across brand, ownership (i.e. chain stores or independent) and region is evident in the Danish analysis.

Other studies argue that it is important to differentiate between short-run and long-run^{xxxvii} pass-through as in theory asymmetric pass-through can only arise in the short-run. As such, "a number of studies find that asymmetry disappears over time, though there is no clear finding about how quickly this takes place".¹⁵ Ultimately, there is no consensus in the literature on the 'rocket and feather' effect as findings are different across industries and countries as a result of variance in data and statistical methodologies.^{xxxviii} Several factors are cited across the literature as contributing to the variance in pass-through of a cost change, including: relative demand and exchange rates (Bacon 1991); market power (Borenstein et al. 1997¹⁶; Chesnes 2016); customer reaction and consumer search costs (Johnson 2002¹⁷; Chesnes 2016).

Given the complexity exhibited in the economic literature, communicating the impact of tax changes can be difficult. Variance in the pass-through rate and time was however acknowledged by the Australian government in its *Fuel Excise Factsheet* published as part of Budget 2022-23, where a similar excise cut to Ireland was undertaken. It noted that "the lower fuel excise rate is expected to flow through to most service stations across Australia within a couple of weeks as fuel stock is turned over, though this may take longer in remote areas. In urban areas where fuel stocks are turned over more quickly, fuel subject to the lower excise rate should arrive within a few days".¹⁸ Similar communication would be beneficial for Irish consumers in advance of comparable policy changes in the future.

9. Summary

The CCPC has completed its assessment of all the issues raised. In summary,

- higher prices in the pre-excise cut period were not due to a lack of competition in the motor fuel retail market necessarily and are instead primarily a result of increased international prices.^{xxxix}
- the data implied no indication of co-ordinated pricing behaviour during the period of analysis amongst 'complaint stations'.^{xl}
- the analysis of volumes sold by brands indicates that consumers shopped around and this was made possible by compliance with the price display regulations as observed by the CCPC.
- the analysis shows no indication of co-ordination with regards to the level or timing of the excise cut being passed on.
- price increases in advance of the excise cut were primarily due to increases in international prices and not gains in retail spread. Average retail spreads observed during the period of analysis were not excessive in comparison to the market's longer-term retail spreads.

^{xxxvi} The degree to which demand responds to a change in price.

^{xxxvii} Theoretical concept at which market is in equilibrium and all prices and quantities have fully adjusted.

^{xxxviii} Example, Karagiannis, S., Panagopoulos, Y. and Vlamis, P. (2015) 'Are unleaded gasoline and diesel price adjustments symmetric? A comparison of the four largest EU retail fuel markets', *Economic Modelling*, 48, pp. 281-291.

^{xxxix} Similar finding by AFCA in Austria. See, Austrian Federal Competition Authority (2022) *AFCA published final report on market inquiry into Austrian fuel market*. Available at: <https://www.bwb.gv.at/en/news/detail/afca-publishes-final-report-on-sector-inquiry-into-austrian-fuel-market>.

^{xl} Similar findings from recent fuel market reviews by competition authorities in Austria, Denmark and UK.

- consumers may have assumed that the excise cut would be passed through immediately and in full by all service stations. The economic literature and international experience show that this was unlikely to be the case and our analysis demonstrates that this is what happened during the period in question.
- careful communication is essential for the introduction of these types of policies to ensure that consumers understand how they benefit.

The CCPC gratefully acknowledges the information provided by the public to our Helpline (01 402 5555) in addition to the information provided by relevant Government agencies and industry participants.

The publication of this analysis is without prejudice to any action the CCPC may decide to take on foot of the receipt of any complaint or information relating to an alleged breach of competition or consumer protection law in the retail motor fuel market. The CCPC will consider any such complaint or information on a case-by-case basis.

The CCPC also has available, on its website, a confidential whistleblowing platform where competition concerns can be raised by individuals and/or businesses. We also have a cartel immunity programme, run in conjunction with the Director for Public Prosecutions, available for any cartel participant who wants to come forward and provide evidence.

Appendix A: Glossary

CoCo	Company owned, company operated
Crude Oil	Unrefined petroleum
Depot	A place used for the bulk storage for wholesale distribution of petrol, oil, petroleum or other inflammable liquid
DoDo	Dealer owned, Dealer operated
Excise Duty	Tax levied on the purchase of oil products
HHI	A measure of market concentration
Pass-Through	The extent to which wholesale price changes (including tax related changes) are “passed through” to retail prices
Rack	Price at which refineries or terminals sell to clients.
Refinery	An industrial plant that refines crude oil into petroleum products such as diesel, gasoline, and heating oils.
Retail Spread	Difference between the wholesale price and the retail price
Spot	Price of oil products as dictated by the market
Terminal	A fuel storage and distribution facility which is supplied by motor vehicle, pipeline or marine vessel and from which motor fuels may be removed at a rack.
Wholesale Spread/Refinery Spread	Difference between the price of refined/crude oil entering the terminal/refinery and the wholesale price leaving them

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- ¹ Department of Finance (2022) *Minister Donohoe announces temporary reduction in excise duty on fuels*. Available at: <https://www.gov.ie/en/press-release/113f4-minister-donohoe-announces-temporary-reduction-in-excise-duty-on-fuels/> (Accessed 27 May 2022).
- ² Department of Finance (2022) *Minister Donohoe announces temporary reduction in excise duty on fuels*. Available at: <https://www.gov.ie/en/press-release/113f4-minister-donohoe-announces-temporary-reduction-in-excise-duty-on-fuels/> (Accessed 27 May 2022).
- ³ CCPC (2019) *Determination of Merger Notification M/18/075 - Irving / Tedcastles*. Available at: <https://www.ccpc.ie/business/wp-content/uploads/sites/3/2018/09/M.18.075-Irving-Tedcastles-Public-Version.pdf> (Accessed 26 April 2022).
- ⁴ CCPC (2019) *Determination of Merger Notification M/18/075 - Irving / Tedcastles*. Available at: <https://www.ccpc.ie/business/wp-content/uploads/sites/3/2018/09/M.18.075-Irving-Tedcastles-Public-Version.pdf> (Accessed 21 April 2022).
- ⁵ CCPC (2018) *Determination of Merger Notification M/18/006 – Valero Energy (Ireland) / Riverside Service Station*. Available at: <https://www.ccpc.ie/business/wp-content/uploads/sites/3/2018/01/M-18-006-Valero-Riverside-Service-Station-public-determination.pdf>.
- ⁶ CCPC (2017) *Determination of Merger Notification M/17/021 - Applegreen / 50% Share of The Joint Fuels Terminal, Dublin*. Available at: <https://www.ccpc.ie/business/wp-content/uploads/sites/3/2017/04/M-17-021-Full-Determination-Applegreen-50-JFT.pdf>.
- ⁷ Inver (2010) *AFSC Oil Terminal Opens*. Available at: <https://inverenergy.ie/blog/afsc-oil-terminal-opens/>
- ⁸ Inver (n.d.) *About Us*. Available at: <https://inverenergy.ie/about-us/>.
- ⁹ CCPC (2015) *Determination of Merger Notification M/15/061 - East Cork Oil / M.W. Fuels T/A Tara Oil & Tara 24/7 Service Station*. Available at: https://www.ccpc.ie/business/wp-content/uploads/sites/3/2017/04/M-15-061-Determination-East-Cork-Oil_Tara-Oil-Tara-24-7-Service-Station.pdf.
- ¹⁰ CCPC (2021) *Determination of Merger Notification M/21/050 Ard Services (Circle K) / Griffin Group*. Available at: <https://www.ccpc.ie/business/wp-content/uploads/sites/3/2021/09/M.21.050-Public-Determination-1.pdf>; Circle K (n.d.) *Welcome to Circle K Ireland!*. Available at: <https://www.circlek.ie/welcome-to-circle-k-ireland>.
- ¹¹ Sustainable Energy Authority of Ireland (2020) *Energy Security in Ireland*. Available at: <https://www.seai.ie/publications/Energy-Security-in-Ireland-2020-.pdf>.
- ¹² Sustainable Energy Authority of Ireland (2020) *Energy Security in Ireland*. Available at: <https://www.seai.ie/publications/Energy-Security-in-Ireland-2020-.pdf>.
- ¹³ Sustainable Energy Authority of Ireland (2021) *Energy in Ireland: 2021 Report*. Available at: https://www.seai.ie/publications/Energy-in-Ireland-2021_Final.pdf.
- ¹⁴ CMA (2022) *Road Fuel Review*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1089125/Road_fuel_review.pdf.
- ¹⁵ RBB Economics (2014) *Cost pass-through: theory, measurement, and potential policy implications: A Report prepared for the Office of Fair Trading*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/320912/Cost_Pass-Through_Report.pdf.
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- ¹⁷ Johnson, R. (2002) 'Search costs, lags and prices at the pump', *Review of Industrial Organization*, 20, pp. 33–50.
- ¹⁸ Australian Government, The Treasury (2022) *Fuel Excise*. Available at: https://budget.gov.au/2022-23/content/factsheets/download/factsheet_excise.pdf.
- ¹⁹ Radchenko, S. (2005) 'Oil price volatility and the asymmetric response of gasoline prices to oil price increases and decreases', *Energy Economics*, 27(5), pp. 708–730.
- ²⁰ Verlinda, J. A. (2008) 'Do Rockets Rise Faster and Feathers Fall Slower in an Atmosphere of Local Market Power? Evidence from the Retail Gasoline Market', *Journal of Industrial Economics*, 56(3), pp. 581–612.
- ²¹ Asane-Otoo, E. and Dannemann, B. (2022) 'Rockets and Feathers Revisited: Asymmetric Retail Gasoline Pricing in the Era of Market Transparency', *The Energy Journal*, 43(6), pp.103-122.
- ²² Chesnes, M. (2016) 'Asymmetric Pass-Through in U.S. Gasoline Prices', *The Energy Journal*, 37(1), pp. 153-180.
- ²³ Competition and Markets Authority (2022) *Road Fuel Review*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1089125/Road_fuel_review.pdf.

²⁴ Office of Fair Trading (2014) *Cost pass-through: theory, measurement, and potential policy implications*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/320912/Cost_Pass-Through_Report.pdf.

²⁵ Karagiannis, S., Panagopoulos, Y. and Vlamis, P. (2015) 'Are unleaded gasoline and diesel price adjustments symmetric? A comparison of the four largest EU retail fuel markets', *Economic Modelling*, 48, pp.281-291.

