Chapter 2. The measurement of economic downturns

This chapter summarises how inadequate metrics (and models) might have affected the assessment of, and response to, the 2008 crisis, and what can be done about it. It argues that GDP may have given an over-optimistic account of how well the economy was doing both prior to the crisis and in the recovery phase, and of the sustainability of growth. The problem was that too many analysts didn't look beyond GDP. If we had had better metrics, including measures that had incorporated more adequately the increases in people's economic insecurity, we might have realised that the consequences of the downturn were deeper than the GDP statistics indicated, and governments may have responded more strongly to mitigate the negative impacts of the crisis. The chapter emphasises two shortcomings in standard metrics: only looking at government liabilities while ignoring the asset side of the government (and country's) balance sheet, and ignoring measures (broader than the standard unemployment metrics) of the unused resources in the labour market. It stresses the need to complete existing data with measures of economic security and subjective well-being, and to include changes in human and social capital in models.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

2.1. Introduction

National income accounting began as part of Keynesian economics, as we noted earlier. The hope was that, if we measured GDP better, we might be able to better manage the business cycle and to avoid extended periods of recession. Some also hoped that, based on these data, we could build up models to anticipate recessions, and take pre-emptive action to head them off. So, it is fitting that we begin with an issue within the spirit of these origins. Do our metrics accurately portray the costs or magnitude of downturns, such as the Great Recession? More generally, do they provide the information we need to assess whether the economy is vulnerable to an economic downturn?

This issue is perhaps of particular salience because the Commission report was released only a few months after the default of Lehman Brothers in September 2008, which triggered the financial crisis. The significance of the crisis was present in the mind of the Commission members. They noted that GDP was not a measure of sustainability. In the run up to the Great Recession, it was evident that US GDP growth had been built on a mountain of private debt, itself partly the consequence of an overvaluation of (real estate) assets, that is a market failure of a gigantic size. This chapter summarises how inadequate metrics (and models) might have affected the assessment of, and the response to, the crisis, and what can be done about it.

2.2. The right choice of metrics

As seen in Chapter 1, the problems with the information content of standard economic metrics began even before the crisis. Many people thought their economy was in better shape than it actually was. In the United States, where the crisis originated, GDP was growing strongly. Yet, it was clear that much of that GDP growth was based on a real estate bubble that was leading households and firms to consume and invest more than would have been justified by a more sober assessment of market conditions; and that some of the US government's strong fiscal position was a result of tax revenues garnered as a result of that real estate bubble.[1]

Though GDP may have given an over-optimistic account of how well the economy was doing, and whether growth was sustainable, the real problem was that too many analysts didn't look *beyond* GDP.[2] A dashboard of indicators such as the one suggested by the Commission, including measures providing accurate information on financial fragility, would certainly have helped. But, more fundamentally, analysts and decision makers should have abandoned the ideological blinders that stood in the way of getting a good understanding of how the economic system works.

When there are symptoms that the economy might be in a real estate bubble, say when the ratio of median housing prices to median income is abnormally high,[3] then one might want to look more closely at a set of indicators of the financial health of the economy and of its banking system. Real estate bubbles are associated with rapid increases in bank lending. A simple analysis of the fraction of households who might face difficulties in refinancing their mortgage, or who might not have incentives to repay their loans in the event of a significant fall in house prices, would have shown the economy's financial fragility.[4]

This illustrates that care must be exercised in the choice of the relevant indicators. Some analysts looked at average house prices compared to the average level of household indebtedness: if all households were the same, the crisis would not have occurred, for

even a large fall in prices would not have put the mortgages at risk. But there was (and normally is) a large dispersion in the distribution of (net) home equity among owners, and when there are many homes with little equity it doesn't take much to lead to many homes to become "underwater," that is with a value of the mortgage exceeding the market value of the house, thereby exposing households to the risk of default. And if banks are excessively highly leveraged, it may not take many mortgages to default to result in banks being undercapitalized. Most of the data needed to make these assessments – which would have indicated that the US economy was indeed in a precarious position – were available before the crisis, even if in some cases they were not as timely as it would have been needed; but there was no "crisis dashboard" to which policy-makers or ordinary citizens could turn. In its absence, most market operators (and experts) were happy to believe all was well, and that market prices could not significantly depart from "fundamentals".[5]

Standard economic theory contributed to the failure to assess the risks confronting the economy in important ways. Macro-economics models focused on "representative agents" ignore the distribution of assets and liabilities among them – essentially assuming that distribution does not matter. This theory implied that all one needed was data for the average. So too, while the standard models did not have a rich theory of the financial sector, to the extent that finance was incorporated, it was with a "representative bank". Such an approach, of course, ignored the risks posed by financial inter-linkages among banks, and the possible consequences of a bankruptcy cascade, where the failure of one financial institution (like Lehmann Brothers) would lead to further failures. Of course, economic theorists had warned precisely of this kind of risk well before the crisis (Allen and Gale, 2000; Stiglitz and Greenwald, 2003).

Here, however, we wish to focus on what happened *after* the crisis, i.e. in assessing the magnitude of the effects of the economic downturn. The thrust of our argument is that, if we had had better metrics, including measures that had incorporated more adequately the increases in people's economic insecurity, we might have realised that the depth of the downturn was deeper than the GDP statistics indicated; and if that had been the case, perhaps governments would have responded more strongly to mitigate the negative impacts of the crisis.

Recent research has also shown how our econometric models underestimate the decrease of GDP during recessions[6] and the strength of future growth prospects (Stiglitz, 2014, 2016a and 2016b). Often (depending on the model used) this is because we systematically underestimate the decrease in wealth (or capital) due to the destruction of, or lower investment in, economic, human and social capital – both that resulting directly from the downturn,[7] and that arising indirectly from inappropriate policy responses. These types of capital deliver both market and non-market benefits; they are important for sustaining people's well-being in general, but also as drivers of future GDP growth.

2.3. Missing wealth

That something had happened to total wealth as a result of the Great Recession became evident in the years following the onset of the downturn. Figure 2.1 shows the level of GDP per capita from 1991 to 2019 for the United States and euro area, respectively, based on a simple extrapolation of pre-crisis performance for the period after 2009. The continuous line shows the actual levels of real GDP per capita (with OECD forecasts for the years 2018-19) while the dotted line fits a (linear) curve based on historical data (1991-2006); "diamonds" show the annual percentage difference between actual and

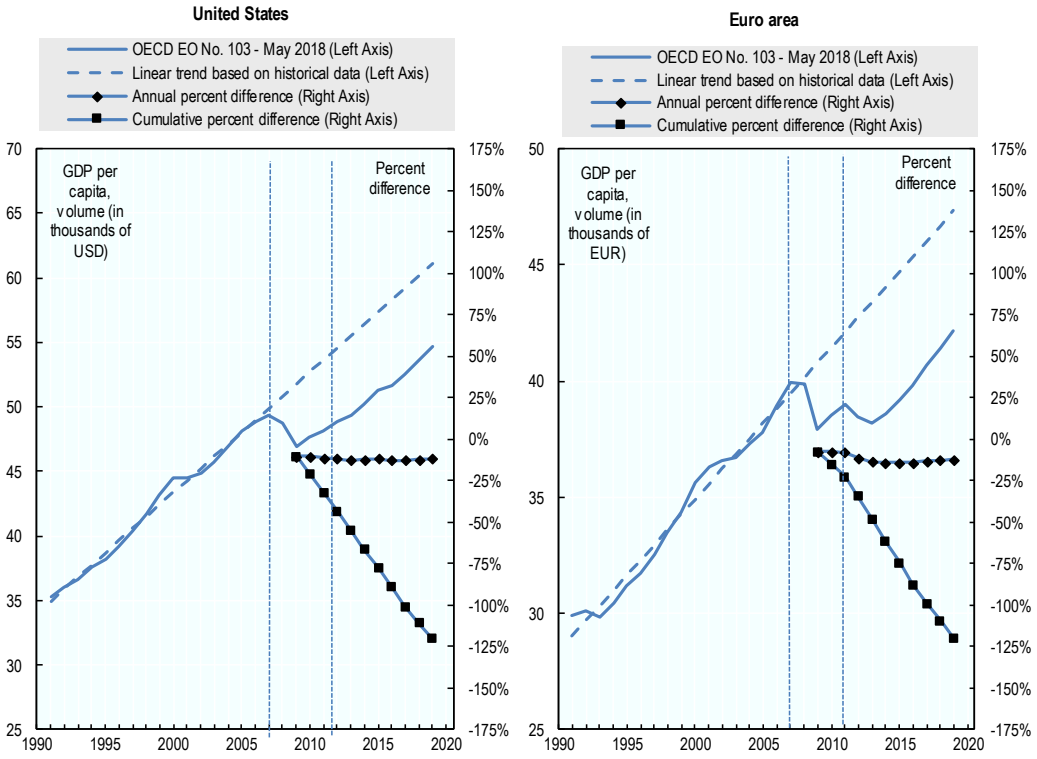
projected GDP per capita in each year, while "squares" refer to cumulative differences since 2009.

While different extrapolation models may give different measures, the obvious point here is that there is an enormous gap between where the economy is and where it, presumably, might have been based on previous trends.[8] The gap is larger for the euro area than for the US but is significant in both cases. How can we account for this gap?

The factors at work are many. In both the United States and the euro area there was a decline in labour input, especially in the years immediately following the crisis. Investment, as measured in the national accounts, also declined, leading to less capital accumulation and lower physical capital per worker. In crisis afflicted countries, cutbacks in public investment were particularly significant, with potential adverse effects on countries' future economic prospects. So too, there were often drastic cutbacks in private investments, both because of the pessimism about future prospects and uncertainties, but also because the economic downturn adversely affected firms' cash flow and weaknesses in the financial system reduced the supply of loans, both of which diminish investment among cash-constrained firms. In the aftermath of the crisis, forecasted GDP growth in crisis-affected countries was typically overestimated by international organisations and private companies, typically by a large margin, one of the reasons being that the decrease in investment was underestimated. Again, those responsible for policies in the aftermath of the crisis do not seem to have taken fully into account the knock-on effect of these policies on private investment and future economic prospects.[9]

But one simply cannot account for the difference between observed GDP and the one that could be "predicted" based on past historical performance on the basis of changes in labour inputs and physical (economic) capital. There is also some "missing capital", i.e. changes in human and social capital that we normally do not take account of in macro-economic models, and that are key drivers not just of people's well-being but of long-term GDP growth as well. And indeed, there may have been decreases in both types of capital, in sum of a significant amount.

Figure 2.1. Actual and projected GDP per capita, the United States and the euro area



Note: Trend based on 1991-2006 data. Data for the euro area are limited to OECD member countries excluding Lithuania. Data on GDP per capita (volumes) in 2018 and 2019 are based on OECD projections.
Source: OECD (2018a), *OECD Economic Outlook*, Volume 2018, Issue 1, OECD Publishing, Paris, https://doi.org/10.1787/eco_outlook-v2018-1-en.

StatLink http://dx.doi.org/10.1787/888933842052

2.3.1. Human capital and knowledge

The easiest to see – and to understand as something that we typically fail to take account of – is the change in human capital.[10] While statistics on human capital typically focus on formal *education*, learning on the job is just as (or perhaps) more important. This includes both in-work training provided by firms to workers but also the accretion of skills that occurs simply from having a job. When there are high levels of unemployment, especially youth unemployment, large numbers of people are simply not learning: there cannot be as much learning-on-the-job when large fractions of the population do not have jobs. Indeed, even those with high levels of skills will find that those skills decline when they remain unemployed for long periods. Models that estimate the amount of learning that occurs from having a job and from being on the job longer would enable us to get an estimate of the loss of this human capital. We can get some inkling of the magnitude of these losses by looking at what happens to those (typically young people who completed their education) who enter the labour force in a recession. The lower wages and higher unemployment experienced by new graduates who entered the labour markets during recessions lead to "scars" that permanently affect their careers. They are likely to have significantly lower life time incomes compared to cohorts who entered the labour market

during phases of expansion (Garrouste and Godard, 2016; Kahn, 2010; Oreopoulos, von Wachter and Heisz, 2012).[11]

In crisis-affected countries, formal schooling was affected too, but in less visible ways. While the share of public expenditure in GDP increased marginally (on average and in most OECD countries) from 2008 to 2014, it declined (by 0.2 point or more) in countries most affected by the crisis such as Italy and Spain (Figure 2.2, top panel). Of course, when considered in absolute terms, the decrease in public education expenditure was larger, as GDP was falling or increasing by less than before the crisis. The effect of the crisis on private expenditures on education is more ambiguous: cash-constrained households cut back spending on education but many young people stayed in school for longer, as fewer jobs were available – i.e. the opportunity cost of education is lower. In Italy and Spain, the reduction in public spending in education simply shifted the costs to households, whose private spending increased.

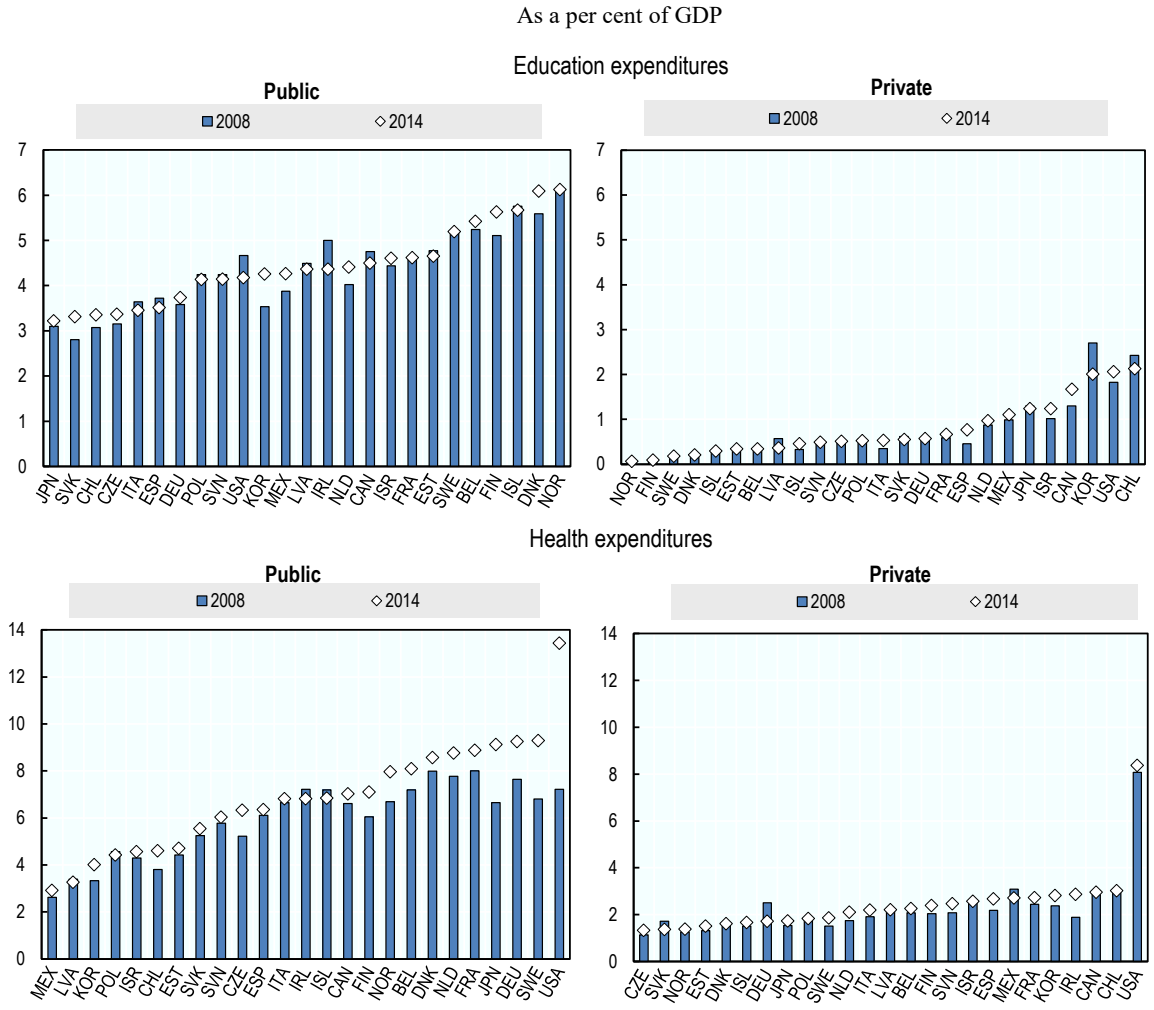
Overall, the recession may have led to a regression in the state of *knowledge*, including institutional knowledge held within organisations/firms, and studies have shown that such knowledge accounts for a large part of multi-factor productivity growth (OECD, 2013a). The bankruptcies that abound in an economic downturn lead to a destruction of this institutional knowledge. Even when knowledge is not destroyed, the pace of creation of new knowledge is reduced, as both public and private investments in knowledge are reduced. Because the effects of cutbacks in such investments will only be felt years later, it is often far easier to make cutbacks in these expenditures than, say, on the wage bill. This shows the importance of developing better metrics of human capital that encompass all forms of knowledge, and to take this into account in conventional "growth accounting" models.[12] This issue is discussed in more detail in the chapter by De Smedt, Giovannini and Radermacher in the companion volume.

Another important aspect of human capital is *health*. Whether or not the economic crisis and the macro-economic policies implemented in its aftermath had an effect in worsening the health conditions of the population in the affected countries is an issue debated by researchers, including HLEG members. On the one hand, a plausible case can be made that individuals who lose their jobs may suffer adverse mental health effects, partly because of the emotional effects of unemployment, including stress. Long periods of unemployment can also have particularly large adverse effects on people's health, and give rise to a vicious cycle, with poor health leading to poor job prospects and low incomes, reinforcing weak health. So too, cutbacks in health services in some European countries resulting from austerity policies (most notably in Greece) may have long-run effects on the health of the population (Kentikelenis et al., 2014). There is also some evidence that these health consequences directly affect economic performance years after the crisis (IMF, 2013). The US low labour force participation rate is in part explained by the poor health status of a large fraction of those not in the labour force, with nearly half of them being on prescription pain medication (CEA, 2016; Krueger, 2017).

On the other hand, other empirical studies have failed to detect a significant effect of the recession on health conditions. Most OECD countries experienced higher spending (as a share of GDP) in both public and private health-care spending (Figure 2.2, bottom panel).[13] In the United States, the decrease in life expectancy among middle-aged whites, which mainly affected low-educated people due to what Case and Deaton (2015) refer to as "deaths of despair", started well before the crisis, and does not appear to have intensified since then. And while most OECD countries experienced a decline in life expectancy in 2015, it represented a unique occurrence – the decline reversed in 2016 –

and was concentrated among the elderly (who had already exited the labour market), mainly reflecting an unusually strong influenza epidemics (EuroMOMO, 2018). More data and research are needed to monitor these changes in health conditions and associated inequalities, as well as to identify their drivers.

Figure 2.2. Public and private expenditures in education and health-care



Note: Data on health spending for the United States refer to 2013 instead of 2014.
Sources: OECD (2017c), *OECD Education Statistics (database)*, https://doi.org/10.1787/1c1c86c4-en and OECD (2017d), *OECD Health Statistics (database)*, https://doi.org/10.1787/828a6dbd-en.

StatLink http://dx.doi.org/10.1787/888933842071

2.3.2. Social Capital

One category of "missing" capital that has received insufficient attention is social capital, in particular trust in institutions. A deep downturn is, in itself, evidence that our economic system is not managed well. In any society, management of the economic system is entrusted to a political and professional elite. But in a downturn the elite tends to keep their jobs, while others don't. This was particularly the case in the United States, where those with management responsibilities in the financial sector benefited

disproportionately from the economic system in the run-up to the crisis but were not in any way held accountable, even in the many cases where they engaged in socially reprehensible behaviour.[14] Meanwhile, ordinary citizens were not only losing their jobs, but also their homes and more. To many, it appeared that the economic system was "rigged" to benefit a few. Workers and middle-class families saw themselves as hardworking, yet reaping little reward for their work. They had been promised that globalisation, new technologies and the liberalisation of the financial system would increase their living standards. In reality, these changes in the economic system did not lead to the faster growth promised, but what growth did occur went disproportionately to the top. This not only implied growing inequality, but was also followed by the most serious crisis in three quarters of a century.

Even the recovery may have given rise to a decrease in trust, with politicians declaring the end to a recession even as most continued to suffer its consequences. In short, there were multiple reasons for the loss of trust in the economy and in institutions. Later in this book, we will describe more fully the relationship between trust and economic performance. Here, we simply note that this loss of trust can be thought of as an erosion of social capital, another part of the explanation of the "missing" capital. Having an accounting system that could reliably trace changes in economic, human and social capital would provide the basis for a better understanding of the costs of economic downturns – which in turn could induce governments to take more resolute actions in responding during a recession.

2.4. Economic security and subjective well-being

The "missing capitals" that we discussed above can be understood as drivers of both people's well-being *and* GDP growth. Beyond these effects, however, there are several other ways in which our system of economic indicators does not adequately reflect the true consequences (i.e. the costs) of recessions.

For instance, we observed earlier that an important aspect of individual well-being is economic security. Individuals spend large amounts of money to buy insurance against many of the risks they face. Markets, however, fail to provide insurance against some of the most important risks, like the loss of a job. In response, governments have provided a variety of forms of social insurance, most notably unemployment insurance, based on the idea of pooling risks among different groups of workers. In a number of European countries, as well as in the United States, unemployment benefits were increased in the earlier years of the crisis to cushion the negative income impact of the increase in unemployment. But in most countries, unemployment insurance covers only a fraction of those who don't have jobs. In most countries, it does not cover those entering the labour force, who may have spent large amounts of money and invested considerable time in the hope that education would enable them to get a suitable job.[15] And very few countries provide insurance for under-employment, as in the case of self-employed people who see their incomes contract as their sales get reduced. In addition, because of the lack of adequate insurance, some people may also lose their homes when their earnings fall. Few countries have designed mortgages that enable individuals to postpone repayments in periods when they have lost their jobs.

The longer a recession lasts, the greater the cost for people's economic security. Better measures of economic insecurity would have shown the large losses caused to individuals by the crisis in this respect.

More broadly, individuals' sense of well-being fell sharply in the countries most affected by the recession,[16] and especially so for those who lost their jobs or for young people who didn't get one. People who become unemployed report lower life-evaluations, even after controlling for their lower income. These adverse effects persist over time. The unemployed also report higher prevalence of various negative experiences (sadness, stress and pain) and lower levels of positive ones (joy, contentment, optimism). These subjective experiences suggest that the costs of unemployment exceed the income-loss suffered by those who lose their jobs, reflecting the existence of non-pecuniary effects associated with unemployment, and the fears and anxieties generated by unemployment in the rest of society.

Research has provided what might seem obvious explanations for these patterns. Individuals look to work as an important part of their identity and sense of worth. Someone who cannot support his family loses face with himself, his family, and those he or she associates with. Being connected to others is also important for people's sense of well-being, and the workplace is one of the main sources of connectedness in our society. Individuals who lose their jobs thus feel more isolated, and more unhappy (De Neve, 2018). Measures of subjective well-being, the importance of which were emphasized in the Commission report, would have indicated this.

2.5. Economies never fully recover from a deep downturn

In short, had policy-makers relied on a dashboard of indicators, which reflected more broadly what was going on in the economy and society, they would have realized the severity of the economic downturn for well-being. The decline in the "true wealth" of the country should have been of particular concern in those countries most afflicted by the crisis such as Greece, Spain, Ireland, Italy and Portugal, as it undermined their economic potential in the future.

Economies that experience deep downturns may *never* fully recover. Figure 1.1 and Figure 1.2 illustrate what is at stake. Even when GDP growth returns, it is never sufficiently strong to close the gap between where the level of the economy was and where it would have been. And even if growth returns to its pre-recession rates (without closing the original GDP gap in levels), the present discounted value of the loss is enormous.[17]

Beyond the effects of the crisis on the *level* of GDP, there is a debate on whether the long-term effects of a deep recession also extend to its future *growth rate.* Recent research has suggested that, while economies never recover to the pre-crisis level of GDP, the long-term growth rate is unaffected.[18] This is what we should expect from standard growth theories, where the pace of technological change is exogenous to the system (i.e. "manna from heaven"). But, as we argued above, deep downturns affect human capital and impair a country's capacities to invest in research, which may affect growth for an extended period of time. Note that Figure 2.1 shows that rates of GDP growth post-recession in both the United States and the euro area are lower than prior to it. While the growth slowdown started before the crisis,[19] the crisis may well have intensified it. The real estate bubble burst two years before the crisis, and its full impact took time to be felt. Moreover, distortions associated with the crisis, with excessive resources going into real estate, would themselves undermine a country's long-run growth potential. More fundamentally, whether the economy might *eventually* recover its growth rate may not be as important as the question of how long it takes. The longer it takes, the greater the cumulative value (discounted) of the loss. Interventions that more quickly restore the

economy to full employment may, accordingly, reduce the cumulative loss by a substantial amount.

2.6. The misuse of existing metrics: A misplaced focus on government liabilities

The other side of the coin when discussing the implications of our measurement system is the cost of *responding* to the crisis. An inappropriate use of statistics may have led many countries to overestimate this cost. A standard tool for managing the business cycle over the past three-quarters of a century has been an increase in government spending which, in a deep economic downturn with high levels of unemployment, can generate an increase in GDP that is a multiple of the original spending (Blanchard and Leigh, 2013). This is especially the case when such policy is put in place through concerted action of different governments.[20] But in economic downturns, tax revenues are down and, especially in countries with more developed social safety nets, public expenditures are already high, so that fiscal deficits increase. Government spending, unaccompanied by increases in taxes, naturally leads to further increases in the public deficit. Some governments, focusing narrowly on this increase in public deficit and debt, argued against responding to the downturn with more government spending. Indeed, in Europe, a strict interpretation of the Growth and Stability Pact would require that euro-area governments keep their deficits below 3% of GDP even during a recession – although *de facto* many euro area countries exceeded the 3% limit as a consequence of the crisis, and a number of them have public debt levels above the 60% target.[21] Whatever their merits in providing the basis of sustained long-term growth and mitigating cross border financial and economic problems within the euro zone, it is clear that the deficit and debt limits hamper the functioning of automatic stabilisers (the tendency for public deficit to increase when growth falters), just as the very moment when those stabilizers are most needed. In practice, the enforcement of the constraints has converted government fiscal policy from being counter-cyclical to being pro-cyclical, exacerbating economic downturns, an effect that was most evident in crisis-affected countries.

This focus on government liabilities is, we would argue, another example of a misuse of data. What matters for the country as a whole going forward is the nation's balance sheet, along with balance sheets of all institutional sectors, i.e. households, private companies, the government and the rest of the world. The balance sheet looks at *both* assets and liabilities. If the increased government expenditure takes the form of higher investments – whether in people, technology or infrastructure – its balance sheet should not deteriorate, as assets and liabilities increase by the same amount. It is simply a mistake to look only at the liability side of a balance sheet. No analyst would do that in looking at the economic prospects of a firm. Neither should we when we are looking at government.

There is however a major difference between the balance sheet of the government and that of a firm (or household). The firm doesn't capture the multiplier effects of its increased spending on its own revenues, while the government does. If a firm borrows money to buy an asset, its balance sheet improves if and only if the return on the asset exceeds the cost of capital. (Of course, households typically face a higher cost of capital than the government, putting the threshold rate of return still higher.) But this does not apply to the government's account, which will also benefit from the higher tax revenues generated by the fiscal expansion. Especially in a deep downturn (when multipliers are large and interest rates are low), the government's balance sheet position might improve even when the return on investment is below the interest rate on government debt.[22]

It might be argued that the picture is less bright when the government cannot appropriate the returns of its investment. But even in this case, the balance sheet for the country as a whole should be improved by this investment. Broadly speaking, whether it pays for a country to borrow from abroad depends on how it invests the funds. If it borrows abroad for current consumption, then the country balance sheet worsens, and the prospects of future generations deteriorate, absent any macro-economic effects. Conversely, if it borrows to finance high return investments, the country's balance sheet improves. For example, the criticism of the higher amounts that the United States as a whole borrowed abroad every year – as reflected in current accounts deficit above 5% of GDP in the years before the crisis – was that, at the margin, much of the spending was for consumption and for low yield investments, such as building shoddy homes in the middle of the Nevada desert. When that happens, the country's balance sheet deteriorates.[23]

There is another reason for taking a comprehensive view of the balance sheet position of all sectors of the economy, beyond the government. This is because large deficits and debts for the country as a whole may reflect household and firm deficits and debt, even when the government's fiscal position is seemingly sound. In a crisis, these private debts often morph quickly into public debts. This is especially the case with bank liabilities. We saw this happening in the case of Ireland, where bank debts guaranteed by the government quickly changed the government's fiscal position from a debt-to-GDP ratio of less than 30% in 2007 to one that was over 130% in 2012.[24] In most cases, this shift in liabilities from the private to the public sector is a result of domestic political pressures, as when the politically powerful financial sector puts pressure on the government to bail out banks, arguing that otherwise the whole country would suffer. Though there is now a consensus that such arguments are specious – the government should not bail out shareholders, bondholders or bankers, but only (where necessary) assume liabilities to protect depositors – and some governments like that of the United States have enacted legislation to thwart such bail-outs in the future, the reality is that, especially when there are banks too-big-to-fail (or too inter-connected) there will be bailouts.

Accordingly, in assessing the government's financial position, one should look beyond the government's balance sheet, and make some assessment of the risk that private liabilities will become public liabilities in the future. This is precisely why the G20 Data Gap Initiative includes a recommendation to record transactions that take place between the different economic sectors (households, private companies, government and the rest of the world) to detect when financial weakness in one sector can spill-over to another.

2.6.1. Constructing capital accounts

Today, few governments construct these general government and national balance sheets. Information on financial assets held by governments (such as cash balances, equity holdings and the value of government participation in state enterprises) and by other sectors of the economy is typically available, but this doesn't apply to non-financial (i.e. real) assets, such as infrastructure networks, schools and health care centres.

There are also issues on the liabilities side. Beyond the government liabilities that are recorded on the government balance sheet, off-balance liabilities may stem from contractual obligations of the government (e.g. commitments to pay pensions to its former employees or to jointly invest with private partners), contingent liabilities associated to guarantees provided to financial institutions, and implicit liabilities which, while not having a contractual form, represent a "promise" to citizens (and other institutions) to provide benefits in the future.

Issues arise also relating to the distinction between general government and other public sector entities (such as central banks and state enterprises). These are important because of the close interactions between these entities and the government, especially in the case of vehicles created to deal with troubled financial institutions (Barnes and Smyth, 2013). This is a form of the "debt transfers" from the private to the public sector discussed above.

The implementation of some of the recommendations of the G20 Data Gap Initiative would give a better picture of what is happening to a country's overall wealth and the government's financial position. It does not, however, go far enough, because not all forms of capital are currently considered. More comprehensive balance sheets can be constructed on the basis of currently available data, though in doing so judgments would have to be made. One such judgement is where to draw the "asset boundary". Today, structures (bridges, buildings, etc.), equipment (machines), research and development spending, land and subsoil assets are all within the asset boundary of national balance sheets (although rarely fully measured). Other assets could be brought into those boundaries, for instance human capital – the result of expenditures on education and training – or functioning ecosystems that may have been helped by expenditure on the environment.[25] Most health expenditures, especially on children, should also be included as investments.

National accounts experts have been discussing these issues for many years, and the reason for their omission is, in most cases, not one of principle but of pragmatism: new assets are only included when robust and comparable measures can be developed, and data are available.[26] There are likely to be disagreements about how best to treat each category of government expenditure, and about how rapidly the investment made may depreciate in the future.

These problems must and can be overcome, and data generated to support the creation of more comprehensive national and sectoral balance sheets. As a principle, items considered as investments should be treated more favourably than those that are not, especially in an economic downturn when funds are short.

2.6.2. Responses to government deficits and debts

The previous paragraphs explained why conventionally measured deficits and debts provide only a partial view of the government's true net worth and of its changes. A repeated message of this book is that what you measure affects what you do. When public assets are not fully measured, while its financial liabilities are, there is undue focus on the liability side of the government's balance sheet. The same applies because of incomplete capital accounts and national balance sheets. This has contributed to policy stances, such as that of the euro area Growth and Stability Pact, limiting government deficits to 3% and debts to 60% (numbers that are the result of a political process rather than based on economic theory or strong empirical evidence). Government deficits increased in the Great Recession as a consequence of automatic stabilisers (the natural tendency for government expenditure to rise, and for taxes to fall, when the economy weakens) and of the expansionary policies adopted by some countries in the period up to 2010. But these policies were then reversed due to concerns about higher public debt. With the onset of the euro crisis, some countries lost access to funds, and were forced to adopt extreme policies of austerity – cutbacks in government expenditure – which exacerbated the economic downturn and the hardship associated with it. Even in countries like the United

States, which had easy access to funds, expansionary policies were severely constricted; at least part of the reason was an excessive focus on the wrong metric.

Thus, while austerity was not an inevitable consequence of the reliance on a misguided set of statistics, the latter contributed to the hardship imposed by the crisis and to its long-run consequences.

2.7. Unemployment: A partial view of available labour resources

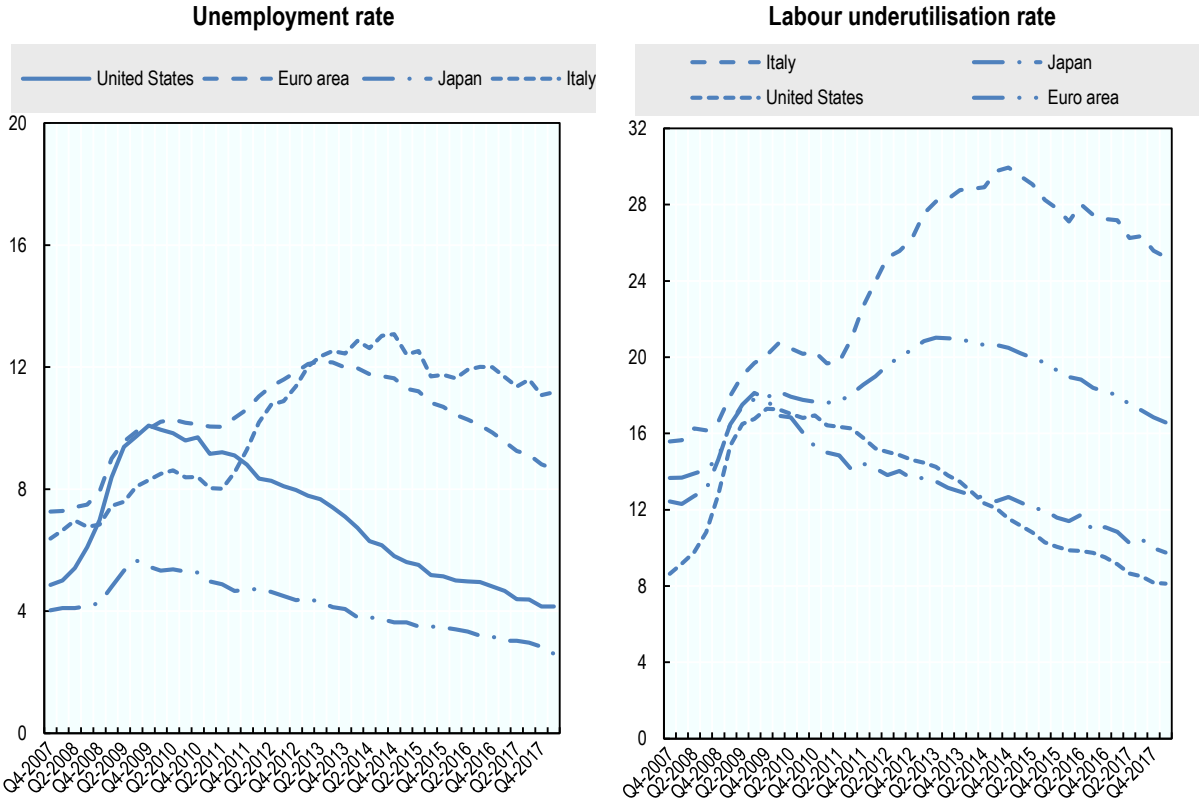
Most of the discussion in this book is on the measurement of people's welfare, and of the limits of GDP when used as a proxy of it. But other statistics, some of which need to be part of the dashboard of indicators by which to judge how well the economy is doing, need to be looked at with equal caution. Consider one of the primary indicators of an economic downturn, the level of unemployment.

Unemployment is typically measured by surveys, asking individuals whether they were not at work in the reference week of the survey, actively seeking employment, and available to start work if a job was found. If they meet all these conditions, they are counted as unemployed. But, especially as the economy goes into a deep downturn, this approach may give an overly rosy view of the depth of the recession.

When individuals have been looking for a job for months and don't find one, they often give up looking. They become "discouraged workers". They are not unemployed according to the criteria listed above, but surely they are not employed either. So too, many are forced to take a part time job when they would prefer to work full time. Broader measures of unemployment, which include discouraged workers and those involuntarily working part time, show a far higher level of unused labour resources (Figure 2.3). There are other adjustments that could be made to give a better picture of the true status of the labour market. Some individuals who can't get jobs claim disability benefits, since these are usually higher than unemployment benefits.[27] These people may well be suffering from a disability, but when a decent job is available they manage to overcome their disability and work. Many individuals who would like a job decide to get further education (as noted above) and stop searching for a job. While this may increase human capital, the measured unemployment rate would in any case underestimate the weakness in the labour market by excluding these people.

Part-time work presents still another measurement problem. According to international standards, a person is classified as employed even if working only one hour a week. But many workers in a recession work fewer hours than they wish. In many respects, then, a better measure of the state of the labour market may be the total number of hours worked.[28]

Figure 2.3. Unemployment and labour underutilisation



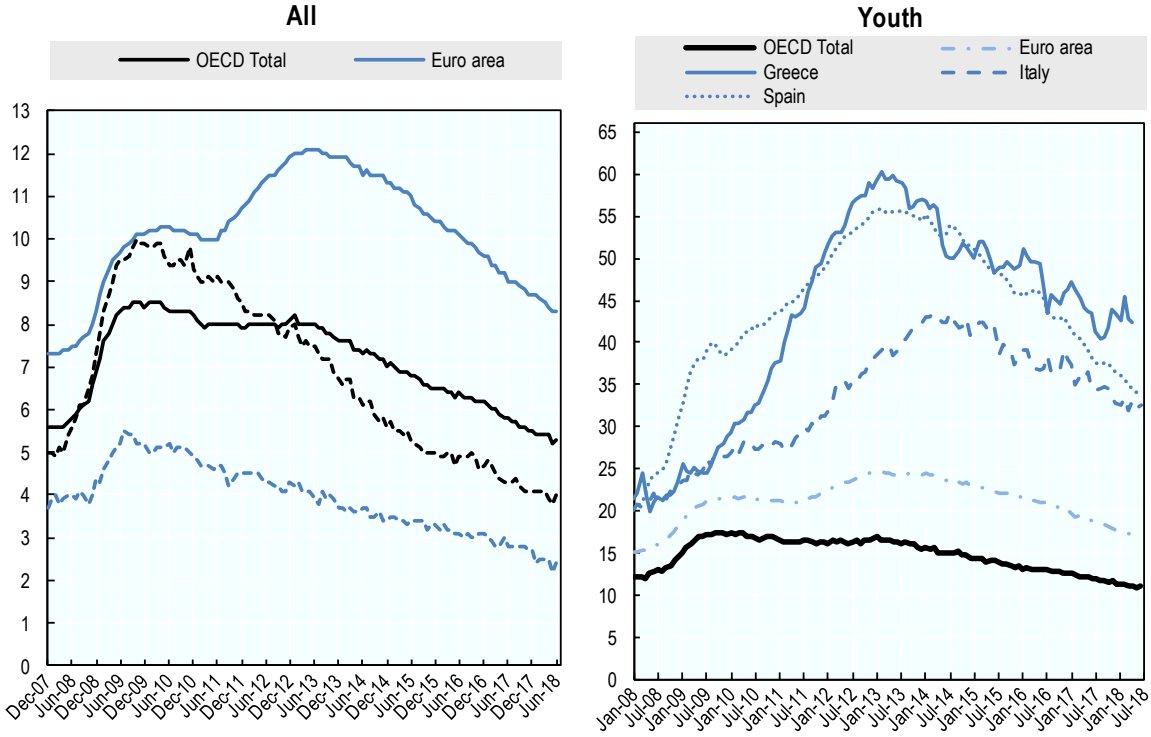
Note: The labour underutilisation rate is the ratio between the sum of the unemployed, persons not in the labour force who did not look for work during the past four weeks but who wish and are available to work, full time workers working less than full week for economic reason, and part-time workers who could not find full-time work, as a percentage of the labour force.
Source: OECD (2018d), *OECD Labour Force Statistics 2017*, OECD Publishing, Paris, https://doi.org/10.1787/oecd_lfs-2017-en.

StatLink http://dx.doi.org/10.1787/888933842090

Deep economic downturns can have, as we have noted, particularly severe effects on particular groups. In many OECD countries, the unemployment rate of youth increased by roughly twice the rise for the population as a whole (Figure 2.4). Disadvantaged groups were particularly adversely affected: in the United States, the unemployment rate of African-Americans increased by roughly twice that of the country as a whole, and that of young African-Americans increased by four times. Indeed, the only time when the unemployment rate of African-Americans came down to what might be viewed as an acceptable level was in the late 1990s and then in 2007, when it fell to around 8%. High unemployment rate among these groups is particularly of concern, because it increases societal divides, an issue which we discuss below.

While progress has been made by the statistical community in improving the measurement of labour market slack (See Annex), these measures still fail to capture the attention of politicians and the media to the same extent that the standard unemployment rate does. One consequence is that we may have a too optimistic picture of the state of the labour market than warranted by reality.

Figure 2.4. Unemployment rates by age



Source: OECD (2018d), *OECD Labour Force Statistics 2017*, OECD Publishing, Paris, https://doi.org/10.1787/oecd_lfs-2017-en.

StatLink http://dx.doi.org/10.1787/888933842109

2.8. Conclusions

History matters. In 2008, at the onset of the crisis, the hope was that, once banks had restored their balance sheets, the economy would return to normal. GDP growth would then resume from where it was and the economy would make up for what was lost in the intervening years. This has not happened. Even in the United States, where the unemployment rate has come down markedly, the level of GDP is far below what it would have been in the absence of the crisis: there is no sign of making up for lost time.

The destruction of "hidden wealth" described in this chapter was one of the legacies of the 2008-09 recession. This destruction will have long-lasting effects, and explains part of the gap between where the economy is today and where it would have been in the absence of the crisis. The "hidden wealth" that determines the future levels and change of productivity can be estimated, and its components better understood, with the objective of identifying policies that might mitigate its fall. For instance, the destruction of future productivity might be reduced through sharing the limited amount of work that is available during a crisis, as Germany did. But even comprehensive measures of human, social and physical capital may not fully capture the effects of a deep downturn on society, i.e. its effect on how people think, feel, and act.

The experience of the Great Depression and the Great Recession exemplifies the importance of having a good *dashboard* of indicators with which to evaluate what is

going on in the country, to formulate appropriate economic responses, and to assess the consequences of those policies. The dashboard that may be appropriate in normal times may have to be modified in times of crisis, to monitor closely and respond to fast-changing circumstances.

The human costs of the crisis have been large, and some of them are missed by conventional statistics. In most countries, while GDP growth is now back or close to pre-crisis levels, the economy will never return to where it would have been without the crisis. In many advanced countries, the recession had the effect of depressing productivity growth and capital accumulation relative to what it would otherwise have been. Even without taking into account the full cost of human suffering, the long-run costs of the recession to people's well-being have been enormous.

There is a chance that a more adequate set of indicators, reflecting the true depth of the downturn and its long-term economic implications, would have allowed governments to respond more forcefully, with special attention to those parts of the population that were feeling the full brunt of the recession. And it may well be the case that reliance on the wrong indicators, with governments announcing a recovery when large fractions of the population were not experiencing any improvement in their well-being, contributed, at least partly, to the distrust in public institutions and the rise in discontent and anti-globalisation sentiments that we are witnessing today throughout the world.

Notes

1. The previous chapter noted that GDP metrics typically rely on market prices to assess the relative value of different goods and services, and it will normally be impossible for national accounts statisticians to determine whether there is some distortion in pricing. Still, there should perhaps be a warning about the use of GDP to assess how well the economy is doing when there is the possibility of a bubble, especially in real estate: "use with extreme caution".

2. Of course, many did: for instance, the IMF warned of unsustainable current account imbalances, and many others warned about unsustainable public debt. Ironically, it was not these imbalances that brought down the economy, but something more mundane, and historically more familiar: bad and excessive lending by the financial sector, and an accumulation of private debt.

3. In the United States, for example, the median sale prices for new homes increased by 130% from 1995 to 2016, while median (equivalised) household disposable income increased by 80% (in nominal terms). Over the same period, the median size of new single-family houses increased from 178 to 225 square metres. As noted by Robert H. Frank, in the United States good schools (whose budgets are typically funded by local property taxes) are located in more expensive neighbourhoods, implying that "any family that failed to rent or purchase a house near the median of its local price distribution would have to send its children to below-average schools" (Frank, 2011).

4. Since 2015, the OECD has been releasing measures of over-indebtedness of households based on different thresholds (i.e. debt-to-income above 3, and debt-to-assets above 0.75). For a recent analysis, see Balestra and Tonkin (2018).

5. There are numerous policy actions that the government, including the Federal Reserve, could have taken had it had an adequate appreciation of the economy's financial fragility. Indeed, some of the actions it took may actually have increased the economy's fragility.

6. Beyond the reasons we emphasise here, preliminary estimates of GDP systematically underestimate the *revised* estimates, for technical reasons, for instance related to the entry of new firms and exit of old firms. These need further study, and appropriate corrections introduced. Real time estimates of GDP based on scraping data from the internet may provide a check against such systematic errors in the future (Buono et al., 2017, pp. 118-120).

7. Sustainability of well-being requires an increase in wealth *appropriately measured.* If wealth is increasing, then later generations can sustain the same level of well-being that is prevailing now; but not so if wealth is decreasing. Wealth includes economic capital (which includes both physical and immaterial items, such as knowledge and research), human capital, natural capital (natural resources and the environment), and social capital (i.e. how well members of a society co-operate with each other).

8. Gaps of similar size are visible when comparing current levels of GDP per capita to those implied by the pre-crisis growth of "potential output" – the level of GDP that could be expected to prevail based on the long-term drivers of economic growth. Since 2007, OECD estimates of the (annual) growth of potential output were revised downward from 2.7% (mid-2007) to 1.7% (mid-2018) for the United States, and from 1.9% to 1.4% for the euro area.

9. One aspect of physical capital normally not measured, which may increase more than normal during recessions, is associated with maintenance: with greater free time, workers may spend more time on repair and maintenance.

10. OECD (2001) defined human capital as "the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being".

11. When firms are cash starved, they may also cut back on formal on-the-job training. Unfortunately, again, there are no good statistics assessing the level or changes in these expenditures, though in some countries and in some firms they are likely to be quite significant.

12. There is a longstanding controversy about the benefits and costs of an economic downturn, with some, like Joseph Schumpeter, arguing that recessions and depressions have a cleansing effect, forcing firms to become more efficient. Stiglitz (1994) argued that the adverse effects on learning and R&D outweighed these "agency" benefits.

13. But note the observation made earlier in the context of education: in the countries most affected by the crisis, GDP per capita decreased, and so even if the share of health education in GDP held up, spending per capita went down. Austerity typically forced significant cuts in public health expenditures.

14. Sitaraman (2017) describes how some financial institutions have grown so powerfully economically that they can now evade law enforcement, even when taking part in illegal activities, by paying fines.

15. In the United States, they may have borrowed heavily – on average, a college graduate has some USD 37 000 in student debt (www.forbes.com/sites/zackfriedman/2018/06/13/student-loan-debt-statistics-2018/#1efa9ee87310). The amount of student debt is much higher for some degrees: according to a 2017 Gallup survey, 60% of those who completed their law degree in 2010 or later report borrowing more than USD 100 000, compared with around half of those who graduated in the 2000s and a quarter of law graduates in the 1990s (http://www.accesslex.org/sites/default/files/2018-01/Examining%20Value%2C%20Measuring%20Engagement%20-%20A%20National%20Study%20of%20the%20Long-Term%20Outcomes%20of%20a%20Law%20Degree.pdf).

16. OECD (2013d) reports, based on data from the *Gallup World Poll,* that average life satisfaction declined by more than 20% in Greece and by between 12 and 10% in Italy and Spain, as compared to gains by more than 4% in Germany, Israel, Mexico, the Russian Federation and

Sweden. The same report refers to "evidence of growing feelings of anger, stress and worry and lower feelings of joy and contentment in many OECD countries" (p. 88).

17. Assume that the gap between actual and potential GDP is 10% of GDP, and that this gap persists in the future; discounting these future losses at a conservative long-run real interest rate of 2% implies that the present value of the loss in GDP is five times GDP – in the case of Europe and the United States, some USD 300 trillion.

18. A number of recent articles highlight the permanent effect of recessions on the level of output but not on output growth. For example, Cerra and Saxena (2008), based on analysis of 190 countries over the period 1960-2001, concludes that, following all crises, GDP reverts to his previous growth path.

19. Fernald et al. (2017) for the United States, and Antolin-Diaz, Drechsel and Petrella (2017) for G7 countries.

20. In addition, multipliers in deep downturns are, almost by definition, much greater than when the economy is near full employment, when an increase in government spending has to be offset by a contraction somewhere else. In deep downturns, central banks don't need to raise interest rates (in the 2008 crisis, they didn't) as government spends more; hence there is no crowding out of private spending. Indeed, there may be crowding in, as expectations of higher GDP lead to more investment and consumption. The empirical analysis by Caggiano et al. (2015) confirms that fiscal multipliers in a deep recession are much higher than those observed in an expansionary period; that the deeper the recession, the greater the amount of output generated by a fiscal expansion; and that government spending is very effective when it is most needed (in their estimates, one extra dollar spent by the US government during the Great Recession would have generated higher output of up to USD 2.5 in three-years' time).

21. Originally, the 3% deficit limit and 60% debt limits were set as conditions of entry into the euro area. They subsequently were adopted as criteria for acceptable macro-economic policies.

22. This conclusion may not be shared by all. Public investments may require long planning horizons, so that undertaking them in a rush in a recession may result in lower-quality projects (implying that good policy design entails having an inventory of projects to be undertaken should the economy go into a downturn). More generally, the mistrust of governments and their propensity to spend leads some to the view that the only productive investment is the one entrusted to the private sector. Empirical research, however, shows that, on average, investments in both technology and infrastructure, for instance, have high return, markedly in excess of the government's cost of capital.

23. The US global balance sheet position moved from a negative balance of 7% of GDP in 2007 to 32% in 2017 (OECD Annual National Accounts database, https://stats.oecd.org/Index.aspx?DataSetCode=NAAG). Interestingly, some of the money that was invested in the United States from abroad was invested in low yield assets, and some of the money that the United States invested abroad was invested in high yield assets, so that the country's net asset position deteriorated by less (25 percentage points of GDP, over the 10 years to 2017) than one would have expected given its recurrent current account deficits (whose cumulative value was equivalent to 27 percentage points of GDP), which require it to get funds abroad year after year.

24. See https://ec.europa.eu/ireland/news/key-eu-policy-areas/economy_en. Looking beyond gross public debt, Barnes and Smyth (2013) show that the net financial liabilities of the Irish general government increased by 81 points of GDP from 2007 to 2012; also, by 2012 the non-financial assets of the Irish general government were equivalent to 35% of GDP, while its banking-related contingent liabilities amounted to 73% of GDP.

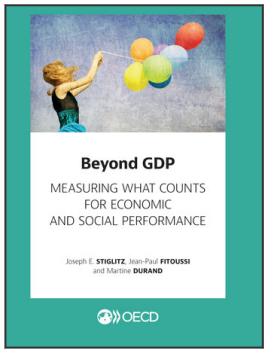
25. Most educational expenditures, though, create private assets, not public assets; the government's "claim" is only that associated with its ability to capture tax revenues. Still, as we

explain above, the government's overall balance sheet may improve under a broad range of circumstances.

26. There is also a concern that those categories of expenditure not included within the capital budget will be given short shrift.

27. Such a behaviour was strongly encouraged by the government in some countries, e.g. the Netherlands in the 1980s, the aim being to lower the unemployment rate by moving unemployed workers from unemployment benefits to disability or early retirement schemes.

28. Total hours worked declined in Italy by 6% from 2009 to 2014, and then recovered by around 3%. In the United States, total hours worked declined marginally in 2010, and then increased continuously in later years, with a cumulative rise of 10% over 2009-16 (OECD Employment Outlook database, www.oecd.org/employment/emp/onlineoecdemploymentdatabase.htm).



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