Irish Fiscal Advisory Council

The path for Ireland's health budget

Analytical Note No. 14

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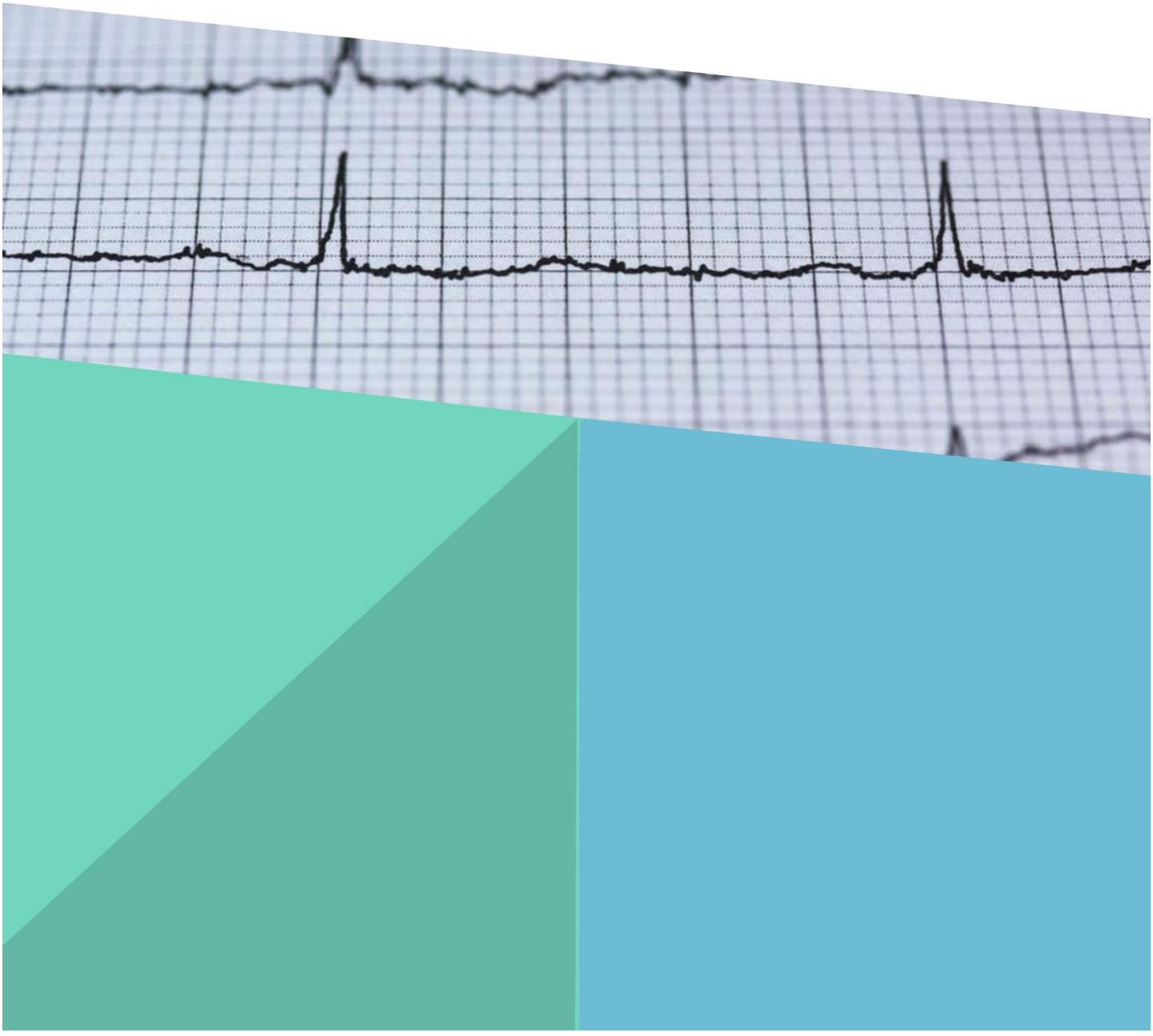
November 2021



Abstract

Public healthcare spending in Ireland has far outpaced economic growth over the long term. In the mid-twentieth century, public healthcare spending was less than 2% of national income, but before the pandemic it had risen to 8%. Spending has also risen at a fast pace in recent years. Even as Covid-related spending reduces, the trend of fast health spending growth looks set to continue as Ireland's population ages and as Sláintecare initiatives—a set of major healthcare reforms—are implemented. This note shows how spending overruns have been a key problem in health spending in recent years. These are driven by hospitals and community primary care services, with staffing costs a key feature. Some efforts have been made to address major shortcomings in planning, but basic information is still severely lacking, including for plans around Sláintecare. If poor planning and weak spending controls are allowed to continue in health areas, this would continue to pose risks to the wider public finances. Better five-year budgeting could be a "game-changer" for Ireland. It is vital that reforms like the new 5% Spending Rule and costing of existing levels of services are reinforced and followed through on, including by ensuring that health costs are adequately factored in, and that healthcare spending is delivered within budgets.

Suggested reference:

E. Casey and K. Carroll (2021). "The path for Ireland's health budget". Irish Fiscal Advisory Council Analytical Note Series No. 14. Dublin. Available at: www.FiscalCouncil.ie

This report can be downloaded at www.FiscalCouncil.ie

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Summary

Health outcomes in Ireland have improved in recent decades. Life expectancy at birth in Ireland has improved faster than in the typical EU Member State and is now in the upper 25% of EU countries.

But the rise in Ireland's public health spending over the past half century has been dramatic. In the mid-twentieth century, Ireland's public health spending was about 2% of national income. Before the Covid-19 pandemic, it had risen to four times that, at 8%.

Ireland ranks as a high spender on health internationally. Ireland ranks 6th highest for government spending on healthcare as a share of national income out of 33 OECD economies. Annual health spending has also risen at a faster pace than elsewhere: up from just below 6% of national income in 2000 to about 8% before the pandemic. Other OECD countries have seen slower increases of between ½ and 1½ percentage points. This is despite Ireland having had relatively favourable demographics over this time, with an old-age dependency ratio well below the median OECD country.

Ireland is a particularly high spender on outpatient services — daily hospital services excluding overnight or longer-term hospitalisations. Ireland's spending on services provided by acute hospitals is notably higher than in most other countries. Ireland's spend in this area in 2018 was equivalent to 2.9% GNI*, putting it higher than all OECD countries, except Finland, Sweden, and Japan.

Investment spending in health has been slightly above average in the past two decades, but Ireland still has a middling rank when it comes to its health infrastructure. Despite a reasonably high spend on investment, Ireland ranks about the median on the availability of key items such as hospital beds, mammography machines, and CT scanners.

Explaining the reasons for the rise in Ireland's spending on health care is not easy, though ageing and the general rise in people's incomes are likely to have played a role. It is generally understood that rising incomes and ageing put upward pressure on health spending. But there are other complicating factors. Wages can tend to rise in health areas as fast as in the wider economy, but productivity advances are often slower resulting in relatively high costs. The use of new technology also tends to boost spending, including for new drugs, treatments, machines, and tests. In addition, policy reforms such as with Sláintecare reforms can raise spending. While some of these changes come with improvements in efficiency, quality, or access to care, others simply raise costs.

It is striking that much of the fast increase in health spending in recent years has been unplanned. Spending on health has accounted for a disproportionately large share of total spending overruns in recent years. In the four years leading up to the pandemic, health accounted for 56% of total spending overruns, even though it only accounted for one-fifth of total current spending in 2019. The overruns were almost exclusively on current spending. Hospitals accounted for €264 million of the average annual €590 million overrun over 2015–2019, while community primary care services accounted for €148 million and the primary care reimbursement service €95 million.

An important feature of overruns has been staffing costs. Close to 65% of overruns in recent years were related to pay. Pay for hospital staff has exceeded initially planned budgets, especially due to the unplanned hiring of additional staff by the end of the year.

Planning and budgetary management in the public health sector has been flawed, leading to repeated overruns. The problems in health budgeting are manifold: predictable spending increases are routinely ignored, basic plans are not made in a timely manner, and this contributes to the classic problem of a "soft budget constraint". In other words, the overruns seen in Ireland in recent years appear to be a combination of both poor forecasts and poor controls on spending. We find that initial budgets were often less than the basic amount required to maintain existing levels of services while the outturn was broadly in line.

Part of the problem is that hospital and primary care budgets are often set too tight. The largest overruns in recent years were not in fast growing areas, such as support services or pensions. Instead, hospital budgets were provided with very modest planned increases, relative to the previous year's outturn, averaging 0.8% annually over 2016 to 2019, far below the likely cost of maintain the existing level of services. Actual increases in hospital spending averaged closer to 6.6% each year. Providing very limited budget increases in big spending areas appears to have set the scene for spending overruns.

A key driver of health overspends relates to poor staff planning. The HSE's "Pay and Numbers Strategy" reports, where detailed information on the number of staff expected to be hired in the year should be given, have tended to be submitted towards the end of the year in question, rather than ahead of time. Over the last two years, the report has been produced in the first three months of the year, but it would be better to produce these strategy documents well before the year has already started.

Sláintecare reforms could also mean substantial and permanent increases in Ireland's public healthcare spending, but basic information is severely lacking. Sláintecare represents a series of

major reforms in Ireland meaning more universal, publicly funded healthcare. While the reforms have been underway for almost four years, no budgeting is available beyond one year, no updated costings have been produced since 2017, and little clarity on progress made is publicly available. The Sláintecare reforms were estimated in 2017 to permanently add some €2.8 billion to annual public spending on healthcare. But ongoing pressures, such as those linked to pay, do not appear to have been factored into the original costings. This is likely to have driven up the final cost of implementing Sláintecare significantly. Updated costings, factoring in pay and price pressures should be carried out as a matter of urgency.

Public healthcare spending is likely to continue to grow as a share of national income. The Council's long-term projections suggest that public spending on health in Ireland would rise from 8.3% of GNI* in 2019 to 13.2% by 2050. Ireland's population is set to age rapidly as a large portion of the population enters retirement in the coming decades. The number of people over the age of 65 will more than double in 30 years time. About two-thirds of the estimated increase in health spending is due to ageing and population changes; one-third is due to price and wage pressures.

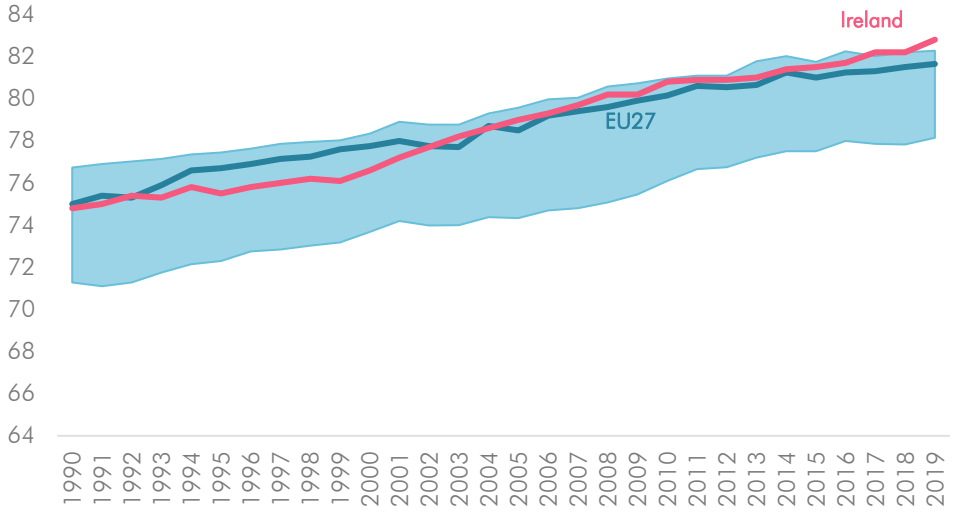
To address these challenges, healthcare spending forecasts need to be more realistic and developed earlier in the budgetary process. Public healthcare spending forecasts need to take account of all the factors driving increases in spending: demographics, price pressures and other factors such as increased demands as people's incomes rise. The Department of Health has recently revised up its estimates of demographic pressures bringing it in line with the Council's estimates. But rising demand for services, and rising prices — major sources of cost pressures —still do not appear to be modelled adequately. Accounting for these factors would make forecasts more realistic.

Better five-year budgeting could be a "game-changer" for managing health spending in Ireland. Ireland faces significant pressures on the public finances in the coming decades, including from climate change and ageing. A move to more realistic five-year spending ceilings could improve outcomes and help break the cycle of unrealistic plans and weak spending controls. More robust medium-term plans come with a lot of other advantages. They can give departments more certainty around funding; allow them better coordinate new initiatives; give the public a better sense of policies, benefits, supports, and taxes coming down the tracks; and improve Ireland's credibility on the markets when borrowing. The Government's new initiatives — the 5% spending rule and its budgeting of the "existing level of services" — are critical steps forwards. It is vital that these reforms are reinforced and followed through on.

1. Public Health spending in Ireland

Health outcomes in Ireland have improved substantially over the past several decades. For instance, Figure 1 shows the improvement in one measure of health outcomes; life expectancy at birth has improved by 8 years over the past three decades. The improvement in life expectancy has been faster than the improvement in the median EU-27 country, and life expectancy in Ireland is now in the upper quartile of the EU-27.

Figure 1: Life expectancy steadily increased over the last three decades
Years of life expectancy at birth

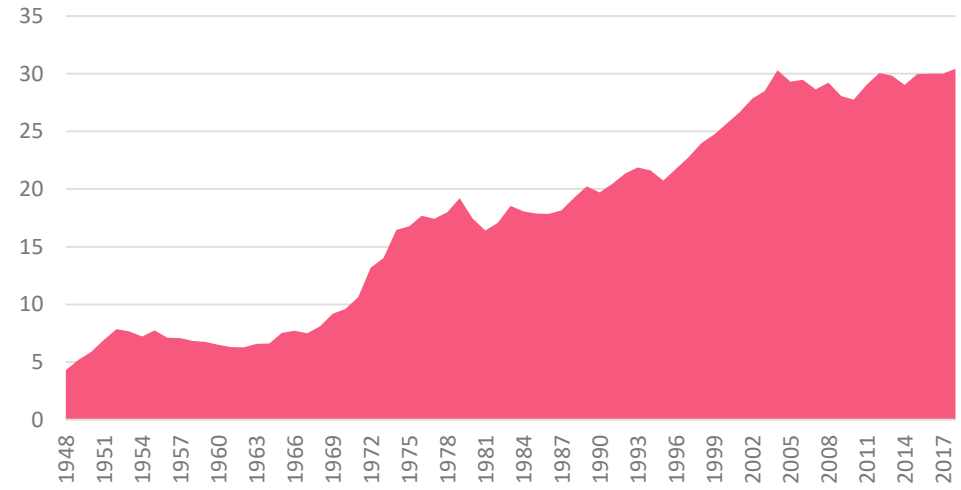


Sources: Eurostat; and own workings.
Notes: Figure shows the median and interquartile (middle 50%) range of life expectancy at birth for EU27 Member States constructed using the data available in any given year.

This improvement in outcomes has coincided with large increase in public health expenditure. Public Health spending has become a major part of overall government outlays in Ireland.

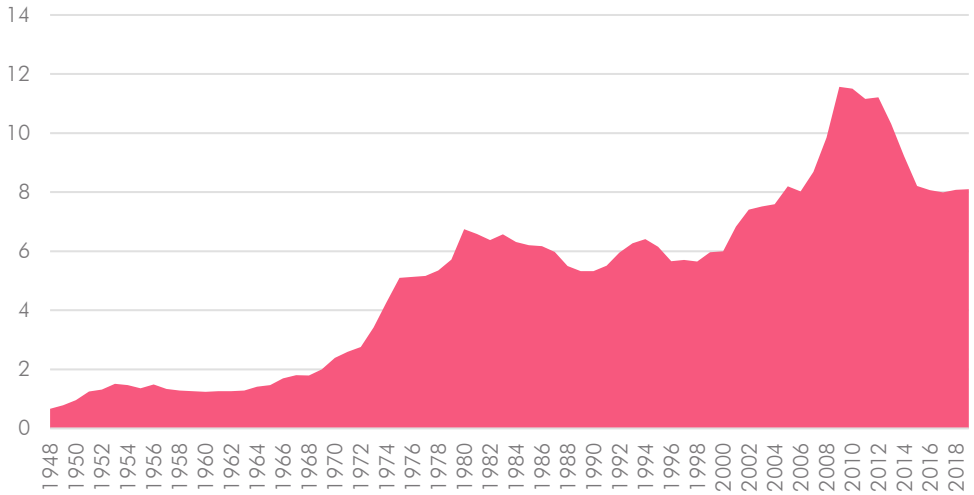
In the past seven decades, health spending has expanded to account for 30 per cent of total government spending. By contrast, it accounted for less than 10% prior to the early 1970s (Figure 2).

Figure 2: Health 30 per cent of all government spending
% total government spending



Sources: Barbieri & Bewley (Forthcoming).
Note: Gross voted health spending as % gross voted total expenditure (excludes "Office of Minister for children").

Figure 3: Public health spending has outpaced economic growth
% GNI*



Sources: CSO; FitzGerald and Kenny (2018); Barbieri & Bewley (Forthcoming); and own workings.
Note: Gross voted health spending (excludes "Office of Minister for children"). The 1974 figure is a linear interpolation between 1973 and 1975, due to 1974 being a 9 month financial year.

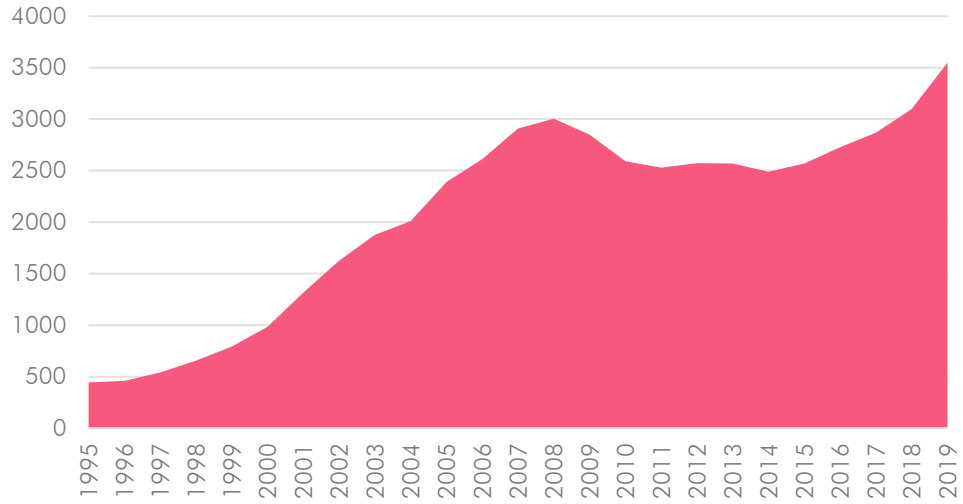
The pace that public health spending has grown at over the last several decades has also far exceeded growth in the economy. This has meant that health spending has risen from less than 2% of national income (Modified Gross National Income or GNI*) during the mid-twentieth century to about 8% in recent years (Figure 3).[1] The trend of rising health spending as share of national income appears to have stabilised since the early 2000s, allowing for the large contraction in nominal income around the banking crisis. Nevertheless, with the economy growing at a strong average pace over this period, per capita spending has continued to increase rapidly.

[1] Over the same period, total government spending (as measured by gross voted spending), increased from just under 19% of national income to under 27% of national income.

Indeed, adjusting for price increases (GNI* deflator), health spending per capita has increased by over 800% over the last 25 years (Figure 4). In 1995, the government spent approximately €440 per person on health. Whereas in 2019, the government spent €3550 per person on health.

Figure 4: Real public health spending per capita has risen substantially over the past 25 years

€, real health spending per capita (GNI* deflator, 2019 prices)



Sources: CSO; Barbieri & Bewley (Forthcoming); and own workings.
Notes: Nominal gross voted health spending from Barbieri & Bewley (Forthcoming), is deflated with the GNI* deflator. Health spending does not include the vote for "Office of Minister for children".

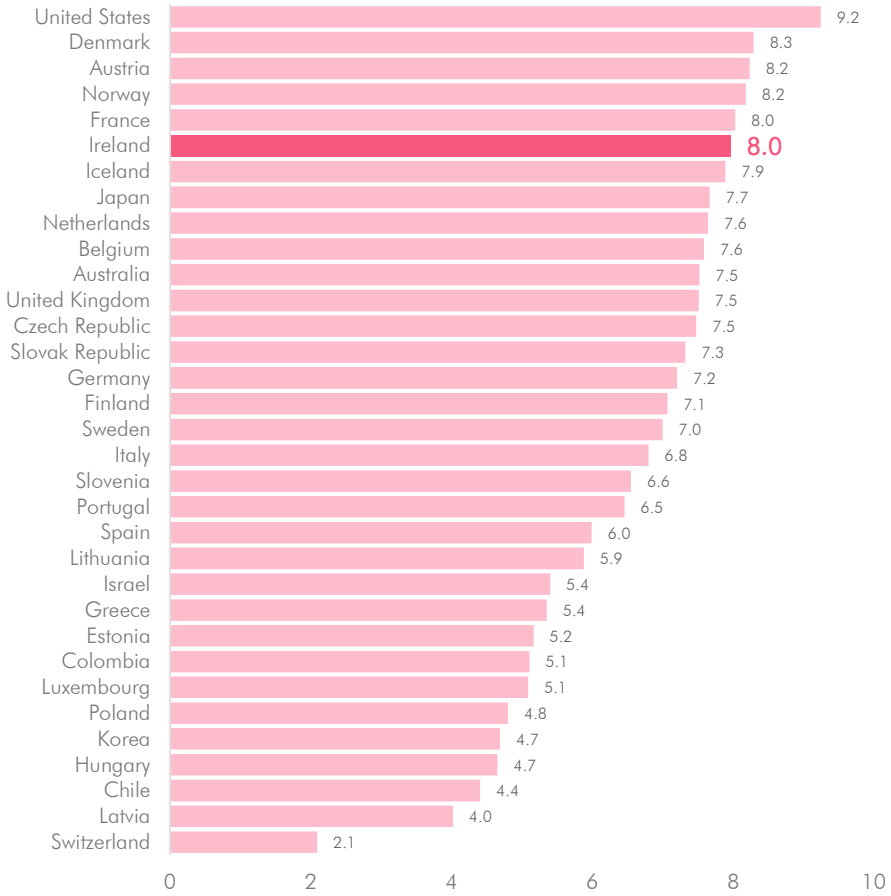
In international terms, Ireland is a high spender on health.[2] Of the 33 OECD countries where comparable data are available, Ireland ranks as the 6th highest for government spending on healthcare (Figure 5). That puts it behind only the US, Denmark, Austria, Norway, and France, and ahead of countries like the UK, which has a largely publicly funded model through the National Health Service.

Wren and FitzPatrick (2020) find that Ireland is still a relatively high spender on health, even if one accounts for differences in how social care expenditure is allocated across countries.[3] The authors note that, in part, this high spend in Ireland seems to be driven by high prices, and notably high wage costs.

[2] It should be note that international comparisons of health spending have several limitations relating to the comparability of data. Health spending comparisons across countries are hindered by data classification and measurement issues, as well as differences in health systems.

[3] Some long-term care, such as assistance services that enable a person to live independently, is classified as health spending in Ireland. However, in many other countries that report to the OECD, this can be classified as social spending. Wren and FitzPatrick (2020) find that Ireland's ranking for public spending in the EU15 drops from 5th to 6th when combined with *social* spending on health.

Figure 5: Ireland's public health spending is high relative to its peers
% GDP (GNI* for Ireland), 2018 data

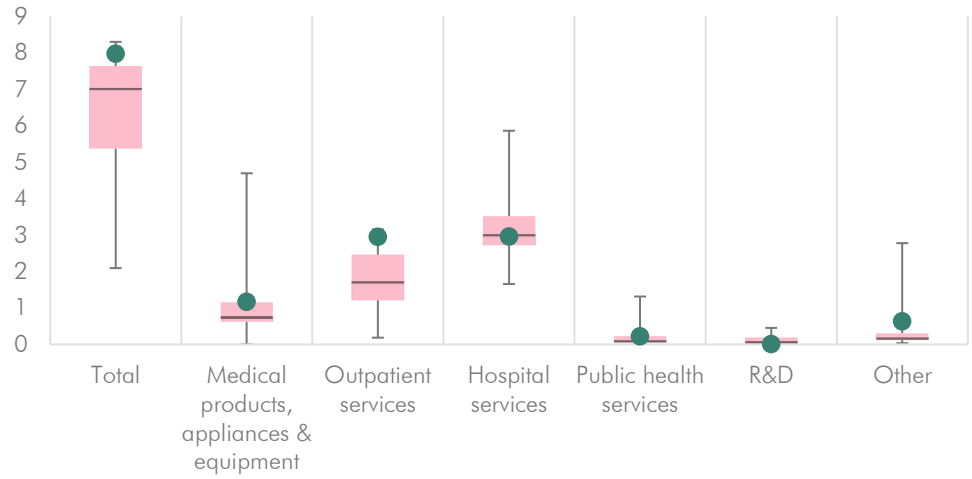


Sources: OECD; CSO; and own workings.
Notes: The data shown are for general government health spending in 2018, using the COFOG classification, relative to national GDP or, in Ireland's case national income (GNI*).

Within health spending, Ireland ranks as a very high spender on outpatient services.[4] Outpatient services are basically daily hospital services excluding overnight or longer-term hospitalisations. They are services provided by acute hospitals either for access to emergency departments or for services such as referrals by family doctors for specialist assessments. Irelands spend in this area in 2018 was equivalent to 2.9% GNI*, putting it higher than all OECD countries, except Finland, Sweden, and Japan. In other areas, Ireland is somewhat of a high spender in both public health services and in terms of public spending on medical products, appliances & equipment (Figure 6).

[4] Note, there are consistency issues with the data collected by the OECD. Across countries, there are different definitions of what should be included in each service bucket, which hinders comparability (For example, in Ireland, outpatient spending is "outpatient department of public hospitals. Whereas in France, outpatient only includes "private solo practice". Here, we take the data at face value, but urge that no strong conclusions should be taken from it.

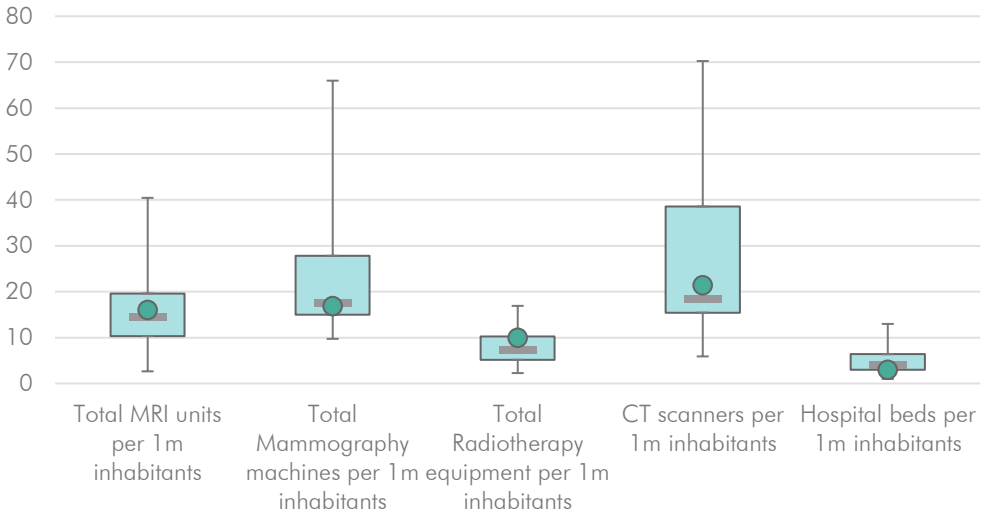
Figure 6: Ireland spends relatively more on outpatient services
% GDP (GNI* for Ireland), 2018



Sources: OECD; CSO; and own workings.
Notes: The data shown are for general government health spending (using the COFOG classification) relative to national GDP or, in Ireland's case national income (GNI*).

Ireland's public investment spending in the health area over the past two decades has been a cumulative 6.3% GNI*. This puts it close to the average for other countries (5.9% GDP).

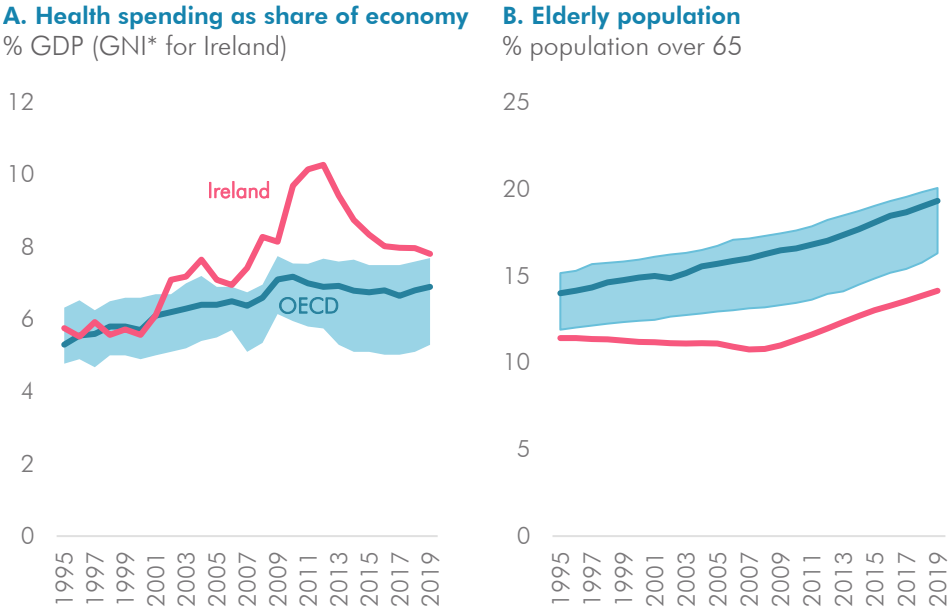
Figure 7: Ireland is around the median for many infrastructure outputs
2018 or latest available data



Ireland is around the median when it comes to the availability of key infrastructure outputs, such as hospital beds, mammography machines, and CT scanners (Figure 7). These only capture a small portion of healthcare infrastructure.

The increase in public spending on health in Ireland in recent years has outpaced that seen in most other OECD countries. Ireland's public health spending as a share of GNI* rose from just below 6% in 2000 to about 8% in the years before the pandemic. It was higher again in the early 2010s though this was partly due to a depressed denominator. In other words, nominal GNI* was weak amid the financial crisis. However, spending in other OECD countries has tended to rise more slowly, with most OECD countries seeing a rise in annual spending of between ½ and 1½ percentage points over the past two decades (Figure 8A). This is despite Ireland having favourable demographics in the past two decades, with the share of over 65s in Ireland remaining well below the median OECD country (Figure 8B). Taken together, the two panels in Figure 8 shows that much of the recent increase in health spending as a share of national income occurred at a time when the share of elderly population in Ireland was falling.

Figure 8: Health spending has risen fast by international standards despite favourable demographics



Sources: OECD; Eurostat; CSO; and Fiscal Council workings.
Notes: For health spending, OECD shows the median for OECD countries where data are available and the middle 50% range (inter-quartile range). Data are available from the OECD directly for 2007 onwards but are extended back to 1995 using Eurostat data for a subset of the OECD countries. For population data, the figure shows the median and interquartile range for the corresponding set of countries

Explaining the reasons for the rise in Ireland's spending on health care is not easy. Two key factors are often considered relevant in the literature: ageing and the general rise in people's incomes. That is, health spending tends to rise as the population ages as a lot of health spending is concentrated at older ages; and health is seen as a "luxury good" — a good that demand rises for faster than incomes rise. As Marino *et al.* (2017) note, approaches that relied on these factors to explain health spending across countries were first employed in the late 1970s. The studies mainly referred to ageing as the share of the elderly aged 65 and

over and to the income elasticity as GDP per capita (Newhouse 1977; Kleiman 1974).

Using data for Ireland over the past five decades, with a similar specification to the earlier studies mentioned, we find that incomes and ageing are positive and significant drivers of healthcare spending over time (Annex 1). However, the simple approach set out in early studies is poorly specified. The addition of a simple time trend or lag, which is appropriate, suggests that the two drivers are less important. However, that does not mean they are irrelevant. It is possible that, as they also trend upwards over time, such a specification simply overlooks their importance. It is likely that there is some residual factor driving health spending increases *as well as* ageing and rising incomes. Other drivers that are more difficult to model—such as the evolution of medical treatments and decisions about the level of care—may also be playing a crucial role in driving up spending over time.

While ageing and incomes do play a role, these factors alone have since been found in the wider literature to fail to explain a sizable share of observed spending growth internationally. Regressions in early studies that used only ageing and income as the main determinants of health spending were, on average, able to explain only around 50% of spending (Marino *et al.,* 2017). Incomes are still an important driver, but not the only factor. Moreover, time to death is thought to be more relevant than generalised ageing of the population, given that spending rises significantly in the two years prior to death, and very significantly in the final six months. This view is borne out in research by Zweifel *et al.* (1999); Aprile (2007); Breyer and Felder (2006); and Yang *et al.* (2003).

The drivers of health spending may therefore be more difficult to ascertain and can have complex interactions with each other. Marino *et al.* (2017) cite other drivers considered relevant in the literature. These include (1) Baumol's cost disease wherein health sector wages tend to rise faster—and more in line with wages elsewhere—than productivity in the health sector rises, hence increasing costs for the same level of output; (2) technological advancements increase spending, including on new drugs, treatments, machines, and tests by opening up new possibilities for treatment;[5] and (3) specific policy reforms and choices can lead to higher healthcare spending (for example, the Sláintecare reform is intended both to improve healthcare and to expand public provision). While some of the increases in healthcare spending are likely to come with improvements in quality or access to care, such as in the case of technology advances, some will simply raise costs without improving quality and access, such as with Baumol's cost disease.

[5] In other instances, technological advancements can reduce the unit cost of treatment and may lower expenditure.

Forecasting healthcare spending therefore requires a careful assessment of many factors. Yet data limitations will impede our ability to model health spending accurately. To account for the various potential drivers, the Fiscal Council's Long-term Sustainability Report (2020a; 2020b) modelled health spending using a bottom-up approach across three dimensions:[6]

1) National income demand pressures: with an assumed elasticity of health spending per capita to real GNP per capita of one.[7] This implies that the real amount of health spending rises in line with incomes, other things equal.

2) Demographic pressures: age-specific cost breakdowns, accounting for complexity of treatment, were available for spending on primary care and for acute hospital discharges. Spending could then be assumed to increase by either total population growth or growth in age cohorts 65+. For long-term residential care costs, recent age profiles of applicants and average length of stay were used.

3) Price pressures: Prices were split into pay and non-pay components. To keep services constant, it was assumed that wages keep pace and grow in line with general wages. Price pressures on non-pay spending were linked to general price growth through the GNP deflator. To account for rises in technological costs, a health price premium of 1 percentage point was added.[8] Drug costs were treated like other non-pay spending though these can attract higher price increases.

The Council's projections suggested that public spending on health in Ireland would rise from 8.3% of GNI* in 2019 to 13.2% by 2050. A simple decomposition of the increases would suggest that approximately two-thirds of the increase would be due to demographic pressures (including ageing and population increases) and one-third due to price and wage pressures (Fiscal Council, 2020a).

Detailed work using the ESRI's Hippocrates model suggests similar implications for health spending in Ireland in the coming years. Keegan *et al.* (2020) project that price and wage increases, rather than ageing, will be the main driver of nominal public spending increases to 2035 for

[6] This approach also underpins the Council's Standstill scenarios. See here for further details: https://www.fiscalcouncil.ie/stand-still-scenario/.

[7] This mirrored the approach of other institutions including the Office for Budget Responsibility (OBR) in the UK, the Central Budget Office (CBO) in the US and the European Commission (see Licchetta and Stelmach, 2016; CBO, 2009; and European Commission, 2018). An alternative elasticity of 0.7 was also considered, the magnitude found across OECD countries over 1994–2015 and used in recent OECD projections (Lorenzoni *et. al.*, 2019).

[8] Again, this is similar to the OBR and CBO convergence assumptions on excess cost growth, see OBR (2018) and CBO (2019).

acute hospitals.[9] Together, pay, drug costs, and other costs make up close to three-quarters of the projected increase in health spending, with ageing making up a fifth. Similarly, Walsh *et al.* (2021) show that close to a half of pressures in spending on primary, community and long-term care services in Ireland will be driven by pay and price pressures, with ageing accounting for about one-fifth of the projected increases.

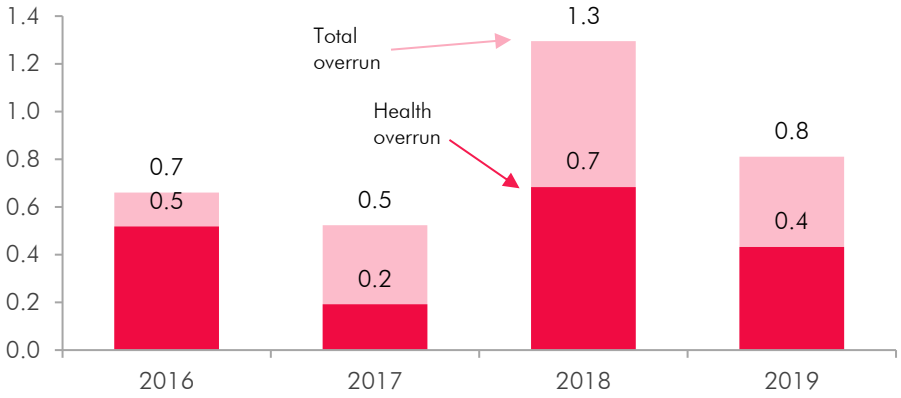
[9] The difference in the share of the cost increase that is attributable to ageing between Keegan et al. (2020) and the Fiscal Council (2020a) relates to a presentational difference in the decomposition of these ageing costs. Keegan et al (2020) estimate the costs associated with ageing using the base year prices coupled with the relevant change in demographics in any subsequent year. Whereas for the LTSR, the Council estimate the share of spending attributable to demographics using a chain-linking approach. That is, the Council estimate the demographic contributions based on the year-on-year changes in the relevant demographic cohorts in the current year (t) and the cohort cost in the previous year (t-1). See Fiscal Council (2020a) for details. While the Keegan et al. (2020) approach may be an appropriate presentational approach for short-term modelling, the Council feel that the chain-linking approach is more appropriate for long-term projections. For its previous short-term modelling of stand-still costs (see Fiscal Council (2019)), the Council had used the same approach as Keegan et al. (2020).

2. Recent overruns

While the increase in health spending in Ireland has been somewhat faster than international trends (given Ireland's age profile), it is striking that much of the increase in recent years has been largely unplanned. Overruns, that is spending over and above what was originally budgeted for, account for half of the increases observed in recent years (Figure 9). Spending on health has accounted for a disproportionately large share of total spending overruns across various areas of Government in recent years. In the four years leading up to Covid, health accounted for 56% of total spending overruns, even though current government spending on healthcare only represented about one-fifth of all current spending in 2019.

Figure 9: Health accounted for more than half of recent overruns

€ billions, government spending overruns



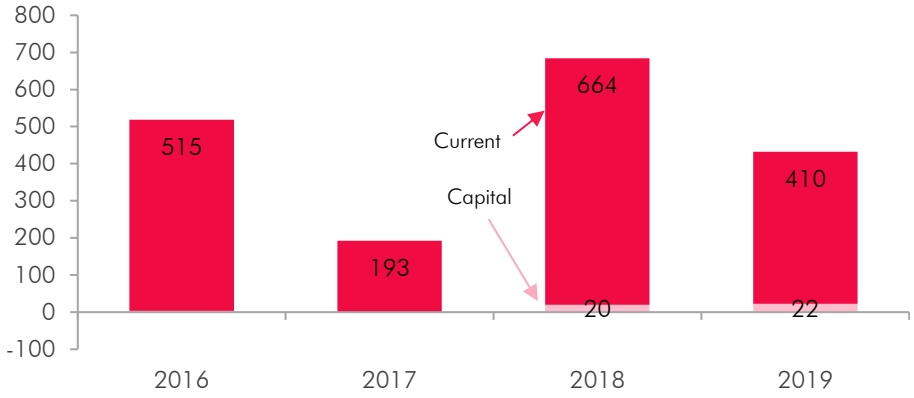
Sources: Department of Public Expenditure and Reform; and Fiscal Council workings.
Notes: The figure shows within-year spending increases. These are based on gross voted spending outturns as compared to forecasts. The forecast vintages used are: *Budget 2015* for 2015; *Budget 2016* for 2016; *Budget 2017* for 2017; *SPU 2018* for 2018 (due to the reclassification of spending on water services into the Department of Housing); and *Budget 2019* for 2019.

Overruns in health in recent years almost exclusively relate to overruns on current spending (Figure 10).[10] By contrast, capital spending has accounted for relatively marginal overruns in the past four years. These increases within a given year have built into the baseline of spending for the following year, leading to large cumulative increases in spending relative to plans made in earlier years.

[10] Capital spending has accounted for, on average 3.3% of total health spending over 2016-2019.

Figure 10: Health overruns almost entirely on current spending

€ millions, government spending overruns



Sources: Department of Public Expenditure and Reform; and Fiscal Council workings.
Notes: The figure shows within-year spending increases. These are based on gross voted spending outturns as compared to forecasts. The forecast vintages used are: *Budget 2015* for 2015; *Budget 2016* for 2016; *Budget 2017* for 2017; *Budget 2018* for 2018; and *Budget 2019* for 2019.

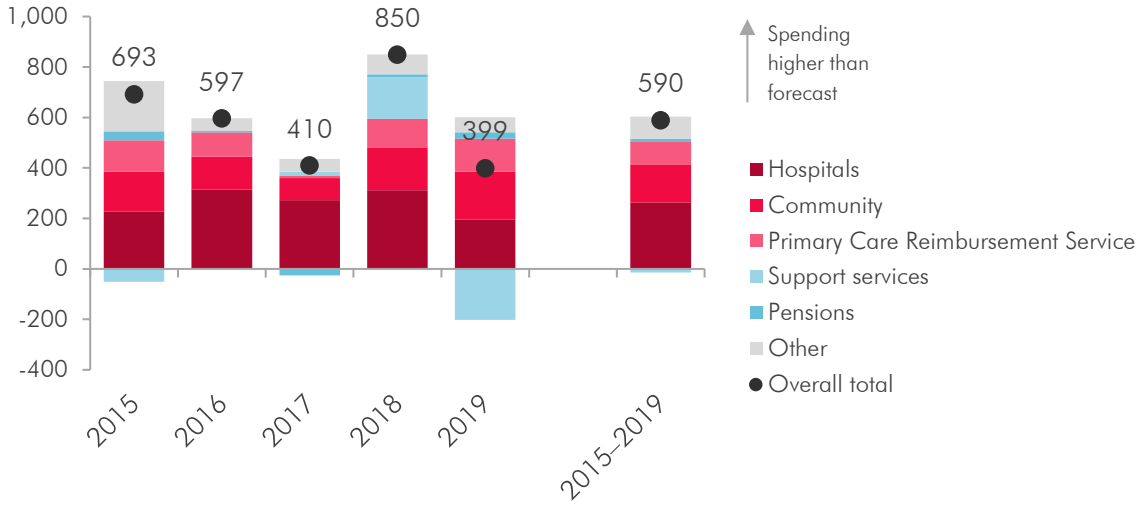
Looking more deeply, we can see that hospital and primary care are the main drivers of spending overruns (Figure 11).[11] Using data for the Health Service Executive, rather than the wider health area, we can see that overruns from 2015–2019 averaged €590 million per annum. Within this, hospitals accounted for €264m of the average overrun, community primary care services €148 million and the primary care reimbursement service €95 million. [12]

[11] This is an extension of earlier work by Howlin (2015).

[12] Due to data availability issues, the data reference here is on a "net" basis. On a gross basis, over 2016-2019, total HSE overrun was €590 million. Hospitals overran by €240 million and community primary care services by €158 million.

Figure 11: HSE overruns mainly due to hospitals and primary care

€ millions, government spending overruns (+) / underspends (-)



Sources: Health Service Executive performance reports/data management reports; and own workings.
Notes: Due to data availability issues, data is on a "net" basis (net of income each programme receives). Forecasts for the year are taken from the end-January Performance Reports; outturns from end-December. Hospitals includes acute hospitals + ambulances. Community includes Community Healthcare Organisations, Regional/National (Primary care, mental health, older persons care, disability services). The annual average is shown for 2015–2019 in the last bar.

Part of the problem seems to be that hospital and primary care budgets have been set too tight relative to the ultimate increases seen.[13] As can be seen in Table 1, the largest errors seen in recent years were not in fast growing areas, such as support services or pensions. Instead, some areas like hospital budgets were provided with very modest planned increases, relative to the previous year's outturn, averaging 0.8% annually over 2016 to 2019, far below the likely cost of continuing to pay for the costs of existing employees and inflation.[14] Actual increases in hospital spending have averaged closer to 6.6% each year. Similarly, for Primary Care, the budgeted increases were very low at 0.6% whereas actual increases averaged 4%. Providing very limited budget increases appears to have set the scene for spending overruns.

[13] The budgets have been set too tight relative to maintain the existing level of services. See Figure 16 for details.

[14] Due to data availability, the figures in Table 1 are on a net basis. On a gross basis, over 2017-2019, hospital budgets were provided with increases of on average 1.6% over the previous years outturn, whereas the actual increases were on average 5.5%.

Table 1: Forecast errors in recent years

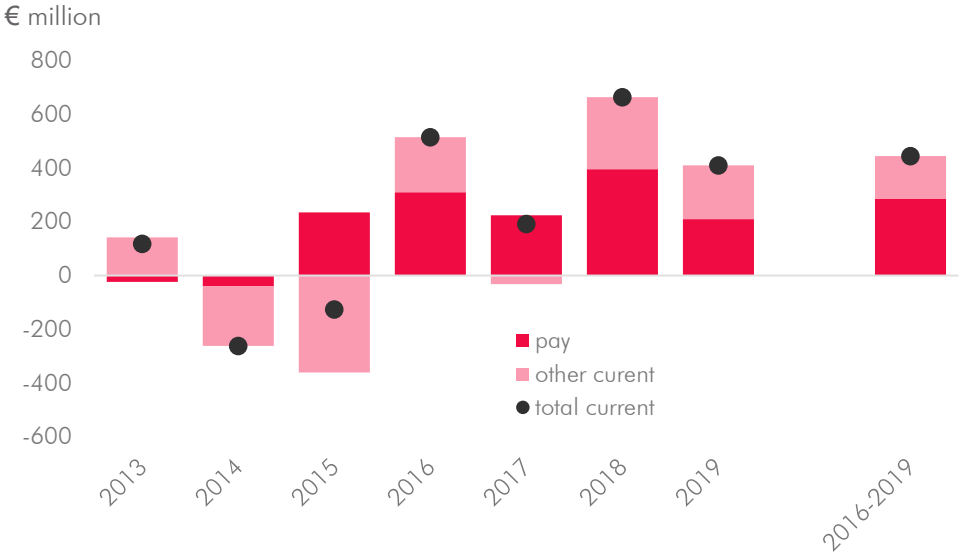
		2016	2017	2018	2019	Average 2016-2019
Hospitals	Actual % y/y	5.0	6.6	7.1	7.7	6.6
	Budgeted % y/y	-2.2	0.6	0.7	4.0	0.8
	Error pp	7.2	5.9	6.4	3.7	5.8
	Error €bn	0.3	0.3	0.3	0.2	0.3
Community	Actual % y/y	4.8	5.0	6.6	5.7	5.5
	Budgeted % y/y	2.1	3.3	3.4	2.3	2.8
	Error pp	2.7	1.7	3.2	3.4	2.7
	Error €bn	0.1	0.1	0.2	0.2	0.1
Primary Care Reimbursement Service	Actual % y/y	5.0	2.1	5.1	3.8	4.0
	Budgeted % y/y	1.0	1.7	0.7	-1.1	0.6
	Error pp	4.0	0.4	4.4	4.8	3.4
	Error €bn	0.1	0.0	0.1	0.1	0.1
Support services	Actual % y/y	5.0	11.6	81.3	-4.8	23.2
	Budgeted % y/y	4.7	6.2	32.0	28.3	17.8
	Error pp	0.3	5.4	49.2	-33.1	5.4
	Error €bn	0.0	0.0	0.2	-0.2	0.0
Pensions	Actual % y/y	31.6	16.6	9.1	24.3	20.4
	Budgeted % y/y	30.0	24.4	6.1	18.2	19.7
	Error pp	1.6	-7.8	3.0	6.1	0.7
	Error €bn	0.0	0.0	0.0	0.0	0.0
Other	Actual % y/y	6.0	13.4	-23.9	14.4	2.5
	Budgeted % y/y	-1.5	6.5	-33.6	4.8	-5.9
	Error pp	7.5	6.9	9.7	9.6	8.4
	Error €bn	0.1	0.0	0.1	0.1	0.1
Overall total	Actual % y/y	5.5	5.9	6.6	6.5	6.1
	Budgeted % y/y	0.8	2.8	0.6	3.9	2.0
	Error pp	4.7	3.0	5.9	2.6	4.1
	Error €bn	0.6	0.4	0.8	0.4	0.6

Sources: Health Service Executive performance reports and data management reports; and own workings.

Notes: Forecasts taken from the end-January Performance Reports; outturns from end-December. Hospitals includes acute hospitals + ambulances. Community includes Community Healthcare Organisations, Regional/National (Primary care, mental health, older persons care, disability services). Due to data availability issues, data is on a "net" basis (net of income each programme receives). "Budgeted %" = ((budgeted outturn / actual outturn$_{t-1}$)-1)*100. "Actual %" = ((actual outturn / actual outturn$_{t-1}$)-1)*100. Errors are the actual outturns as compared to budgeted outturns.

An important feature of hospital spending is that around 70% expenditure relates to pay. This includes wage payments to hospital staff, which has recently exceeded initially planned budgets, especially due to the unplanned hiring of new staff by the end of the year.

Figure 12: Pay overruns accounts for close to 65% of current health spending overruns from 2016 to 2019



Sources: Various Expenditure Reports; Department of Public Expenditure and Reform databank and own workings.

Looking at overall health spending, close to 65% of recent overruns are related to pay (Figure 12). Over the period 2016–2019, current health spending overran by on average €445 million per year and the overrun on the pay bill was, on average, €285 million.

Public spending across all areas of government can usually be forecast based on what the government plans to spend. That assumes the amount spent should be under the government's control. The main exceptions are welfare payments, which depend on the number of claimants. While healthcare costs have some elements that are not fully controlled (such as the size of seasonal disease outbreaks), most of the elements can be controlled by the government in principle. In most government spending areas, spending tends to be close to the budgeted amounts in the near term and broadly to follow overall trends, taking into account wages and inflation. By contrast, spending overruns in health have been large and consistent.

A general point that can be made is that health spending overruns could be a result of:

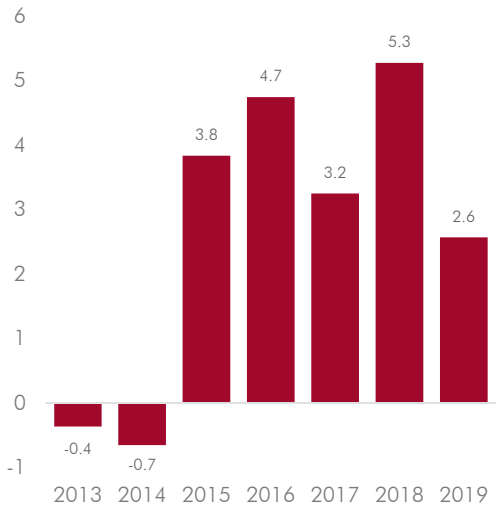
1) bad budgeting in the sense that the spending plans do not match what the spending required to deliver the services that are planned;
2) bad controls on spending that lead to more services being provided or at higher cost per service than planned; or
3) a combination of both.

Both panels in Figure 13 indicate that the overruns in recent years appear to be a combination of both poor forecasts and poor controls on spending. Up until 2015, an Employment control framework was in place.

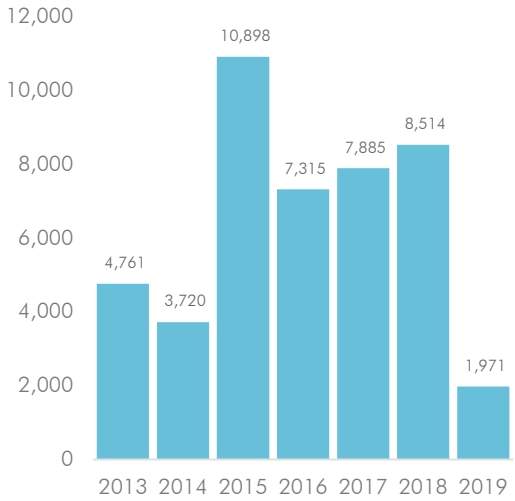
As can be seen in Figure 13A, overruns of the pay bill occurred only after this framework was removed. The forecast errors for the pay bill have been relatively large since then, averaging 4% per year over 2015–2019.

Figure 13: Forecast errors in pay and staffing levels have been large

A. Pay bill errors have been large
Error as % of forecast pay bill



B. Staffing levels persistently above forecasts
No. of people over forecast staff levels



Sources: Various Expenditure Reports; Public service numbers databank and own workings.
Note: Staffing figures are on a whole-time equivalent (WTE) basis.

The large size of the forecast error on staffing levels is indicative of poor budgeting, particularly over 2015–2018 (Figure 13B). However, this figure also shows evidence that these overruns in staffing levels are also because of poor controls. Interim control measures on staffing were introduced in the HSE in early 2019, and subsequently the forecast error on staffing levels decreased dramatically from an error of over 8,500 whole time equivalents (WTE) in 2018 to 2,000 WTE in 2019.

Has the rise in staffing been difficult to predict? Using comparable data on those employed in health and social care activities, we can see that Ireland has had an increase in staffing in the general healthcare sector that is broadly consistent with other countries in recent times. Ireland's number of individuals employed in human health and social work activities increased by 20% between 2008 and 2019. The EU and Euro Area averages were 22% and 24%, respectively, while the range for the middle 50% of European countries was 14% to 31%.

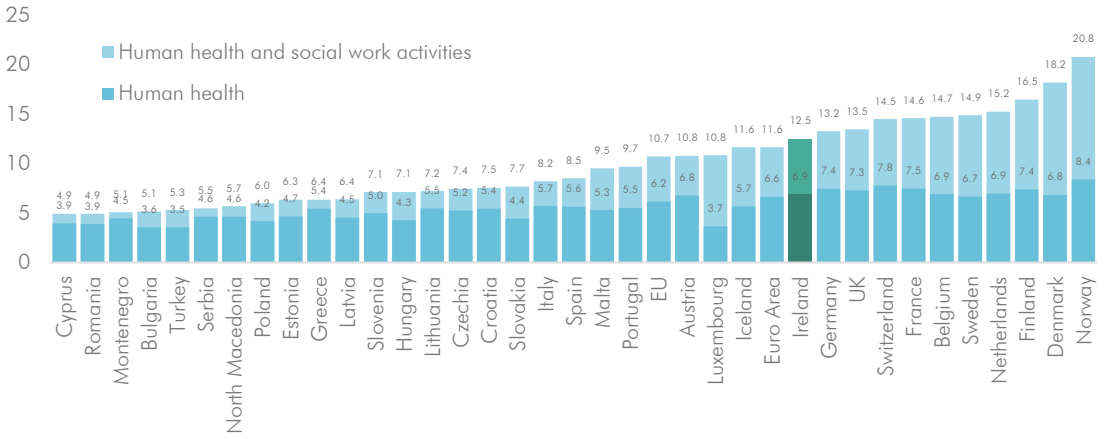
In terms of the level of staffing employed in health areas, Ireland is slightly higher than the EU and Euro Area averages (Figure 14). About 12.5% of those employed in Ireland in 2019 were working in health and social work activities, with 6.9% working specifically in human health areas. This compares to 11.6% and 6.9% for the Euro Area, respectively, and 10.7% and 6.2% for the EU.

We can see that the total share of workers that are employed in health and social care areas, both public and private, rose by 1.5 percentage

points over the period 2008 to 2019. This was about the average seen across Europe (Figure 15). In terms of composition, however, the increases relative to total employment were concentrated in social work and residential care activities. By contrast, the proportion of total employed that were working in human health activities declined marginally by 0.3 percentage points over the period.

Figure 14: Health employment towards the higher end of European norms

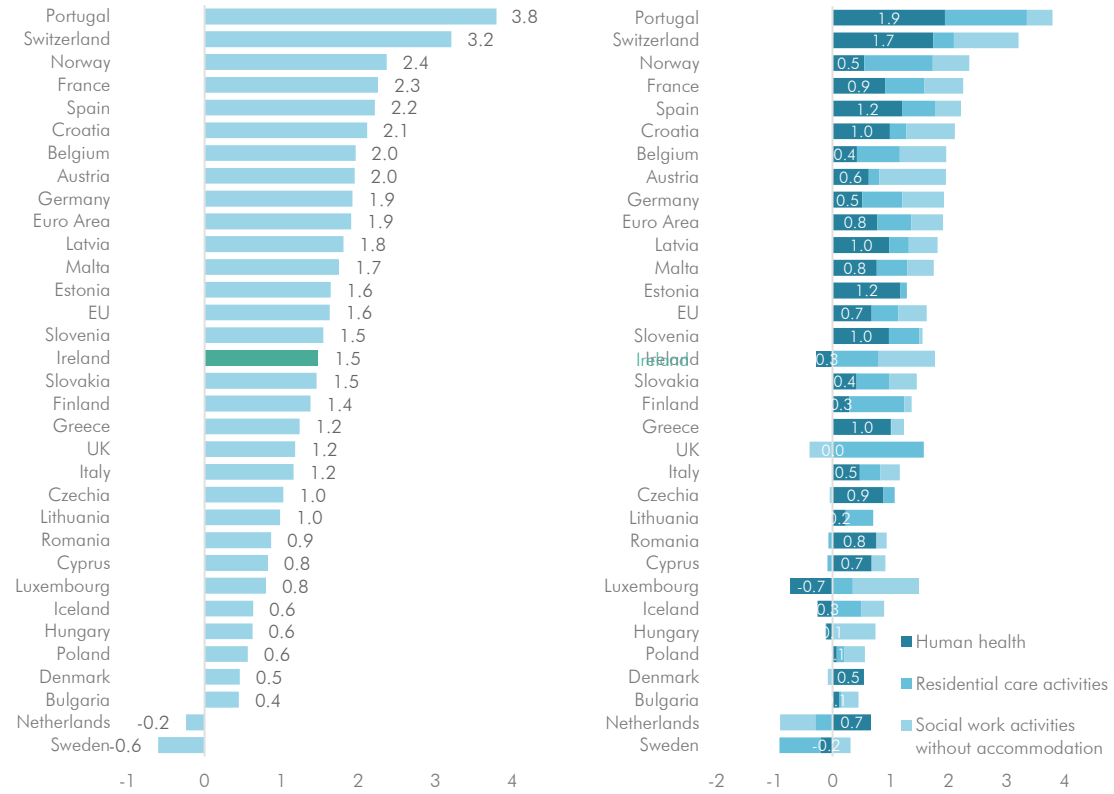
% total employment (public + private)



Sources: Eurostat.

Figure 15: Increases in health workers about average but driven by social and residential care activities

Change in share employed in health and social care activities as % total employment between 2008 and 2019 (public + private)



Sources: Eurostat.

3. Planning and control failures

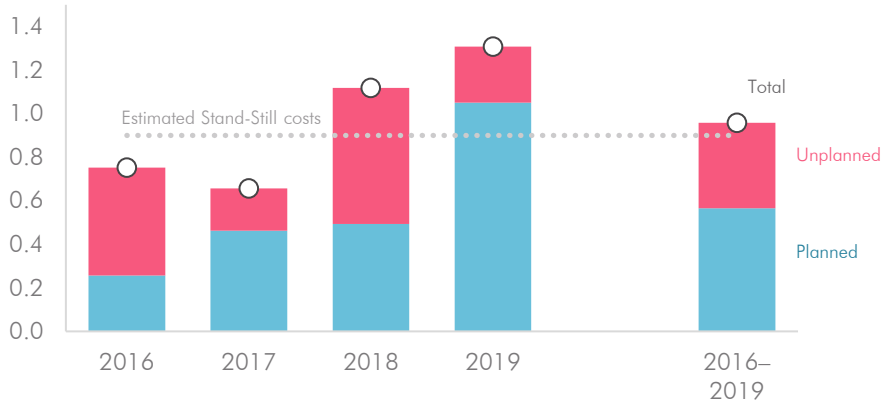
Planning in public healthcare is flawed, leading to the pattern of overruns documented in the previous section. As this section shows, predictable spending increases have been routinely ignored, basic plans are not made in a timely manner, and this sort of approach has been shown in the literature to contribute to the problem of a "soft budget constraint".

Furthermore, the weaknesses in planning around health spending pose wider risks to the public finances, with temporary receipts being used to fund the unexpected permanent spending increases in health in recent years.

Predictable increases in spending are routinely ignored

One of the features of health increases in recent years has been that the unplanned overruns have been almost as large as the planned-for increases themselves. That is, budgets set out for the coming year tend to be lower than is ultimately needed, such that almost twice the planned amount ends up being spent in a given year.

Figure 16: Increases predictable and nearly twice that planned
€ billion increases in annual health budget



Sources: Department of Public Expenditure and Reform; and own workings.
Notes: The data shown are for Exchequer gross voted current spending in health. Planned increases are defined as the forecast for a given year made one year ahead (t+1) minus the previous periods' outturn (t), while unplanned increases are the difference between that forecast for year t+1 and the actual outturn in year t+1. The Stand-Still cost estimates averaging €900 million per annum are based on a once-off back-casting exercise that was performed for the period 2014–2017. These estimates have tended to rise over time as healthcare spending expands.

As Figure 16 shows, total health spending increases were just shy of €1 billion each year between 2016 and 2019. However, the government set out annual planned increases in health spending of only €566 million, meaning that unplanned increases amounted to €393 million on average over the period.

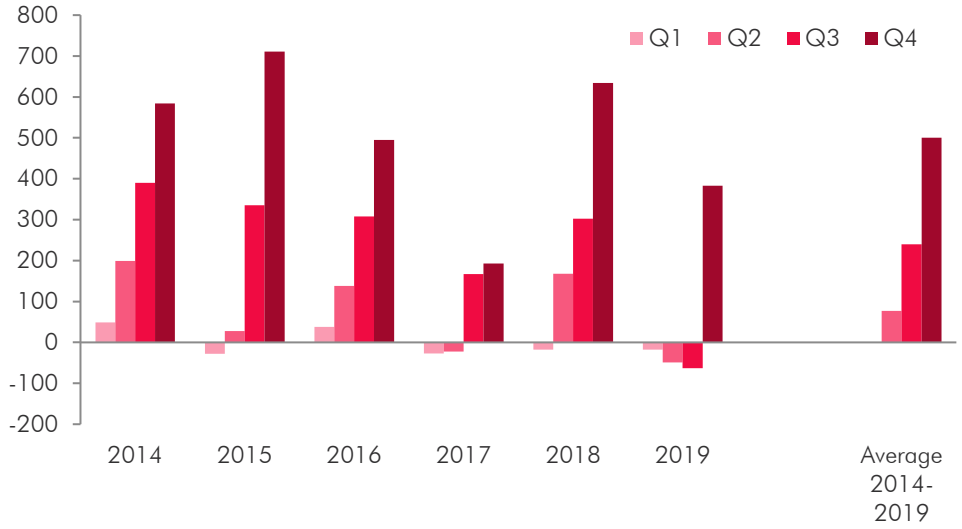
It is striking that actual increases in health spending were closer to what the Council's Stand-Still estimates would have suggested than the

forecasts. That is, the initial budgets were less than the amount estimated to maintain the existing level of services while the outturn was broadly in line.[15] The Council's estimated annual increases in the costs of health spending would have amounted to approximately €900 million each year when estimated over an historical period. This is when the cost of maintaining public services in real terms is accounted for. That is, allowing for price increases and demographic pressures and assuming no policy changes. This Stand-Still exercise forms a regular part of the Council's routine analytical work.[16]

It appears part of the reason health spending has overrun in recent years is due to forecasts being unrealistically low. As Figure 16 shows, smaller planned increases are associated with larger overruns. In addition, the forecasts for spending in the fourth quarter of each year have been unrealistically low (Figure 17). By the end of Q3, health overruns have averaged €240 million. However, the overruns for Q4 alone, have averaged over €260 million. On average over 2014-2019, spending in Q4 has accounted for 25.7% of total health spending, whereas the average forecast for Q4 spending has only amounted to 24.7% of forecast health spending.

Figure 17: Majority of health overruns occur in the 4th Quarter of the year

€ million (cumulative), per quarter



Sources: Various Fiscal Monitors; and own workings.
Note: Overruns are shown in terms of gross voted current spending and are derived from the monthly Fiscal Monitors outturns less profiles.

As outlined in Howlin (2015), a failure to stay within initially forecast hospital spending arises from an underestimation of: (1) the demand for hospital services; (2) the efficiency of service delivery; (3) the impact of cost containment measures; or a combination of these factors.

[15] This partly reflects a cut in existing levels of some services and an expansion in other areas.

[16] See, for example, the Supporting information section of the Council's *May 2021 Fiscal Assessment Report*.

Another issue potentially hampering planning for healthcare spending is the issue of data limitations. More detail on the use of services by age across the healthcare sector would allow for better modelling of the sensitivity to demographic changes. However, very limited age-related data exist for parts of community services, for example. Modernising information systems could provide a way to better match provision (and spending) to populations based on their need for healthcare.

Looking forward, the Council's latest Stand-Still estimates indicate that maintaining current health services in real terms could cost an additional €1.4 billion each year over 2022 to 2025. Of this, €0.3 billion is due to demographics, while prices are expected to add some €1.1 billion to the rise in costs each year.

A recent IGEES Spending Review paper revised up previous estimates of the demographic costs for health spending from an average of €183 million per year over 2022-2025, to €356 million per year (Lindberg & McCarthy, 2021).[17] This brings the estimates into line with the Council's estimates of pure demographic pressures. However, price pressures were not modelled in the Spending Review paper.

Basic plans are not made in a timely manner

Failures in planning around health spending have been repeatedly highlighted by a number of institutions. This includes the European Commission (2019), which notes that "comprehensive planning and funding models are either non-existent, poorly functioning or unconnected locally and regionally".

A key driver of health overspends relates to poor staff planning. Connors (2018a) notes that the HSE is required to produce a "Pay and Numbers Strategy" every year. This should include detailed information on the number of staff expected to be hired in the year. However, these reports have tended to be submitted towards the end of the year in question, rather than ahead of time. For example, a revised version of the document for 2016 was submitted in December 2016, which looked to significantly increase the end-2016 staffing number. This was done despite no explicit policy change that would have provided funding for such increases. In 2017 and 2018, the strategies were submitted in November and August, respectively.

Over the last two years, the timeliness of the "Pay and Numbers Strategy" appears to have improved, with the strategy produced in the first quarter of the year according to minutes of the Health Budget Oversight Group.[18]

[17] This revision to the estimates of demographic costs is due greater data available which allowed for a wider modelling of health services.

[18] See here for details: https://www.gov.ie/en/collection/31f5d3-hbog-finance-subgroup-minutes/ .

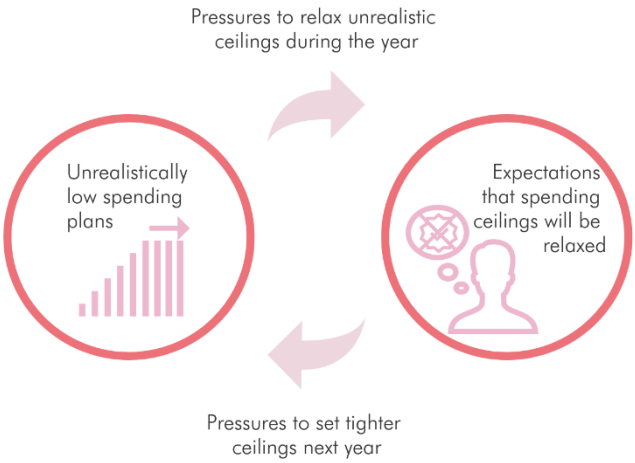
However, to help budgeting, it would be more appropriate if this strategy was produced ahead of time, as opposed to in-year.

Poor planning is aggravated by a rush to recruit at the end of the year. As highlighted in Connors (2018b), recruitment in the HSE tends to be concentrated towards the end of the year. Some 40% of annual increases in staffing took place in the final three months of the year over the period 2015 to 2017.[19] This may be partly as a result of it taking several months to complete a recruitment process in the HSE.[20]

A "soft budget constraint"

The combination of weak planning and weak spending controls in the health area is likely to have led to the problem of a "soft budget constraint".[21] That is, budget ceilings are repeatedly relaxed, health managers do not see the ceilings as credible, and this, in turn, may lead to weaker efforts to control spending and more unplanned increases in spending.

Figure 18: How the "soft budget constraint" works



If spending ceilings are perceived to be weak, budget plans can lose credibility, and this can lead to further uncontrolled increases in spending. Managers anticipate yearly spending ceilings will be relaxed at a later stage with little opposition so may have less of an incentive to stay within initial ceilings. Given the nature of health spending, it is difficult to impose

[19] This figure is on a WTE basis and does not include agency staff.

[20] See testimony by a representative of SIPTU at the Oireachtas joint committee on Health, Wednesday 20th November 2019: https://www.oireachtas.ie/en/debates/debate/joint_committee_on_health/2019-11-20/4/.

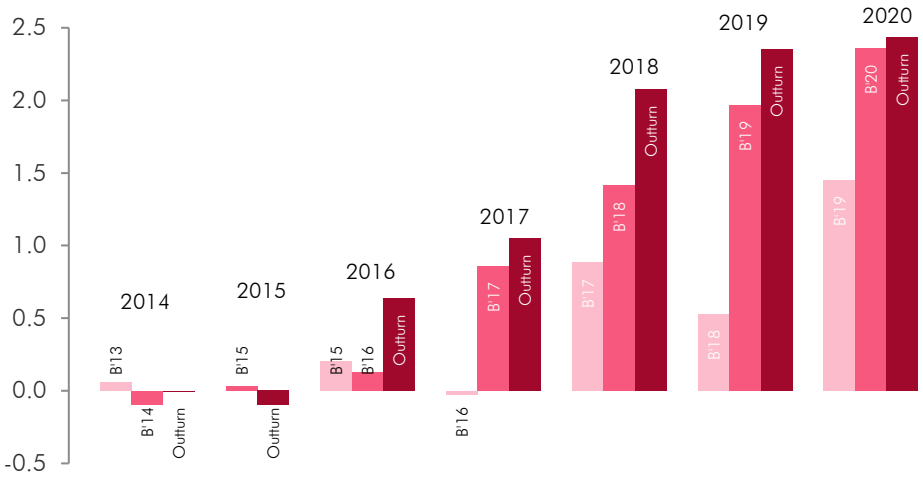
[21] The original theory of the soft budget constraint (Kornai, 1992) noted that the budget constraint is soft where decisionmakers in control of day-to-day expenditure anticipate that constraints are likely to be relaxed if the original constraints are not met. This is notwithstanding initial threats to impose hard budget constraints. Where the budget setting process is weak, this relaxation of budget constraints may further soften the budget constraints. The manager—knowing plans are poorly set—has less of an incentive to adhere to such constraints. The existence of a soft budget constraint may also weaken the planning process where budget allocations have been persistently exceeded in the past leading to overly tight spending targets being set.

drastic spending cuts if managers have already locked in higher spending, both because of fixed labour commitments and because patients still require care. This can lead to pressures to set even tighter ceilings for subsequent years in an effort to claw back overruns or to discipline against the behaviour that causes overruns.

Figure 19 shows clear evidence of this soft budget constraint in relation to the health budget. Gross voted current expenditure ceilings have been significantly revised in recent years, with the outturn for 2019 some €2.4 billion higher than the original ceiling for 2019.

Figure 19: Revisions to the Health expenditure ceilings are evidence of the soft budget constraint

€ billion



Sources: Various Expenditure Reports; and Department of Public Expenditure and Reform databank.
Note: Figures relate to gross voted current expenditure for the Health vote. Bars show the change in ceiling from various budgets followed by outturns, versus the earliest budget ceiling for that year (e.g., B'15 = expenditure ceiling in Budget 2015 minus the earliest ceiling for the specified year). Data for the 2020 outturn are adjusted for Covid-19 spending. Between Budget 2014 and year-end 2014, more than €500 million was transferred from the Health vote to the Children and Youth Affairs vote. As the bars in the graph indicate the change from the earliest budget forecast to the outturns, this transfer means the outturns shown for 2014, 2015 and 2016 are approximately €500 million lower than would otherwise be the case.

The way ceilings are set and managed in the Irish health service has been a longstanding issue and the subject of a lot of past criticism:

- PA Consulting (2013) examined the process for setting health budgets in 2012. The report was commissioned by the Department of Health to examine the HSE's financial management practises. The analysis found that the process for setting health ceilings was extremely "top-down" in nature. As such, it failed to take sufficient account of demands for healthcare. In fact, the report noted that wider priorities for health services were not aligned with the ceilings that were set out. Within the HSE allocation process regional budgets – including hospitals' budgets – are based on the previous year's budget, rather than outturn data, leading to additional allocations being

incremental in nature. This failure to reflect expected activity levels and costs at local level can result in unrealistic targets and measures to contain costs that are unlikely to be delivered on. The Report found that this perpetuates year-on-year inefficiencies and drives a lack of ownership for financial performance at an operational level.

- The Office of the Comptroller and Auditor General (C&AG, 2013) assessed spending management in the HSE during 2012. Its assessment was that HSE ceilings for 2012 did not appear to take sufficient account of underlying cost drivers in key areas. Among the factors driving overruns noted in its report were unrealistic ceilings for hospital budgets and unrealistic expectations for cost reductions, significant underfunding that made budget overruns "inevitable", and underestimates of the number of medical cardholders. It concluded that ceilings should be underpinned by realistic assumptions. It also noted that there was scope for the HSE to carry out more thorough analysis of the demand for services, and of the associated costs, and of underlying trends.

- The so-called Brennan report (2003) also cited the lack of incentives to manage costs effectively as one of the main problems in the health board system at the time.

While numerous proposals have been made over the years to address overruns and weaknesses in planning and management, these have not had the desired impact. Overruns in the health area have continued to be large and persistent, while spending plans have continued to appear unrealistic.

A worrying sign of poor spending controls was evident last year, though this may have been linked to the pressures of dealing with the pandemic. The HSE are required to ensure that all contracts are agreed competitively, in line with public procurement requirements. However, in 2020, of spending on contracts greater than €25,000 (covers €2 billion in spending), 63% of cases the contracts were not subject to competitive procurement (HSE, 2020).[22] The production and publication of timelier HSE performance reports could help oversight and controls on spending by better informing both the public and the Health Budget Oversight Group.

[22] In some instances, there are valid reasons for non-competitive procurement, particularly so for Covid-19 related expenditure. Incorporating these mitigating factors, the HSE indicated that the non-compliant rate was around 10%. However, when excluding Covid-19 related expenditure the non-compliant rate was closer to 18%.

The use of temporary receipts has masked health overspends

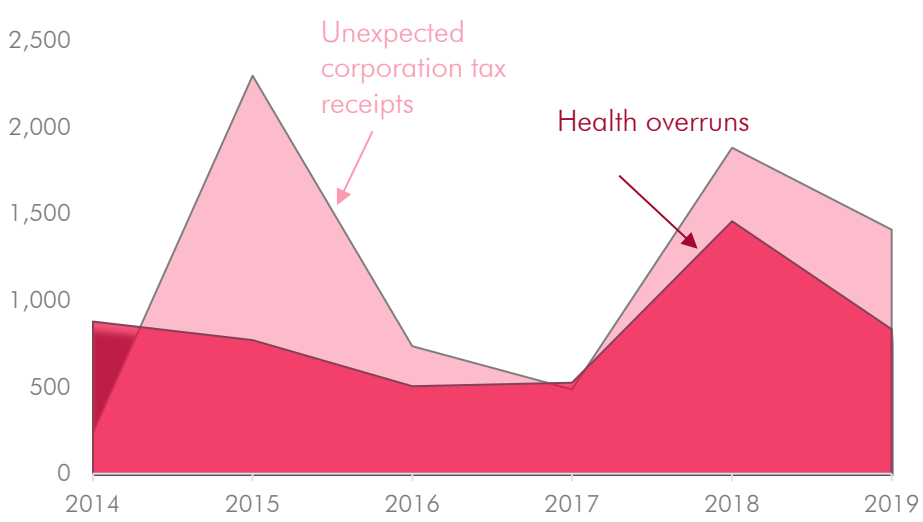
A further issue that has arisen in recent years is that permanent spending overruns in health have been largely funded by temporary receipts. This pattern has led to greater overreliance on volatile corporation tax receipts to fund ongoing public services and puts the sustainability of public finances at risk.

Many of the health overruns in recent years are long-lasting. For example, the overruns reflected permanent staff increases or current spending elsewhere.

However, the unplanned permanent spending increases have tended to be masked by unexpected corporation tax receipts (Figure 20). The overruns in health were not funded using revenue-raising measures. Yet they tended not to lead to higher-than-planned deficits in recent years. Instead, temporary revenues, in the form of unexpected corporation tax receipts, were used to fund the overruns. The availability of these funds likely made it more difficult to enforce spending limits as there was no need to find the money elsewhere or shift overall budgetary targets. As this happened on a repeated basis, managers of the health budget may have come to rely on this process.

The reliance on potentially temporary revenue sources poses risks. If revenues like unexpected corporation tax receipts disappear, long-lasting spending overruns would lead to larger government deficits, unless those costs are offset by new tax-raising measures or savings elsewhere.

Figure 20: Unexpected corporation tax receipts have masked health overruns in recent years



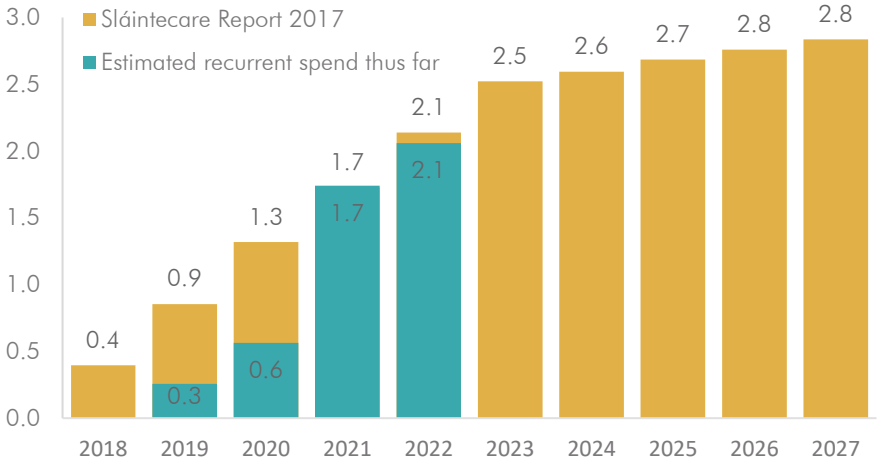
Sources: Budgets 2014-2019; Expenditure reports 2014-2019; Department of Finance databank; Department of Public Expenditure and Reform databank.
Notes: Figures show gross voted current spending overruns of the Health vote, as well as corporation tax receipts in excess of forecast.

4. Sláintecare

A series of major reforms to how healthcare is provided and financed in Ireland is underway in a programme known as Sláintecare. These reforms will see Ireland move to a more universal, publicly funded model of providing healthcare. This is intended to improve healthcare across the population and to change the way it is delivered, including by increasing public provision and reducing the role of the private sector.

Figure 21: Annual spending arising from Sláintecare is highly unclear but looks set to catch up to earlier plans

€ billion



Sources: Sláintecare Report 2017; Department of Health; and own workings.
Notes: The "estimated spend thus far" represents the increase in recurrent annual health spending that is associated with Sláintecare as derived from budget day plans. The actual increases may vary, however, as these are plans rather than outturns, and the figures are not precise, in that costs tend to be mixed in with the costs of other more general expansions in publicly provided health services.

However, basic information is severely lacking. This includes information on the costs associated with the major reforms planned under Sláintecare and information on the efficiency of reforms implemented relative to their original costings. The expected costs of the Sláintecare reforms — estimated to add some €2.8 billion to annual public spending — have not been updated since 2017 (Oireachtas, 2017).[23] These estimates are no longer up-to-date and relatively little information was provided about the underlying methodology and assumptions.

As healthcare is relatively labour intensive, the cost of Sláintecare implementation is heavily dependent on wages. However, it appears that in the original costings for Sláintecare, once a programme is fully implemented, the costs no longer rise and are constant in nominal terms.[24] This suggests that additional wage and price pressures do not appear to be factored in. Since the Sláintecare report was published in

[23] The Department of Health have indicated that work is planned to update the Sláintecare costings in 2022.

[24] See Appendix 3 of the Sláintecare report (Oireachtas, 2017).

2017, pay per head in the Health group has grown by an average of 4.5% (in 2018 and 2019), and *Budget 2022* forecasts the economy wide pay bill will rise by on average 6% over 2021-2025, suggesting the public sector pay bill will grow at a similarly fast pace. A mechanical update of the original estimate, allowing for wage and price pressures that have arisen in the interim would suggest cumulative permanent costs associated with the reforms of upwards of €3½ billion rather than €2.8 billion by 2027. Updated costings, factoring in these pay and price pressures should be carried out to better inform policy and planning.

The progress made on implementing Sláintecare in 2019 and 2020 is unclear. A range of additional health services have been announced on budget days in recent years that include initiatives proposed under Sláintecare. However, costings of initiatives that are specific to Sláintecare tend to be mixed in with the costs of other more general expansions in health services. This makes it complicated to assess how much annual spending has risen so far due to the implementation of Sláintecare.

The Sláintecare Implementation Strategy and Action Plan 2021–2023 (Department of Health, 2021), which was published this May, fails to give any estimates of the costs associated with Sláintecare other than the expected €1.2 billion outlay in 2021 (Figure 21). It does not provide any information on how much is expected to be needed in future years. A more recent statement suggests that €0.35 billion of this allocation is likely to go unspent in 2021.[25]

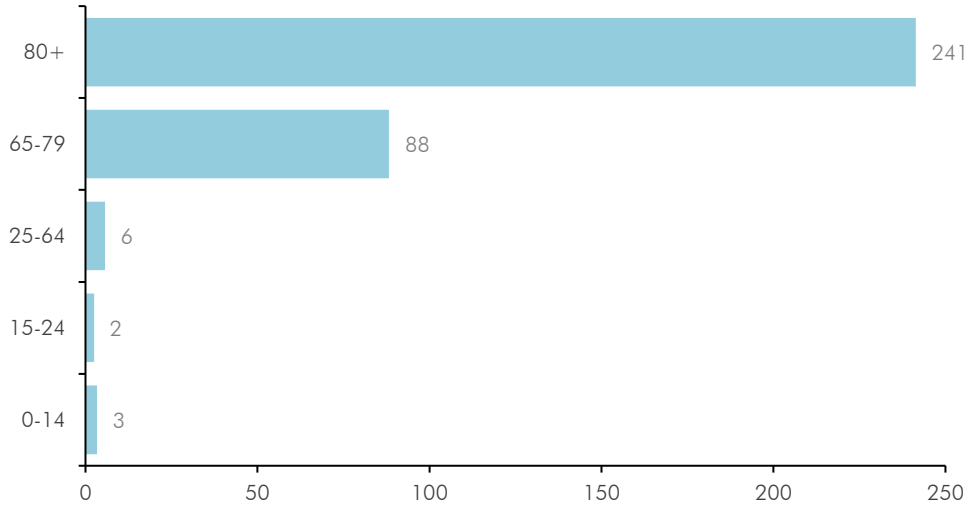
More clarity on the total amounts spent to-date for Sláintecare and the actual progress made, is needed.

[25] Several factors contributed to the underspend, including difficulties recruiting and building up bed infrastructure as well as less elective activity in hospitals amid the pandemic. See comments made by the Secretary General of the Department of health at the Oireachtas Health Committee on 06/10/2021: https://www.oireachtas.ie/en/debates/debate/joint_committee_on_health/2021-10-06/2/.

5. Credible medium-term plans are essential

Over the coming years, Ireland will face several significant pressures on the public finances, including those stemming from climate change and population ageing. Population ageing in particular, will result in considerable additional pressure on healthcare resources. Figure 22 shows that the number of people over the age of 65 will more than double in 30 years time. Credible medium-term plans will be essential to tackling these increasing pressures on the public finances and on healthcare resources.

Figure 22: Elderly population set to grow rapidly over the next 30 years
Age cohort growth rates from 2020



Sources: Fiscal Council (2020a)

A move to more realistic medium-term spending ceilings in the health sector, and more generally, could improve outcomes and help to break the cycle of unrealistic plans and weak spending controls. This would include setting realistic ceilings for overall health spending that fully reflect the Government's plans, including the cost of continuing to provide existing levels of service (including wages increases) and the implementation of Sláintecare. This has been an area that the Council has seen deficiencies in for some time.[26]

Some of the advantages of more robust medium-term plans are that:

- Departments would have more certainty around funding they are likely to have to commit to larger medium-term projects.

[26] See Howlin (2015), Fiscal Council (2016) and Fiscal Council (2017) amongst others.

- They would support a more holistic focus for planning, with departments better able to coordinate cross-department spending.
- The public would have a better sense of what might be coming in terms of policy, benefits, supports, and taxes.
- It could also enhance Ireland's credibility on the markets with the result that borrowing costs could improve.

The Government has made significant steps towards developing its wider medium-term spending framework this autumn with two key initiatives that were broadly in line with what the Council had been recommending for a long time.

First, the Department has set out a spending rule that limits core primary Exchequer spending growth to 5% on average over the years 2022 to 2025.

Second, the latest fiscal forecasts for the period to 2025 fully allow for the costs of standing still. That is, the forecasts allow for Existing Levels of Service (ELS) costs. This approach helps to accommodate the costs of maintaining existing services and supports while allowing for price and demographic pressures.

However, the Government failed to set out three-year ahead ceilings by Department, including for health, in the Expenditure Report published on budget day as is normally done at Budget time.[27] As such health spending ceilings beyond next year are not currently available.

The new 5% Spending Rule and ELS initiatives for public spending are critical steps towards ensuring a more realistic set of budgetary plans. Having realistic plans as a first step should help to exercise reasonable controls on overall spending levels.

It is vital that these reforms are reinforced and followed through on. In particular, the 5% Spending Rule should be set in legislation and should be expanded to include tax cuts and non-Exchequer spending areas.

What happens in health spending in the coming years will be a major bellwether for whether these initiatives have been applied well across the public service.

[27] The Medium-term Expenditure Framework was a reform introduced in the Ministers and Secretaries (Amendment) Act 2013 to provide a better mechanism to control spending over the medium term and to ensure the Expenditure Benchmark is complied with. The framework requires that, at least once every financial year, the government sets expenditure ceilings for the following three years. The framework requires that ceilings be set for overall expenditure and for ministerial departments. Typically, these expenditure ceilings are set on budget day and presented in the Expenditure Report. These were published on Budget Day for each of the Budgets for 2014-2020.

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Annex 1

This annex looks at a series of regressions that attempt to explain health spending in Ireland over the past five decades (1970–2019).

Table A1: Regressions of health spending

Dependent variable: log(real current healthcare expenditure per capita)

	1	2	3
Constant	-10.24	4.13	-2.26
Log(real GNI* per capita)	1.62*** (0.10)	0.30 (0.20)	0.28*** (0.06)
% population aged 65+	0.10** (0.04)	-0.06 (0.04)	0.01 (0.01)
Time trend		0.04*** (0.01)	0.00 (0.00)
Lag			0.92*** (0.04)
Observations	50	50	49
Sample period	1970 to 2019	1970 to 2019	1971 to 2019
Adjusted R-Squared	0.91	0.99	0.99
Durbin-Watson statistic	0.16	0.84	1.36

Sources: CSO; and Fiscal Council workings.

Notes: Standard errors in parentheses. Statistical significance: *** 1%; **5%; *10%. The data used are from the OECD's System of Health Accounts data on current expenditure on health and are deflated by actual individual consumption from the CSO's National Income and Expenditure (NIE) Accounts. The series is scaled against CSO estimates of the total population with the log of the series then taken. Real modified Gross National Income (real GNI*) is also taken from the NIE and is also divided by the total population before the log of the series is taken. The time trend is a simple linear trend that = 0 to 25 in line with the number of observations in the regressions.