Irish Fiscal Advisory Council

Household consumption and savings in Ireland since the Covid-19 pandemic

Abstract

Household consumption and savings are crucial indicators for assessing economic performance. This is especially true in Ireland, where many other components of aggregate demand are distorted by activities of foreign-owned multinational entities. Eurostat data show a significantly weaker volume of household spending during and since the Covid-19 pandemic in Ireland compared to the Euro Area. The household savings ratio remains elevated in Ireland, whereas it has reverted close to its pre-pandemic level in the Euro Area. These differences are surprising.

The purpose of this note is to compare official estimates with other available indicators, with a focus on the period since the Covid-19 pandemic began. For relevant categories, household consumption in the national accounts is shown to be significantly weaker than trends in combined spending on credit and debit cards and ATM withdrawals, and value-added tax receipts. Conversely, household gross savings are found to be higher than a bottom-up sum of their uses, based on financial transactions data from different sources.

Using a variety of estimates, this note finds that household consumption could be 10% higher on average than official estimates by Q2 2022. All else equal, this would imply a household savings ratio of 13.5%, or 8 percentage points lower than the official estimate. Modified domestic demand would be higher since the pandemic began, and assuming no change in modified gross national income, this would imply a lower surplus of the modified current account, broadly in line with its 2019 level.

This report can be downloaded at www.FiscalCouncil.ie

1. Introduction

The Covid-19 pandemic has been a hugely disruptive global event. The World Health Organisation estimates that is has infected over 600 million people, including 6.6 million deaths globally.[1] The waves of lockdowns that governments resorted to across the world forced closures of whole sectors of economic activity. While these sectors partially re-opened in Ireland during the summers of 2020 and 2021, the levels of infection increased rapidly each autumn and winter, and restrictions were re-introduced.

Uncertainty was consequently extremely high for two years. This affected the extent to which businesses were willing and able to operate, as well as consumer and business demand for goods and services. Governments provided large fiscal support to avoid business failure and permanent job losses. Ultimately it was the rapid development of effective vaccines, and the evolution of Covid-19 towards a less severe strain, which enabled governments to re-open economies in a lasting manner.

This note examines the impact of Covid-19 on Ireland's measured levels of household consumption and savings. The motivation for this analysis is twofold.

First, household consumption is an important indicator of Ireland's economy. It constitutes approximately half of modified gross national income (GNI*). Unlike many other components of aggregate demand, it does not require any modification due to the presence of foreign-owned multinational firms in Ireland. This allows for easier comparison across countries. Honohan (2021) notes that actual individual consumption adjusted for price differentials across countries is a good option for a "rough measure of current living standards of households".[2]

A second motivation stems from the extent to which the official estimate of consumer spending has failed to recover from the pandemic, with savings remaining high. This is notable when comparing Ireland's performance with that of the Euro Area since the pandemic began in 2020 (Figure 1). Panel A shows that final consumption expenditure in Ireland remains 10% below its 2014–2019 trend by Q2 2022, double the gap for the Euro Area. Panel B shows that the household savings ratio remains elevated in Ireland, returning above 20% in the first half of 2022. This is roughly double the pre-pandemic ratio seen in 2019. On the contrary, the savings

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[1] https://covid19.who.int/

[2] Using this measure, Ireland's rank in EU prosperity was twelfth place for 2012–2019. Alternatively, comparing GDP per capita across countries, but substituting GNI* for Ireland's GDP, Ireland's ranking for 2015–2019 was eighth place in the EU. These rankings are considerably lower than an unadjusted comparison of GDP per capita, for which Ireland's rank is second place (behind Luxembourg).

ratio for the Euro Area as a whole has already reverted to its pre-pandemic level.

Figure 1: Compared to the Euro Area, Ireland's household consumption and savings show larger lasting effects of the pandemic

A. Ireland's spending is relatively weaker
% difference with 2014–2019 linear trend

B. Ireland's savings are relatively higher
% of household disposable income
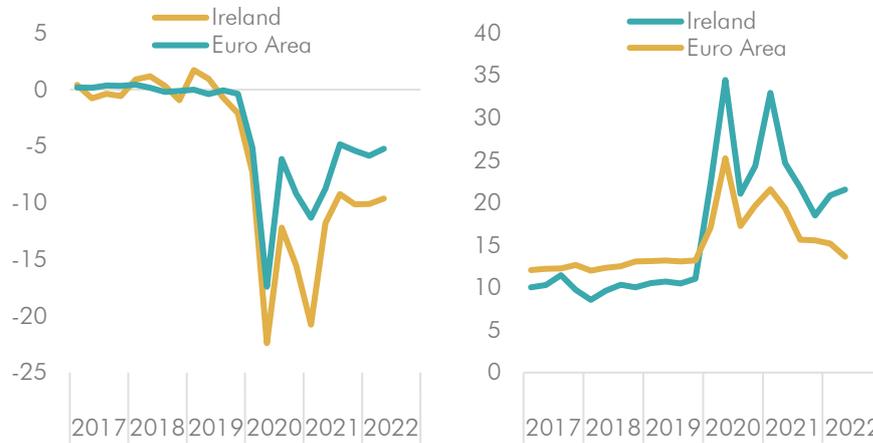
Sources: Eurostat; and author's calculations.

The rest of this note is organised as follows. Section 2 looks at measured consumption levels, and compares official data with related high-frequency indicators. Section 3 examines measured savings using the Central Statistics Office (CSO) *Institutional Sector Accounts*, and draws relevant comparisons with the Central Bank of Ireland's (CBI) *Quarterly Financial Accounts*. Section 4 concludes by quantifying a variety of estimates of higher consumption and correspondingly lower savings based on the analysis in earlier sections of the note.

2. Analysis of household consumption expenditure

This section analyses different developments between official household consumption expenditure and an array of suitable proxies. The following box summarises some of the measurement conventions around household spending. This includes household consumption expenditure, and combined spending on credit and debit cards and ATM withdrawals.

Box: Measuring household consumption and spending

There are two main measures of household consumption in focus in this note. The first, an official CSO measure, is household consumption expenditure. The second is monthly CBI data for spending on credit and debit cards and ATM withdrawals.

Household consumption expenditure is a broad indicator of consumer spending, estimated by the Central Statistics Office (CSO) for Ireland. The System of National Accounts (2008) defines final consumption expenditure as "*expenditure incurred by resident households on consumption goods or services... [including] the estimated value of barter transactions, goods and services received in kind, and goods and services produced and consumed by the same household*".

There are two notable features of household consumption. First, it excludes spending on assets with very long lifespans, such as residential property.[3] Second, it excludes non-resident spending in Ireland, such as by tourists or other visitors, but spending by Irish residents abroad is included.[4]

Household consumption is split into categories based on weights from the CSO's *Household Budget Survey* (last updated in 2015/2016) and other sources. Estimated growth in those categories is then used to update these weights. The preliminary quarterly estimates for categories of consumption are informed by surveys and other sources, including the retail sales index, the monthly services index, and direct inquiries data. For the *Annual National Accounts*, structural business survey data such as the *Annual Services Inquiry* and *Commodity Flow* estimates are used to revise the total annual spending estimate. The most comprehensive details of household consumption are published in the *Annual National Accounts*, and it provides a "classification of individual consumption by purpose" (COICOP) breakdown consistent with categories of the harmonised index of consumer prices (HICP).

A second indicator for household expenditure is CBI monthly data for spending on credit and debit cards and ATM withdrawals. This data captures transactions from the largest Irish-resident issuers of credit/debit cards. Assuming ATM withdrawals are mainly spent rather than stored, this provides a direct measurement of monthly household spending. The transactions include those made on euro-denominated cards issued to residents of Ireland. Purchases with cards of foreign-resident banks, and cards issued to Irish residents by non-Irish-resident issuers, are not included. This means that some newer digital banks, such as Revolut and N26, are not included, which may limit comparability going forward if their market share of spending transactions rises further.

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[3] Household consumption includes an amount for imputed rent of owner-occupied dwellings, effectively reflecting an amount of rent that owner-occupiers pay to themselves to capture the recurring consumption value of their residential property. The CSO notes that inclusion of these transactions is "to avoid changes in the level of owner-occupied versus rented dwellings affecting the level of GDP in national or international comparisons".

[4] Household consumption in the national accounts is intended to capture the national consumption of goods and services by Irish residents. In practice, household consumption is estimated first as a domestic measure including non-residents' spending in Ireland, before a total for this amount is subsequently removed.

2.1 Comparing card spending and ATM withdrawals with consumption

Mapping card spending and ATM withdrawals to official measures of consumption is not straightforward. Byrne *et al.* (2020) use a novel methodology to assess the impact of a reallocation in consumer spending baskets on overall consumption growth in 2020. The authors deploy high-frequency card payments data to inform estimates of how personal consumption expenditure in the national accounts had performed, based on the national accounts' expenditure weights.

Table 1 updates the initial comparison shown in Byrne *et al.* (2020), and compares available categories of household consumption with categories of card spending. This begins with categories of card spending, and attempts to match categories of national accounts consumption with them, making adjustments to national accounts data where appropriate.[5]

Table 1: Comparing available categories of consumer spending in cards data with the national accounts

Cards data	€ billion and % of total		National accounts	€ billion and % of total	
Groceries/ Perishables	€11bn	14%	Food, beverages, tobacco, and narcotics	€14bn	18%
Clothing	€3bn	4%	Clothing and footwear	€4bn	5%
Electrical goods; hardware	€5bn	6%	Furnishings, household equipment and routine household maintenance	€4bn	6%
Transport	€5bn	6%	Transport excl purchase of vehicles	€8bn	10%
Accommodation	€3bn	3%	Accommodation services	€2bn	3%
Education	€1bn	1%	Education	€2bn	2%
Health	€1bn	2%	Health	€5bn	7%
Utilities	€2bn	3%	Water, electricity, gas and other fuels; communications	€6bn	8%
Professional Services	€3bn	4%	Financial and insurance	€3bn	5%
Restaurants/ Dining	€4bn	5%	Catering services	€14bn	18%
Entertainment	€2bn	3%	Recreation and culture	€7bn	9%
Other and retail, services, social n.e.s.	€18bn	23%	Misc plus spending abroad less spending by non-residents	€7bn	9%
ATM withdrawals	€20bn	26%			
Total cards spending and ATM withdrawals	€77bn	100%	Total Expenditure of Households excluding purchase of vehicles and rents (actual and imputed)	€76bn	100%

Sources: CBI; CSO; and author's calculations.
Notes: Business card spending of €2.6 billion is included in spending on cards, as while some would be intermediate consumption by businesses, some would represent household consumption in kind.

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[5] For example, for utilities in card spending, the closest comparison available is a group including housing, water, electricity, gas and other fuels, and communications. However, Table 1 excludes the housing items (rent consumption, both actual and imputed). This is because rent is not typically paid for using a card — more often it is paid as a bank transfer, direct debit, or standing order. Mortgage payments are also not typically made with a credit or debit card transaction.

This exercise shows that the underlying weights across categories in each measure were reasonably well-aligned before the pandemic, but important caveats apply. [6] As noted in the Box above, the national accounts use the COICOP classification, while the card spending is compiled with the merchant category code system for retail financial services, meaning the categories are inexactly matched. The comparisons are also necessarily incomplete, given the card spending categories do not capture consumption paid for with cash or other means. In addition to goods or services paid for with cards or cash, consumption as measured could include consumption received in kind (e.g. in return for labour), as barter, goods or services produced and consumed by the same household, or consumption funded via cheque, standing order or direct debit/bank transfer.[7]

Despite these caveats, the onset of the pandemic resulted in a significantly increased emphasis on contactless shopping to help prevent the spread of Covid-19. Cronin and McInerney (2022) found that this coincided with a structural reduction in the volume and value of ATM withdrawals, and the use of card transactions has become more prevalent, implying a greater extent of credit and debit cards' coverage in household consumption. Nonetheless, some expenditure amounts are large enough that card usage could likely have been similarly prevalent prior to the pandemic, meaning their comparisons with card spending are less affected by the broader shift away from cash. For example, payment for hotel accommodation — which is often hundreds of euro, and where advance credit card details are typically required — has for decades been primarily made by card, and not cash.

Figure 2 extends the cross-sectional comparison in Table 1 and shows the annual evolution of the categories. For the majority of the comparisons shown, consumption in the national accounts is larger than card spending, which is to be expected since card spending is merely a subset of total spending. For example, the gap between restaurants/dining card spending and consumption of catering services could partly be explained by cash spending, especially since catering services includes bars.

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[6] Since Byrne *et al.* (2020) was published, the CSO has provided a richer COICOP breakdown of annual consumption, which improves the mapping of national accounts data to card spending. Including rent and imputed rent led to their finding that the national accounts had double the weighting towards services (50%) compared to card spending (25%). Accommodation was just 4% of total card spending in 2019 (and 3% of card spending and ATM withdrawals as in Table 1), but a broader category of 'housing, water, electricity, gas and other fuels' (25.5%) was listed as a corresponding services category. The authors concluded that changes in consumption in the national accounts would differ from what is implied by the cards data.

[7] Coffey (2021) notes that consumption of housing services of local authority tenants is now treated as non-market output. This could mean an underestimate of general government expenditure on housing services provided to households (which is included in personal consumption). The estimated consumption is now based on the cost of providing the service, rather than the imputed market value.

Figure 2: Comparing categories of national accounts consumption with spending on credit and debit cards since 2015

€ billion values for card spending and national accounts consumption categories
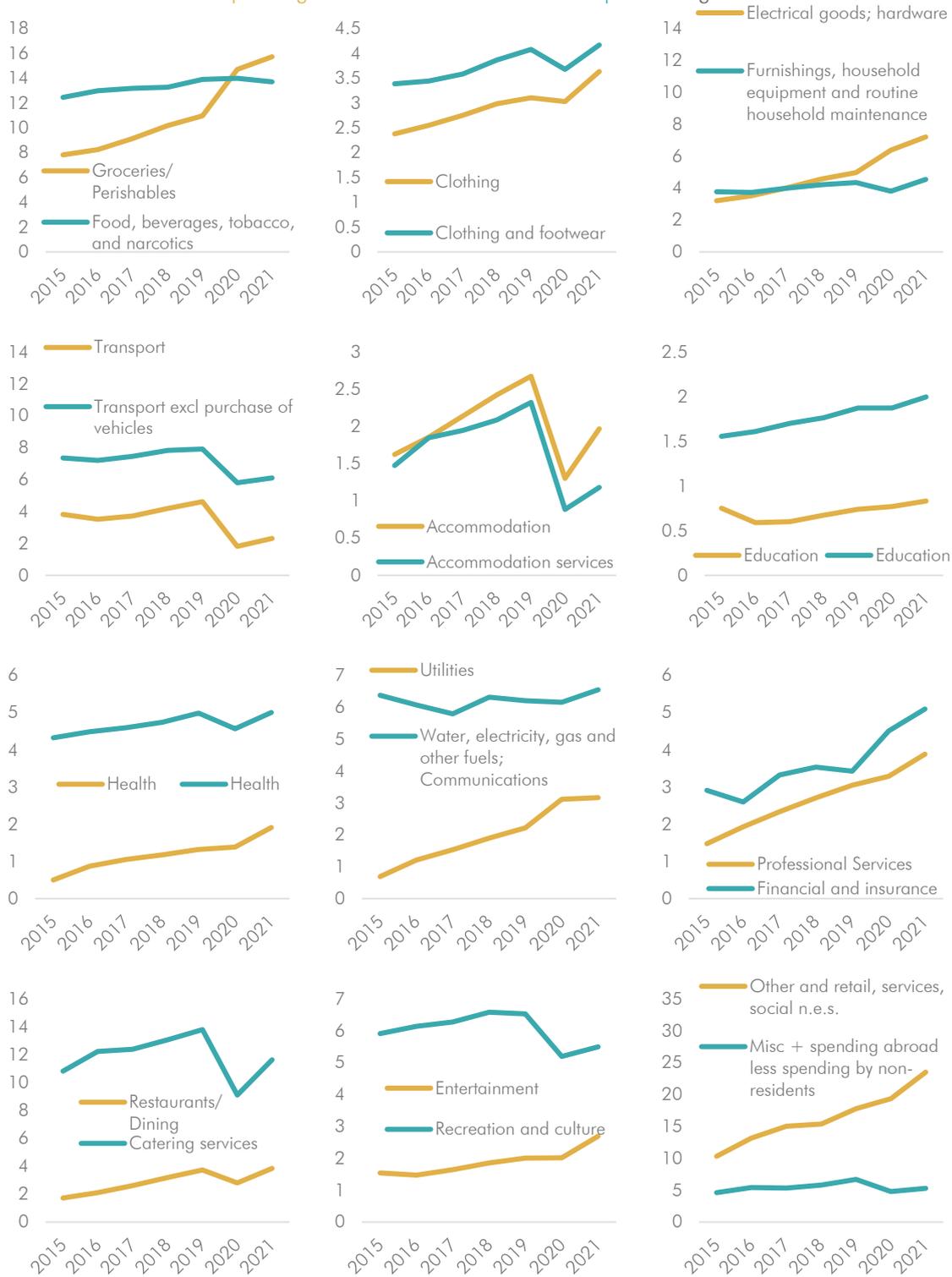
The trends in the compared categories of Figure 2 are quite similar in some cases. For example, each spending measure for clothing, transport,

education, health, and professional services are broadly consistent over time — that is, the national accounts consumption data appear to be at least partly verified by the card spending data. In other cases, card spending is considerably lower than the compared amounts for national accounts consumption. Some of the larger such discrepancies include entertainment compared to recreation and culture, and utilities compared to water, electricity, gas, other fuels, and communications.

However, several other categories in Figure 2 show that spending on cards has been relatively stronger in recent years than the corresponding category of national accounts consumption. In particular, card spending on groceries and perishables increased sharply in 2020 and 2021 (reaching €16 billion from €11 billion in 2019) as a result of the pandemic, yet consumption of food, beverages (which excludes drinks sold on licenced premises such as restaurants and bars), tobacco, and narcotics was broadly unchanged compared to 2019 (€14 billion). In addition, accommodation spending on cards has been consistently higher than consumption of accommodation services in the national accounts. This is despite the inclusion of spending by non-residents in the national accounts measure (which is subsequently removed — see footnote 4). Card spending on electrical goods and hardware has also exceeded national accounts consumption of household equipment (amongst other items, including domestic services) since 2018, and their paths have diverged in 2020 and 2021. No comparison is available in the national accounts for ATM withdrawals, which fell to €12.7 billion in 2021. However, a separate category of residual amounts spent on credit and debit cards reached €25.5 billion in 2021, whereas miscellaneous and other consumption (including uncategorised spending abroad less expenditure by non-residents) was just €5.3 billion.

As noted above, the comparisons in Figure 2 are incomplete, especially because cash transactions are spread across spending categories. Figure 3 attempts to address this shortcoming at an aggregate level, as its inclusion of ATM withdrawals should largely remedy the differences due to cash payments in many of the categories shown in Figure 2. The two measures in Figure 3 were essentially equal in 2019, as detailed in Table 1. The divergence in 2020 and 2021 could imply a large underestimation of household consumption in the national accounts for these years.

Figure 3: Comparable categories of consumption in the national accounts have fallen behind combined card spending and ATM withdrawals
€ billion values
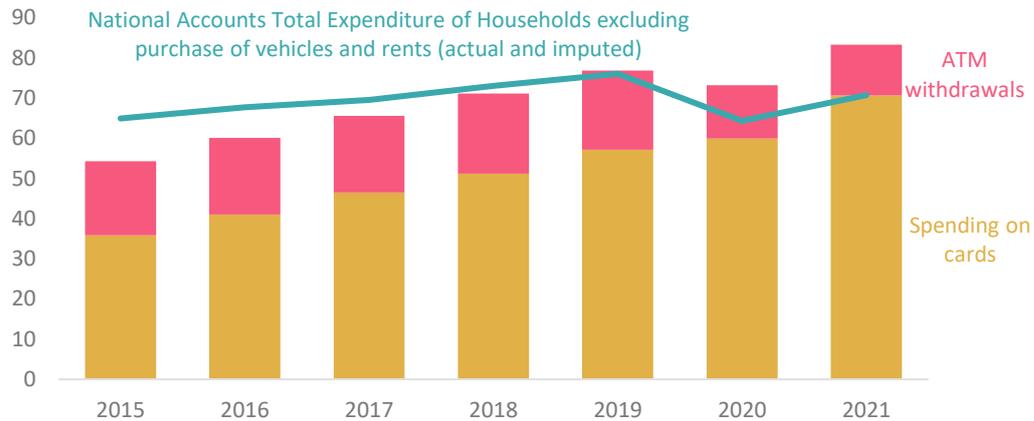
Sources: CSO; CBI; and author's calculations.
Notes: Business card spending is included is spending on cards, as while some would be intermediate consumption by businesses, some would also represent household consumption in kind.

The narrowing gap between card spending and ATM withdrawals relative to (broadly) comparable national accounts expenditure categories over 2015–2019 is somewhat puzzling. A higher level of consumption in the national accounts relative to combined card spending and ATM withdrawals should be expected as a result of other forms of payment for goods and services consumed by households. These include cheques, bank transfers, barter, in-kind consumption, or items produced and consumed by the same household. The parity reached in 2019 without these other forms of spending could imply that some consumption is also missing before the pandemic.[8] However, it is likely that these other forms of spending have been declining relative to card spending and ATM withdrawals over time — especially the use of cheques.[9] Still, the national accounts measure shown in Figure 3 was equivalent to total card spending alone in 2021. Assuming all spending on cards should reflect household consumption, this effectively implies zero value of consumption by other means, which is clearly not plausible.

2.2 Comparing quarterly card spending and ATM withdrawals with consumption, and retail sales data with goods consumption

The previous section focused on comparisons involving annual data. Figure 4 uses quarterly data to specify when card spending and ATM withdrawals diverged from household consumption expenditure excluding cars. While the magnitude of the Q2 2020 percentage decline in

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[8] Sole traders using personal cards for business expenses could also be a factor in the faster rates of increase for cards spending and ATM withdrawals compared to household consumption.

[9] ATM withdrawals could overstate consumption amounts in some cases, for example where the cash is used to pay employees wages, to pay for home improvements, or to repay a loan. However, the extent to which these uses of cash could be recirculated would offset this. For example, if cash employee wages are used to purchase groceries, some of this cash returns to the bank as a deposit made by the shop, but some is given out to other customers as change and remains active for further spending, without the need for a further ATM withdrawal.

household spending was comparable across each measure, the subsequent recovery in spending was considerably stronger for card spending and ATM withdrawals. This finding is also consistent for core retail sales (excluding motor vehicles); panels C and D show this comparison with personal consumption of goods excluding cars.

Figure 4: Household consumption excluding cars is lagging behind card spending and ATM withdrawals, and goods consumption excluding cars is weaker than core retail sales
2019 = 100, seasonally adjusted

A. Values of consumer spending and consumption

B. Volumes of consumer spending and consumption

C. Values of retail sales and consumption

D. Volumes of retail sales and consumption

Sources: Eurostat; CSO; CBI; and author's calculations.
Notes: Card spending and ATM withdrawals data are manually seasonally adjusted with Tramoseats for January 2015 – September 2022. Card spending and ATM withdrawals are divided by HICP for volumes. Quarterly consumption on cars is not published, but it is kindly provided by the CSO on request in value and volume terms since Q1 2000 (not seasonally adjusted). Likewise for the breakdown of goods and services consumption. Consumption excluding cars is seasonally adjusted manually using Tramoseats for Q1 2000–Q2 2022.

2.3   Comparing the monthly services index with services card spending

Another area to see differences in consumption trends is for the CSO's monthly services index compared to card spending data. The monthly services index is a survey of output by non-financial firms. Since the onset

of the pandemic, the CSO has used it alongside CBI card spending data to inform adjustments to estimates of consumption for some services. The overall index is distorted by very strong activity in the information and communication sector, limiting its comparability with services consumption. However, it provides some insights for sectors that were worst affected by the pandemic, including the contact-intensive accommodation and food services sectors. Figure 5 shows that the performance of output in these sectors as measured by the services index has been far weaker since the pandemic began compared to card spending, as shown in panels A and B (for accommodation) and panels C and D (for restaurants/dining).

Figure 5: Reported services activity levels are particularly low relative to spending on cards for accommodation and restaurants/food services
2019 = 100, seasonally adjusted

A. Values of accommodation

B. Volumes of accommodation

C. Values of restaurants/food services
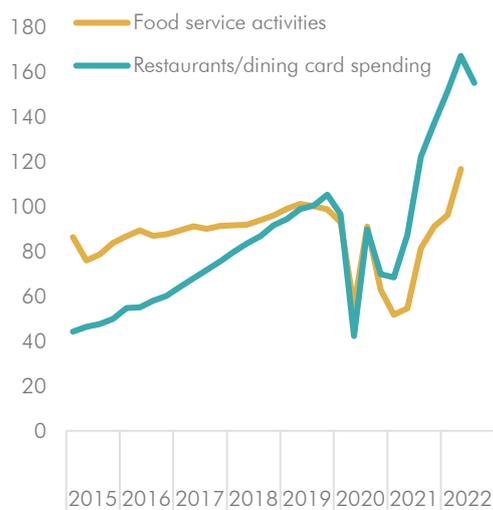
D. Volumes of restaurants/food services
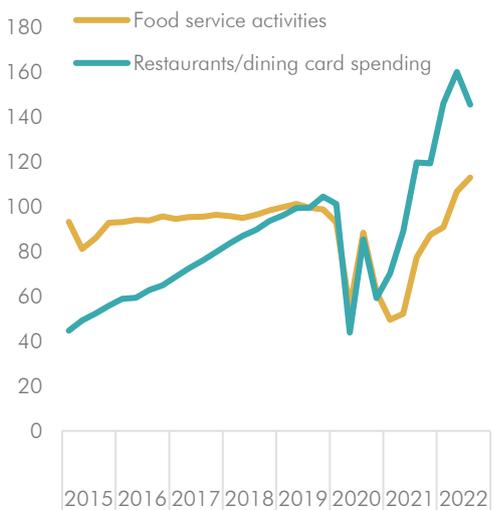
Sources: CSO; CBI; and author's calculations.
Notes: Card spending and ATM withdrawals data are manually seasonally adjusted with Tramoseats for January 2015 – September 2022. For volumes, card spending and ATM withdrawals are divided by relevant HICP components — accommodation services (COICOP 11.2) and restaurants, cafes and the like (COICOP 11.1.1) — and then manually seasonally adjusted as above.

The services index captures activity related to spending by non-residents, including for example tourists staying in Irish hotels or eating in Irish restaurants. However, this activity is not directly relevant to Ireland's household consumption, as described in the Box at the beginning of this section. Notwithstanding this difference in coverage, survey data from Fáilte Ireland (2022) indicate a nationwide hotel room occupancy rate of 85.7% for August 2022, compared to 89.3% in August 2019. This is difficult to reconcile with the greatly reduced volume in the accommodation services index, which is down 42% for August 2022 compared to August 2019. Along with the comparison with card spending, the Fáilte Ireland report casts further doubt over the weak accommodation services index reading.

2.4   Comparing VAT receipts with consumption

A final comparison of household consumption expenditure presented in this section uses data on value-added tax (VAT). Figure 6a shows a persistent and widening gap in the recovery of VAT receipts following the pandemic compared to household consumption expenditure. Figure 6b combines the two series as an implied annual "effective VAT rate".

Figure 6: VAT receipts have been stronger than official household consumption expenditure estimates

A. VAT and household consumption expenditure
2019 = 100

B. Effective VAT rate
VAT as a % of household consumption expenditure
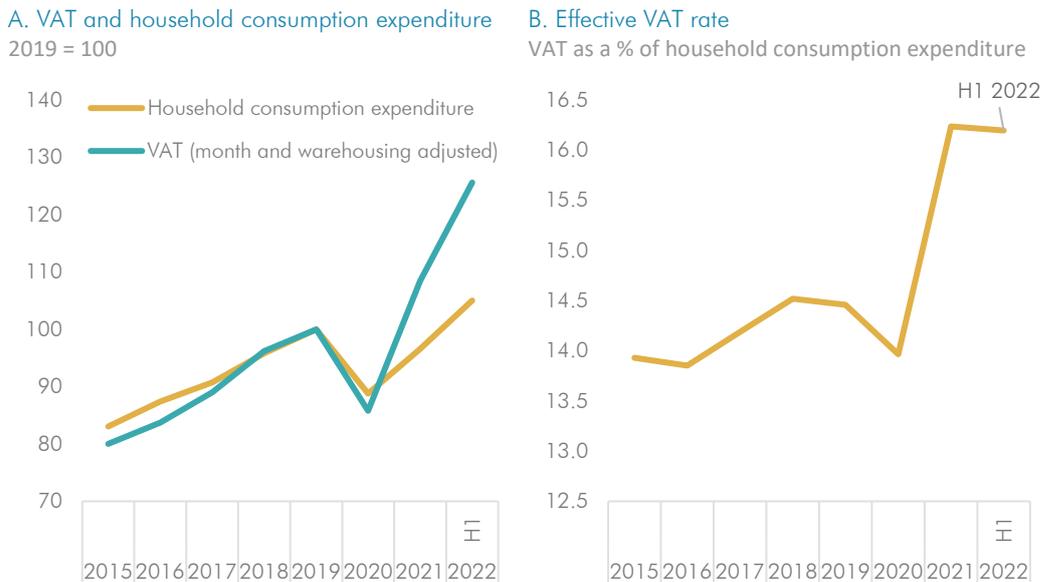
Sources: CSO; Department of Finance; and author's calculations.
Notes: VAT data here are offset by a month, to reflect collection takes place a month in arrears — for example, January receipts mainly relate to November and December activity. The data are also adjusted for tax warehousing, using data provided by the Department of Finance, and assuming a 76% repayment rate.

There is no obvious VAT rate increase that would explain the findings shown in Figure 6. Instead, VAT rate reductions were introduced in recent years. A temporary cut in the standard rate of VAT was introduced for six months from September 2020, a VAT cut for hospitality sales was also introduced during the pandemic, and VAT on electricity was later reduced in 2022. Overall, this suggests that VAT receipts since 2019 could have

been higher, and the gap with household consumption expenditure illustrated in Figure 6 larger, if not for these lower VAT rates.

The widening gap between VAT receipts and spending suggests that household consumption expenditure is likely to be underestimated. However, other explanations could also explain some of the gap. The tax base for VAT is broader than household consumption — for example, construction of new dwellings and investment in dwelling improvements is subject to a VAT rate of 13.5%. VAT is nonetheless mainly driven by consumer spending.[10] However, some of the gap between VAT receipts and household consumption might be related to improvements in VAT compliance. More payments on cards and fewer with cash imply a larger "paper trail", which could discourage would-be non-VAT-compliant firms.

Besides the level of spending, VAT receipts are also determined by the composition of household spending, which has undergone significant changes since the pandemic began (as shown in Figure 2). For example, if households have started to consume more high-VAT than low-VAT goods and services, this could partly explain the divergence shown in Figure 6. However, the national accounts data do not appear to support this explanation. The lower value of household consumption in 2021 compared to 2019 is mainly down to four VAT-paying categories: transport (–€2.7 billion), catering services (–€2.2 billion), accommodation (–€1.1 billion), recreation and culture (–€1 billion). Yet these spending reductions were partly offset by increases in categories with low or zero VAT rates: actual and imputed rents (+€2.7 billion), and insurance and financial services not elsewhere classified (+€1.7 billion). These changes would likely have decreased rather than increased VAT receipts.

2.5   Conclusions from analysis of household consumption

The comparisons in this section all imply that the level of household consumption in the national accounts has been weaker than other indicators suggest. The prolonged period since the last *Household Budget Survey* is a cause for concern in terms of the accuracy of the weights in the consumption basket, and the pandemic could have resulted in a lasting re-allocation of consumption weights. This could have further implications for the accuracy of several important economic indicators — for example, modified domestic demand, household savings (discussed in detail in the following section), and inflation measures such as the harmonised index of consumer prices. The CSO is carrying out a new *Household Budget Survey* at present, but where possible, administrative data such as VAT returns should also be used to inform estimates of household consumption expenditure.

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[10] Dineen, Leyden and O'Donovan (2022) estimate that €76.5 billion of 2018 personal consumption expenditure was subject to VAT. Applying the applicable rates shown in Figure 2 of their report, this would explain 90% (€12.8 billion) of total VAT receipts in 2018.

3. Analysis of household savings

Ireland's household savings ratio in 2022 has remained considerably higher than its pre-pandemic path. This is a striking feature, given that savings would have been expected to revert to lower and more typical levels after the pandemic's confinement measures ended. Ireland's persistently high savings ratio also appears to be out of step with developments in savings ratios in the Euro Area. A high savings rate could potentially point to the same underlying issue raised in Section 2: the possibility that consumption is underestimated.

3.1 Estimates of gross savings

This section analyses the level of gross savings using data from the CSO (*Institutional Sector Accounts*), and the CBI (*Quarterly Financial Accounts*).

Gross savings of households and non-profit institutions serving households (NPISH) — shortened to HH below — are calculated as a residual in the current account of the CSO's *Institutional Sector Accounts, Non-Financial*, as shown in equation 1.

(1) $Gross\ savings_{HH} = Total\ gross\ disposable\ income_{HH} - Final\ consumption\ expenditure_{HH}$

Total gross disposable income for households is gross disposable income and the adjustment for the change in pension entitlements. Revenue's PAYE-modernisation (known as "PMOD") administrative data is supplied to the CSO, and this is used in estimates of employees' labour income, which is the largest component of gross disposable income. Assuming these administrative data are reliable, the accuracy of gross savings therefore depends on the accuracy of final consumption expenditure.

However, gross savings can also be estimated from a "uses" perspective. To show this, Table 2 presents components of net lending/(borrowing) in the non-financial account, and net financial transactions in the financial account, which are conceptually equivalent measures of surplus/(deficit).

Table 2: Components of net lending/(borrowing) and net financial transactions

Net lending/(borrowing)	Net financial transactions
= Gross savings – Gross capital formation – Capital transfers – Net acquisitions of non-produced assets	= Monetary gold and SDRs + Currency and deposits + Debt securities + Loans + Equity and investment fund shares + Insurance, pension and standardised guarantees + Financial derivatives and ESOP + Other accounts receivable/(payable)

Sources: Central Bank of Ireland; CSO.

Subtracting net financial transactions (for brevity, not expanded below) from the components of net lending/(borrowing), and re-arranging, gross savings can be expressed as in equation 2.

$$
\begin{aligned}
(2)\ Gross\ savings_{HH} \\
= Gross\ capital\ formation_{HH} \\
+ Capital\ transfers_{HH} \\
+ Net\ acquisitions\ of\ non{-}produced\ assets_{HH} \\
+ Net\ financial\ transactions_{HH}
\end{aligned}
$$

Figures 7 and 8 compare three estimates of gross savings: the official estimate based on equation 1, and two alternatives based on equation 2. The first alternative is using CSO data only, and the second uses CBI estimates of net financial transactions (F.1 to F.8), while gross capital formation is replaced with the CBI's estimate of "investment in housing" by the household and NPISH sector.[11] While the third estimate in Figure 7 not an official estimate of savings published by the CBI — for example, the *Quarterly Financial Accounts* show the CSO's estimate based on equation 1 above — it is nonetheless a conceptually equivalent measure. In general, there are considerable differences between CSO and CBI estimates of net financial transactions, and these drive the differences seen in Figures 7 and 8. The 2020 and 2021 gaps between official gross savings and each of the uses of gross savings estimates are higher than in any year since 2002.

Figure 7: The official estimate of household gross savings in 2020 and 2021 is higher than estimates based on its uses from financial transactions
€ billion
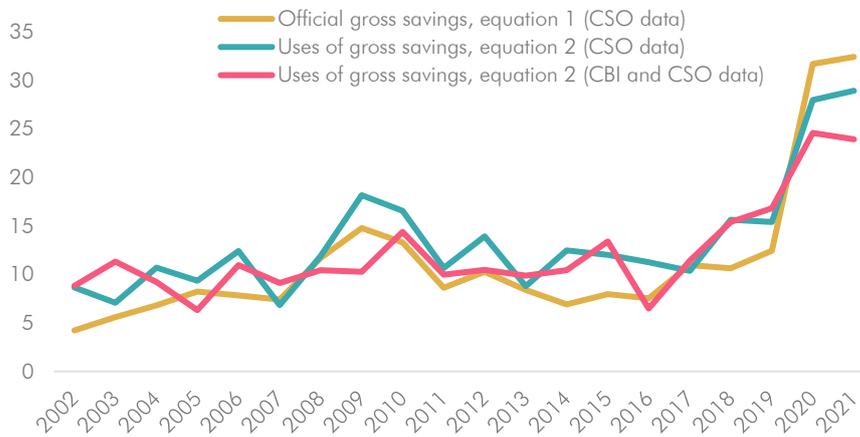
Sources: CSO; CBI; and author's calculations.

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[11] While typically small components, capital transfers and net acquisitions of non-produces assets are not available separately in the Central Bank's data, and the CSO's estimates for these are retained in the third series in Figure 7.

Figure 8: In 2020 and 2021, official gross savings less their uses were respectively at their highest since 2002, when the financial transactions data series begin
€ billion
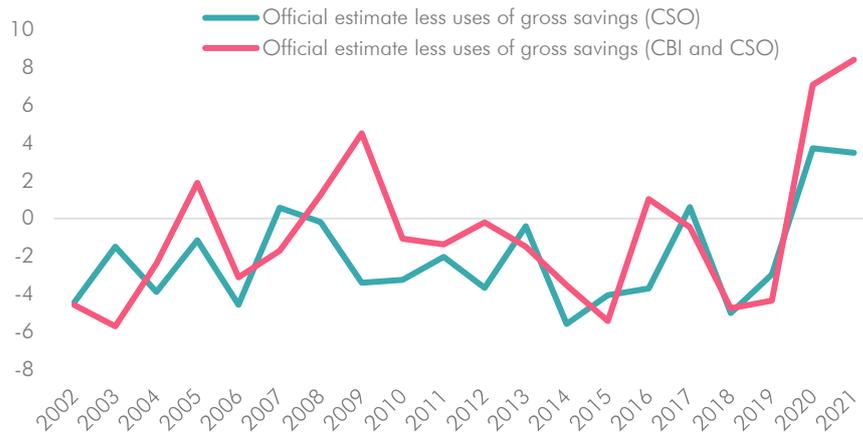
Sources: CSO; CBI; and author's calculations.

3.2 Comparing alternative estimates of the uses of gross savings

The two estimates of the uses of gross savings shown above can be analysed in further detail to ascertain where the CSO and CBI data differ. Figures 9 and 10 use equation 2 to respectively present the uses of gross savings for the CSO and CBI data, with a residual term also included. Both show that the large increase in the official estimate of gross savings in 2020 and 2021 is mainly as a result of a significant rise in currency and deposits.[12] However, the result also relies in part on a large positive swing in an unexplained residual term compared to 2019. These are respectively equivalent to the differences presented in Figure 8.

Figure 9: Household gross savings mainly reflect higher deposits, but also include an unusually large and positive residual term in 2020 and 2021
€ billion
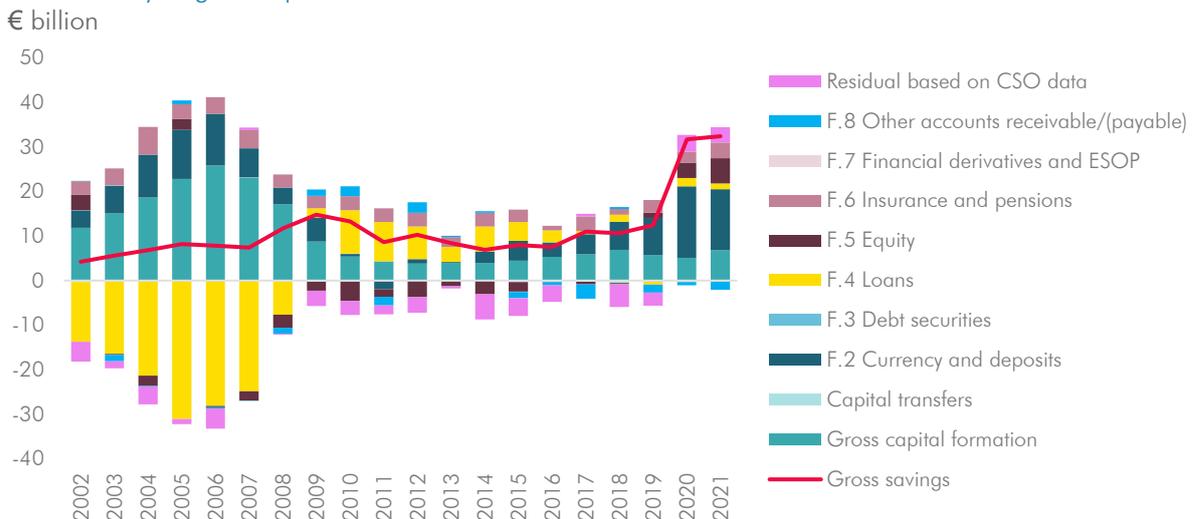
Sources: CSO; and author's calculations.
Notes: This presents CSO data from the capital account of the *Institutional Sector Accounts, Non-Financial* for gross savings, gross capital formation, capital transfers, and net financial transactions for items F.2–F.8 from the *Institutional Sector Accounts, Financial*.

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[12] F.1 monetary gold and SDRs and net acquisitions of non-produced assets are zero for the full sample, and are therefore not listed in the legend in Figures 9 and 10.

Figure 10: The residual is even larger when using available Central Bank estimates
€ billion

Legend:
- Residual based on CBI and CSO data
- F.8 Other accounts receivable/(payable)
- F.7 Financial derivatives and ESOP
- F.6 Insurance and pensions
- F.5 Equity
- F.4 Loans
- F.3 Debt securities
- F.2 Currency and deposits
- Capital transfers
- Investment in housing
- Gross savings
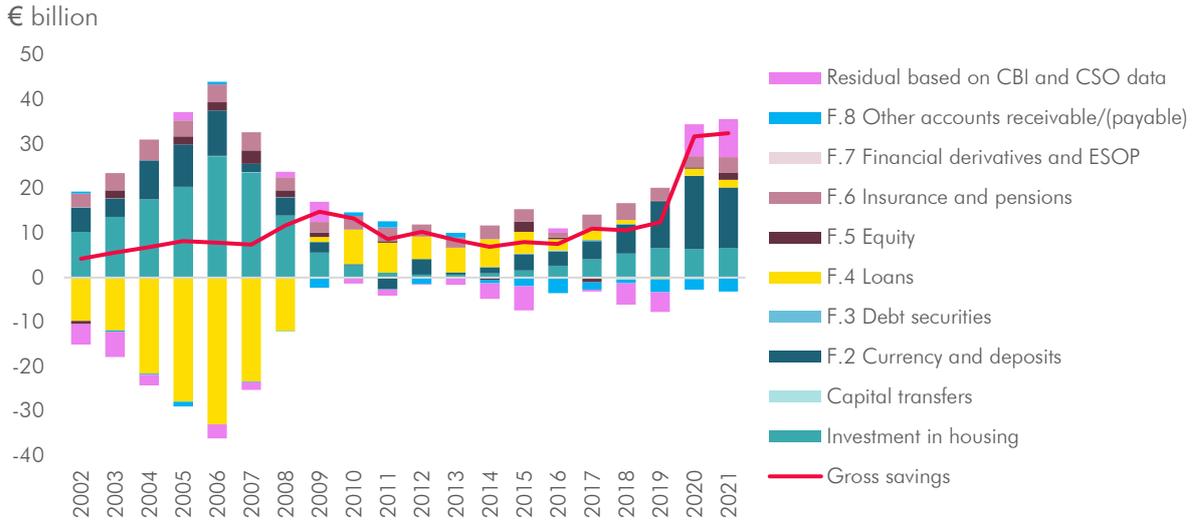
Sources: CSO; Central Bank of Ireland; and author's calculations.
Notes: This presents the CSO's data from the *Institutional Sector Accounts* for gross savings, gross capital formation, and capital transfers. The breakdown of net lending/(borrowing) items F.2–F.8 is based on the Central Bank of Ireland's *Quarterly Financial Accounts*.

Although conceptually equivalent, Coffey (2018) notes that the components of the CSO and CBI estimates of net lending/(borrowing) — net financial transactions of categories F.1 to F.8 — can vary significantly, and that transactions in unlisted shares have shown large differences. By component, this mainly reflects significantly larger amounts in the CSO data relative to the CBI data for 2020 and 2021 in equity (which includes unlisted shares), and in financial derivatives/ESOP and other accounts receivable/(payable).

Figure 11 shows the quarterly (unadjusted) residual from Figure 10, which is mainly based on CBI data. This residual has been volatile from quarter to quarter, but it is persistently higher since 2019. Lower gross savings would be consistent with a more typically negative average residual.

Figure 11: In 2020 and 2021, the gross savings residual based on *Quarterly Financial Accounts* data is about **€9.5 billion** above its annual average for 2002–2019
€ billion, unadjusted
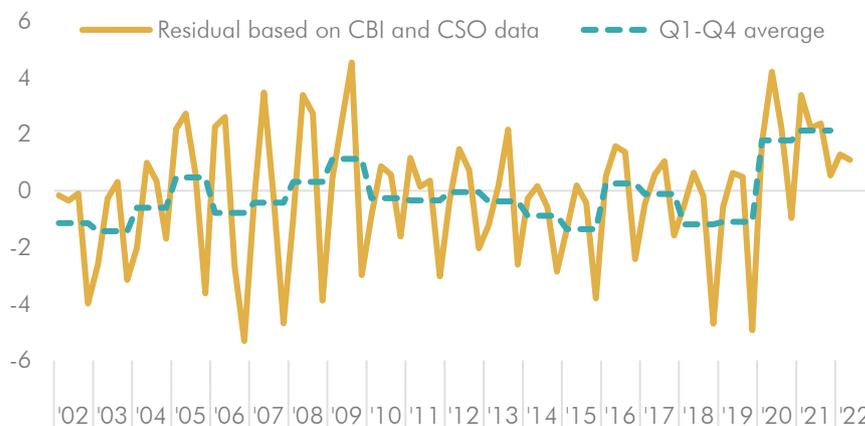
Sources: CSO; Central Bank of Ireland; and author's calculations.
Note: This shows the quarterly series for "residual based on CBI and CSO data" shown in Figure 10.

3.3 Conclusions from analysis of household savings

This section finds evidence from separate sources of a breakdown in the relationship between gross savings and its uses since the Covid-19 pandemic began. This complements the findings of section 2, which suggest a divergence between household consumption and alternative indicators for the same period. The following section combines the findings of Sections 2 and 3 and compares various approaches for re-estimating household consumption and savings since the pandemic began.

4. Re-estimating household consumption and savings since the pandemic began

Section 2 has presented evidence of how official household consumption expenditure has performed weaker than other indicators of consumer spending. Conversely, Section 3 shows how official measures of household savings have remained higher than other indicators of savings. These divergences have particularly affected the period since the pandemic's outbreak in early 2020.[13]

Table 3 uses a variety of approaches, for both consumption and savings indicators, to quantify the extent of annual differences with official CSO data. The approaches are summarised as follows:

- The first approach assumes that the effective VAT rate shown in Figure 6b remains at its 2019 average from Q2 2020 onwards. The VAT outturns are adjusted for warehousing, and divided by the 2019 effective VAT rate to yield an estimated level of household consumption expenditure consistent with this rate.
- The second approach assumes that the value of household consumption expenditure excluding cars follows the value of spending on cards and ATM withdrawals (based on the series indexed to 2019, as shown in Figure 4a).
- The third approach assumes that Ireland's gap between consumption and its pre-pandemic trend evolved in the same way as for the Euro Area (Figure 1a).
- The fourth approach shows the implied reduction in gross savings if the savings ratio followed the same path as for the Euro Area instead of the published data for Ireland.
- The fifth approach adjusts the residual between gross savings and their uses in Figure 9 to align with the 2002–2019 average, implying a reduction in gross savings.
- The final approach similarly adjusts the quarterly residual presented in Figure 11 to align with the 2002–2019 average, implying a reduction in gross savings.

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[13] However, it is also possible that household consumption expenditure is not accurately estimated for the period since 2015/16, when the last *Household Budget Survey* was carried out. This could reflect rapid changes in the consumption basket in the intervening years, or inaccuracies with respect to the *Household Budget Survey* itself. Further research should investigate the extent to which the *Household Budget Survey* aligns with the actual consumption basket of households as measured by administrative records, such as detailed microdata for VAT returns and card spending.

Table 3: Estimates of higher household consumption expenditure and lower household savings

€ billion

Approach	2020	2021	2022 H1
Indexed to 2019 effective VAT rate (from Q2 2020)	2.5	12.2	8.2
Indexed to spending on cards and ATM withdrawals since 2019	6.2	11.2	7.9
Indexed to Euro Area consumption gap to trend	5.3	6.2	2.7
Savings ratio aligning to Euro Area since early 2020	7.1	8.5	4.7
If the residual in gross savings in Figure 9 was at its 2002–2019 average	6.4	6.2	N/A
If the residual of gross savings in Figure 11 was at its 2002–2019 average	9.1	10.6	2.5
Average difference to official data	**6.1**	**9.1**	**5.2**

Sources: Central Bank of Ireland; CSO; and author's calculations.
Note: The observation for Q1 2020 is excluded for the first approach, as despite efforts to account for VAT warehousing, there was an outsized negative difference between the effective VAT rate and household consumption due to timing issues with the pandemic and its effect on VAT receipts. Including this would change the 2020 estimate to –€3.1 billion, and the average difference to official data would fall to €5.2 billion.

For 2020, the average finding is a €6.1 billion higher value of household consumption, or lower value of household savings. For 2021, this average difference rises to €9.1 billion. For the first half of 2022, the average difference is estimated at €5.2 billion. Five of the estimates in Table 2 are also available on a quarterly basis, and these data are presented as estimated levels of household consumption expenditure in Figure 12.

Figure 12: Quantifying alternative estimates of household consumption expenditure
€ billion values, seasonally adjusted

Sources: Eurostat; CSO; CBI; and author's calculations.
Notes: The observation for Q1 2020 is excluded for the first approach, as despite efforts to account for VAT warehousing, there was an outsized negative difference between the effective VAT rate and household consumption due to timing issues with the pandemic and its effect on VAT receipts. As the quarterly estimates of the last approach (assuming the residual of gross savings in Figure 11 was at its 2002–2019 average) is from *Quarterly Financial Accounts* data that is not seasonally adjusted, the gap is added to the unadjusted quarterly value of household consumption expenditure, and manually seasonally adjusted using Tramoseats for 1995 Q1 – 2022 Q2.

On average, the available estimates suggest a 10% higher level of household consumption expenditure in Q2 2022 compared to the official estimate. Within the average, the largest estimates are those based on the effective VAT rate (+15.7%) and spending on cards and ATM withdrawals (+14.8%), while the lowest estimate is from assuming the residual of gross savings in Figure 11 was at its 2002–2019 average (+4.8%).

Figure 13 quantifies the impact of the different approaches listed in Table 2 on the savings ratio. Gross savings are adjusted by equivalent amounts with a negative sign for the estimates of household consumption shown in Figure 12, and total disposable income unchanged relative to official CSO estimates. This indicates an average savings ratio by Q2 2022 of 13.5%, or 8 percentage points lower than the official estimate. The lowest estimates are those based on the effective VAT rate (8.9%) and the cards spending and ATM withdrawals (9.5%).

Figure 13: Quantifying alternative estimates of the household savings ratio
Gross savings as a % of total disposable income, seasonally adjusted

Sources: Eurostat; CSO; CBI; and author's calculations.
Notes: The observation for Q1 2020 is excluded for the first approach, as despite efforts to account for VAT warehousing, there was an outsized negative difference between the effective VAT rate and household consumption due to timing issues with the pandemic and its effect on VAT receipts. As the quarterly estimates of the last approach (assuming the residual of gross savings in Figure 11 was at its 2002–2019 average) is from *Quarterly Financial Accounts* data that is not seasonally adjusted, the gap is added to the unadjusted quarterly value of household consumption expenditure, and manually seasonally adjusted using Tramoseats for 1995 Q1 – 2022 Q2.

Higher household consumption and lower household savings have implications for the balance between modified domestic demand and the modified current account (CA*). Assuming no change in the deflator on household consumption, the higher household consumption in Table 2 implies an increased real growth rate of modified domestic demand from –6.1% to –3.1% for 2020, and from 5.8% to 7.1% for 2021.

Furthermore, assuming the level for modified gross national income is unaffected by the analysis in this note, the higher level of modified domestic demand suggests a lower level of CA* (which is a component of GNI*). Figure 14 presents CA* from a savings-less-investment perspective,

with household gross savings adjusted for higher household consumption, based on the average estimated difference in Table 2. Rather than rising sharply to €25 billion (11% of GNI*) in 2021, this analysis suggests a level more in line with the 2019 estimate (€15 billion, 7% of GNI*).

Figure 14: All else equal, lower household savings imply a lower level for CA*
€ billion
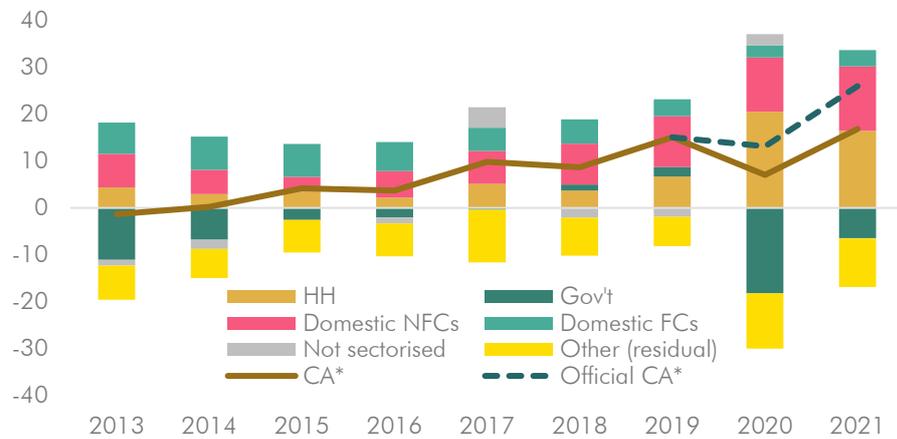
Sources: CSO; and author's calculations.
Notes: This presents domestic institutional sectors' gross savings less gross capital formation, which is conceptually equivalent to the current account of the balance of payments — for details, see for example the CSO's presentation of the "Rest of the world sector (S.2)", and descriptions in forthcoming research on Ireland's macroeconomy by Timoney.

Further research could also provide insights into the implications of a different size and composition of household spending in 2020 and 2021 on measured inflation, which could be particularly significant given the sharp rise in prices since mid-2021.

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