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TAXATION, GOVERNMENT SPENDING & ECONOMIC GROWTH: In Brief

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Summary

• Taxation and government spending as a proportion of GDP have increased dramatically since World War I. Spending has increased from one-eighth of national income to somewhere between 40 per cent and 45 per cent of GDP today, the actual figure depending on how GDP is measured.

• This is a similar level to the share of government spending in national income in Germany, but considerably higher than in Switzerland, Australia and Ireland, and somewhat higher than the US and New Zealand. Some UK regions have government spending levels between two thirds and three quarters of regional GDP.

• Despite widespread hysteria, there has not been a significant reduction in the level of government spending since 2010. Real spending fell by just 0.5 per cent a year between 2010 and 2015 and is planned to increase through to 2020. Overall, spending as a proportion of national income at factor cost is still planned to be historically high at a level of 41 per cent by 2020.

• The composition of government spending matters for economic growth. Government capital spending can enhance growth, though it should also be judged by its opportunity cost. Government consumption spending tends to harm growth. Badly designed government transfers can undermine growth by worsening incentives. As a proportion of national income, government investment has fallen whilst welfare payments and other government spending have increased since the 1960s.

• Taxation required to finance spending can reduce the size and growth rate of the economy by reducing incentives to save, invest and innovate, or by distorting economic decisions and deterring transactions. Analysis suggests that the growth maximising share of government spending in GDP is between 18.5 per cent and 23.5 per cent of national income at market prices. The welfare maximising share is likely to be somewhat higher than this at between 26.5 per cent and 32.5 per cent. The maximum

sustainable level of government spending is around 37 per cent to 38 per cent of national income. It appears that the UK government is aiming for that level rather than the welfare maximising level.

• A wide body of evidence suggests that high levels of government spending and taxation undermine growth. Growth regression analysis tends to show that a 10 percentage point increase in the burden of each is associated with a 1 percentage point fall in the annual growth rate.

• New modelling, which overcomes some of the problems of the earlier work, finds that a 10 percentage point fall in a combined index of top marginal tax rates and regulation relative to its trend produces a rise in output over about thirty years of 24 per cent. This is equivalent to an increase in the growth rate over the thirty years following the cut of about 0.8 percentage points per annum.

• The design of the tax system to finance government spending affects growth too. Taxes on mobile capital and high marginal rates of tax on income tend to affect growth disproportionately, whereas taxes on land, consumption and so-called ‘externalities’ have less of an impact and may even increase welfare.

• A good tax system should have low negative effects on growth and welfare, low administration and compliance costs, and be non-discriminatory and transparent.

• The current UK tax system does not live up to these ideals. It is a very badly designed system with high marginal rates, huge complexity, taxes that discourage wealth-creating economic activity and wide-ranging exemptions.

• A better tax system can be created. This would entail abolishing twenty current taxes, including corporation tax, national insurance, capital gains tax, inheritance tax, council tax, and a range of duties. The reformed system would comprise a flat-rate income tax at 15 per cent of income above a personal allowance of £10,000, with distributed corporate profits also taxed at this rate; VAT at 12.5 per cent; a new housing consumption tax at 12.5 per cent; a new location land value tax; and fuel duty at around half the current rate. On a static basis this reform would lead to significant income gains across the income distribution, with particularly significant gains for the poorest.

Government spending in the UK[1]

Although the main topic of this paper is the relationship between taxation and economic growth, it makes sense for the initial focus of discussion to be on government spending. This is because it is government spending that ultimately determines the total tax burden in the absence of, for example, huge natural resource rents that arise in countries such as Norway. It is true that, especially in recent years, government spending has been considerably higher than taxation, with the difference being made up by government borrowing. But government borrowing too requires financing and consumes real resources that could have an alternative use. Furthermore, government borrowing leads to a future tax burden.

There are potential qualifications to this argument, such as the fact that the debt burden falls (all other things being equal) as nominal national income grows and governments may have some non-tax revenues. However, as a rule of thumb, it is the financing of government spending that ultimately imposes a burden on the private sector. So, how has government spending varied over time?

The measurement of national income and government spending is perhaps surprisingly controversial. An indication of the difficulties in measuring these important economic indicators was given in the wake of the government's 2014 Budget when one BBC commentator suggested that planned reductions in government spending as a proportion of national income would take us back to the days of *The Road to Wigan Pier* (that is, to the 1930s). More careful analysis of definitions of national income and the different categories of government spending demonstrated that this assertion was absurd.

Indeed, analysis of the data shows that, since the beginning of the 20th century, there has been a huge growth in government spending. This growth has varied somewhat across countries, but the pattern has been remarkably consistent.

Table 1 shows government spending as a proportion of national income

[1] This section draws heavily on the chapters by David B. Smith in Hobart Paperback 184.

for five countries since 1870. In the UK, government spending has grown from around 10 per cent of national income at the beginning of the 20th century to somewhat over 40 per cent today. There were big jumps in spending during the two world wars. The trends in the other countries are similar.

Indeed, the figures in Table 1, it can be argued, understate the rise in government spending that has taken place. In the table, national income is measured at market prices. Some regard this as inappropriate given that the market price measure of GDP includes taxes that are levied on goods and services that are sold, rather than the underlying costs of those goods and services. If we measure government spending as a proportion of national income measured at what is known as 'factor cost', the current level is just over 45 per cent. Indeed, using the factor cost measure of national income, government spending in the UK overtook private spending in the late 2000s, before falling back to its current level of a little less than half of national income.

Table 1: Ratios of general government expenditure, including transfers, to money GDP at market prices (%) – selected countries

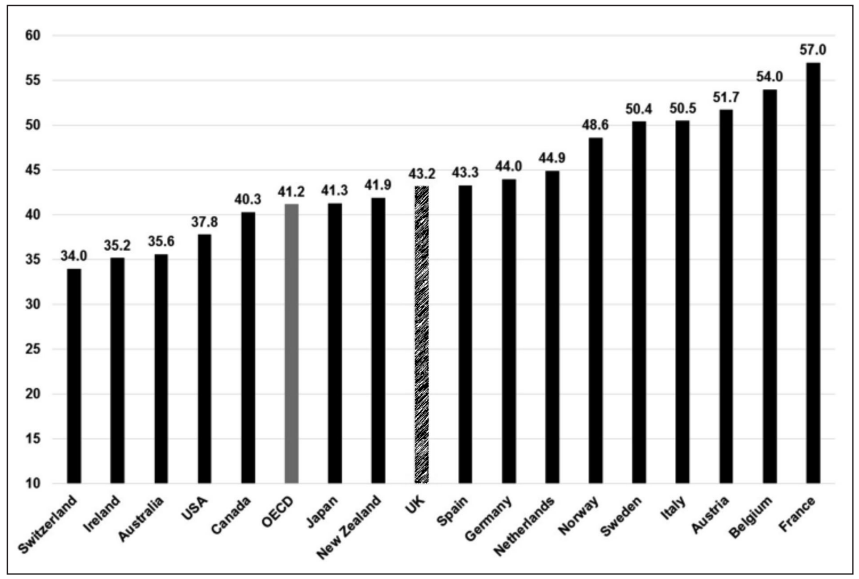
	1870	1913	1920	1937	1960	1980	2000	2010	2015
Australia	18.3	16.5	19.3	14.8	21.2	34.1	34.6	36.6	35.6
France	12.6	17.0	27.6	29.0	34.6	46.1	51.1	56.4	57.0
Germany	10.0	14.8	25.0	34.1	32.4	47.9	44.7	47.4	44.0
UK	9.4	12.7	26.2	30.0	32.2	44.7	37.8	48.8	43.2
USA	7.3	7.5	12.1	19.4	30.0	35.3	33.9	43.2	37.8

Sources: Tanzi and Schuknecht (2000), OECD Economic Outlook (June 2016, Annex Table 29), and OECD data bank.

How do UK spending levels compare with other developed countries today? Despite the oft-heard distinction between the supposed small-state 'Anglo-saxon neo-liberal' model and the larger-state continental model, government spending as a proportion of national income in the UK in 2015 was more or less identical to Germany. As Figure 1 shows, some continental countries certainly spend more, with the governments of Italy, Sweden, Austria, Belgium and France (the latter shown in Table 1) all spending over 50 per cent of national income. However, the UK is, in fact, above the OECD average – considerably higher than

Switzerland, Australia and Ireland, and somewhat higher than the US and New Zealand

Figure 1: Ratios of general government expenditure, including transfers, to money GDP at market prices (%) in 2015



Sources: OECD Economic Outlook (June 2016, Annex Table 29), and OECD data bank.

Although UK government spending is around 45 per cent of national income in the country as a whole, there are considerable regional variations too. As Table 2 shows, levels of government spending across UK regions differ significantly. Perhaps the most interesting observation is the fact that, if London were a country, it would have the lowest government spending ratio in the OECD. The spending ratios in the North East, Northern Ireland and Wales, on the other hand, are beyond anything that is seen in developed countries.

Table 2: UK general government expenditure in 2012-13 – regional data

	Ratio to GDP at Basic Prices (%)	Ratio to GDP at Factor Cost (%)	Ratio to GDP at Market Prices (%)
NORTH-EAST	69.7	70.8	62.3
NORTH-WEST	60.0	60.9	53.6
YORKSHIRE & HUMBER	57.9	58.8	51.7
EAST MIDLANDS	53.6	54.4	47.9
WEST MIDLANDS	56.2	57.1	50.2
EASTERN ENGLAND	46.0	46.7	41.1
LONDON	30.1	30.6	26.9
SOUTH-EAST	37.7	38.3	33.7
SOUTH-WEST	49.8	50.6	44.5
ENGLAND	45.4	46.1	40.6
SCOTLAND	59.3	60.2	53.0
WALES	74.3	75.4	66.4
NORTHERN IRELAND	76.5	77.7	68.3
UK	48.2	48.9	43.1

Sources: HM Treasury, Public Expenditure Statistical Analysis 2014, 1 August 2015; Office for National Statistics, Regional Gross Value Added (Income Approach), 1997 to 2014, 9 December 2015.

But what about austerity?

There is, at the current time, a common misconception that government spending levels are being cut drastically in the UK.

The coalition government came to office in 2010 with an agenda to control government borrowing. This involved significant tax increases, but also proposed spending cuts. In public discourse around the so-called austerity agenda, some dramatic figures were often bandied around. There are two reasons for that. The first is that spending cuts were often defined relative to previous projected increases in spending. The second is that many government functions were protected from cuts whilst some were cut more deeply.

So, what has the record been overall? As Figure 2 shows, between 2010

[2] GDP at 'basic prices' is yet another way of calculating national income that is used in the statistics for regional government spending ratios

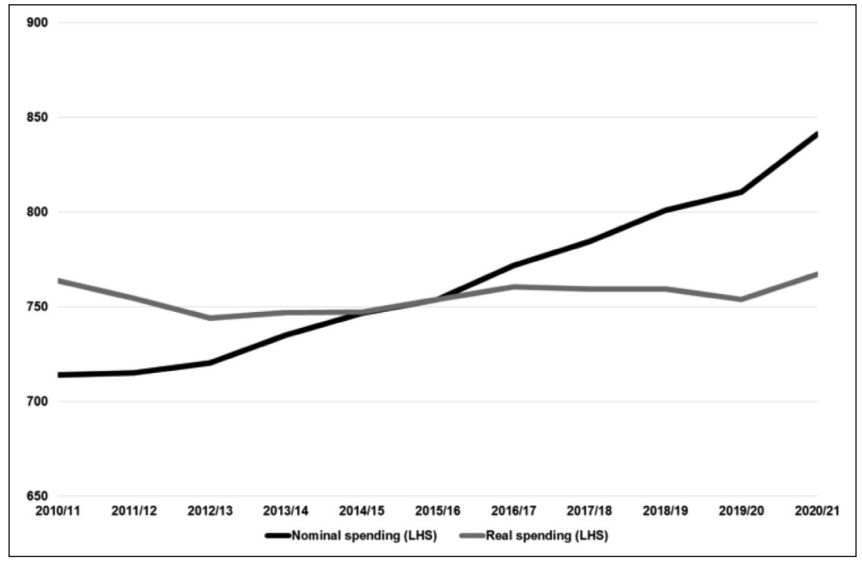
and 2015, total government spending actually increased by 4.6 per cent. In real terms, government spending fell by just 0.5 per cent a year. Real spending per capita fell by a little more – by about 1 per cent per year. In other words, the overall adjustment in government spending was very small indeed – certainly, many private sector households and businesses had to make much greater adjustments to their budgets given the economic realities that they faced after the financial crash. The large cuts often quoted in the media relate not to the overall government spending settlement but to the strategic choices that the last two governments have made to spend more on foreign aid, the health service, schools and social protection for older people, and consequently to make major cuts in other areas.

Despite all the supposed austerity, total government spending was over 45 per cent of national income (at factor cost) by the end of the coalition government. Furthermore, through to 2020, nominal government spending is planned to continue to rise and real government spending to go up slightly (*see Figure 2*). However, spending as a proportion of national income at factor cost will fall to 41 per cent. In other words, government spending will only fall relative to national income and not at all in absolute or even in real terms.

Key facts – government spending 2010-2020

- Nominal spending rose by 4.6 per cent from 2010-2015
- Real spending fell by 0.5 per cent per annum from 2010-2015
- Real spending per capita fell by 1 per cent annum from 2010-2015
- Government spending as a proportion of national income measured at factor cost was 45 per cent in 2015
- Real government spending is planned to rise from 2016 to 2020
- Government spending on health and social protection rose in real terms from 2010-2015
- Government spending on public order and safety fell in real terms by 15 per cent from 2010-2015
- By 2020, government spending as a proportion of national income measured at factor cost is planned to be over 40 per cent – this is before any relaxation of the purse strings that may happen under the new government

Figure 2: Projected nominal and real expenditure (£ billion; real expenditure in 2015/16 prices)



Source: OBR (2016).

Taxation and growth[3]

When looking at the relationships between taxation and growth, it is important to distinguish between average and marginal tax rates. In the long term, the level of government spending in a country is likely to be close to the average tax rate (that is total tax revenue divided by national income). This measures the claim by the government on the economy and will affect economic growth. However, for a given average tax rate, the pattern of marginal rates (that is the additional tax paid on an additional pound of earnings) can vary greatly. And it is marginal rates that affect incentives to work, train, invest and avoid taxes. So, marginal rates matter too.

For example, two countries could have the same average tax rate of, for example, 40 per cent. But in one country there might be a steeply progressive set of rates with lots of exemptions and loopholes and, in the other country, a flat rate of tax of 40 per cent on all income[4]. At the margin, many individuals could be paying tax at rates of 60, 70 or 80 per cent, or more, depending on how the tax system is constructed. Because decisions to work, train, invest and avoid taxes are taken at least partly on the basis of the additional net income that will be earned, it is the marginal tax rate that matters.

[3] The next two sections draw heavily on the chapters by Patrick Minford and those by Lucy Minford in Hobart Paperback 184.

[4] It might be thought that the first country will have a tax system that benefits the poor to a greater extent. However, this is not necessarily the case. This will depend, amongst other things, on the nature of the loopholes and exemptions in the tax system and how the money the government raises is spent.

Much of the work on tax and growth examines the relationship between the total tax take and economic growth. This work will be described below and the rest of this section relates to this. On the other hand, it is difficult to undertake empirical work which examines the impact of marginal tax rates because tax schedules differ so much across time and in different countries. This means that it is very difficult to model tax systems by looking at marginal rates. However, later in this paper, some work on marginal tax rates and economic growth is presented.

How might taxation affect economic growth?

The most important mechanisms through which taxation can affect economic growth are as follows:

- Taxation can lead to reduced incentives to supply labour and save and invest if wages and the returns to saving and investment are taxed heavily.
- Taxation on businesses and personal investment income and capital gains can reduce the incentive to innovate and take entrepreneurial risks.
- Discriminatory taxes in relation to different goods and services can lead to what economists call 'deadweight losses'. Such discriminatory taxes lead people to buy products that they value less, rather than products they value more, purely for tax reasons.
- Specific taxes such as stamp duty charged only on transactions or taxes on capital gains charged on the disposal of an asset discourage people from moving house or otherwise trading in assets or selling assets to a counterparty who could use them more productively.
- Tax-financed welfare benefits can reduce work incentives, incentives to train or take promotion, and incentives to save.

Economic growth versus other measures of welfare

Economic growth, not least assessed through changes in measured GDP, is not everything of course and can often be a poor proxy for broader economic welfare. Government spending and the taxation needed to fund spending could improve economic welfare even if it does not lead to economic growth as conventionally measured. For example, the provision of welfare benefits to the very poor may reduce growth both because of the effects on incentives caused by the taxes levied to finance the

benefits and also because the welfare benefits themselves might reduce incentives to work and save. However, such welfare benefits might still be regarded as desirable. As a result, the level of government spending and taxation at which welfare is maximised is likely to be above the level at which economic growth is maximised.

The way in which government activity is brought into national accounts is also problematic when examining the impact of taxation on growth. For example, if the government spent £10 billion on a police system, the total impact of this on national income would approximate to zero. The money would simply transfer from the private to the public sector and appear in national accounts at a value of £10 billion. However, the value the public put on having a basic level of order might be much greater than that.

Of course, the opposite could happen. Although government spending on the arts might enrich society in ways that cannot be captured in economic growth figures, some arts spending might have no welfare benefit whatsoever and be totally wasted, and yet it would appear in national income figures at the amount spent rather than at the increase in societal welfare (zero). Furthermore, very often government will provide services less efficiently than the private sector could provide them, yet national income measurement systems rarely take this into account.

Similarly there may be distinctions between growth and welfare in regards to taxation too. A reduction in measured growth arising from reduced work effort caused by the higher taxes that are necessary to finance higher spending is likely to be offset in welfare terms, at least to some extent, by an increase in leisure time. The value of that increase in leisure time would not appear in national income accounts at all whereas the value of the reduction in working hours would be fully captured.

It is also worth noting that there are some taxes that could, in theory at least, enhance economic welfare and even economic growth. For example, taxes on negative spillover effects from consumption or production activities might reduce those effects to a level that is more socially optimal. Designing such taxes is difficult in practice and often their levels will be determined by political rather than economic considerations. However, in principle such taxes could raise economic welfare whilst replacing other taxes that are more harmful.

The Laffer curve

The Laffer curve shows the relationship between the government's tax revenue and tax rates. It suggests, intuitively, that a zero tax rate will produce no tax revenue. Similarly, an effectively enforced tax rate of 100 per cent of earnings will produce no tax revenue in a free society because there would be no point working for money as people would be better off simply working for themselves outside the exchange economy (growing their own produce etc). As tax rates rise, there must be a point, it is argued, where the effects on growth are so large that the fall in growth caused by raising taxes further will actually lead to a drop in tax revenues. In other words, attempts to raise taxes further will actually reduce tax revenues and consequently lead to a reduction in, rather than an increase in, resources available for government spending. The higher marginal rates of tax will generate no net revenue because of the shrinkage of the tax base caused by the extra taxes. This shrinkage of the tax base can be caused by lower growth, by higher levels of illegal tax evasion or by legal tax avoidance. The point at which taxes cannot be raised further without reducing revenues is often described as the 'top of the Laffer curve'.

If it follows that there is a point beyond which further increases in tax rates can reduce tax revenues, it also follows that some governments might have raised taxes as a proportion of national income to such high levels that it is possible to reduce tax rates and actually increase revenues. In other words, in some high tax countries, it might be possible to reduce the burden of taxation and increase government spending in aggregate so that government spending is a lower proportion of a higher national income.

Even if that is not true in relation to the aggregate tax and spending situation, it might still be true that if particular taxes are reduced it will lead to a rise in revenues. For example, it might be the case that reducing inheritance tax or reducing the highest rate of income tax will increase tax yields. Or, to take another topical example, the US has a tax rate of 35 per cent on corporate profits that are repatriated from foreign subsidiaries back to the US. It is certainly not inconceivable (and might be regarded as highly likely) that a significant reduction in that tax rate would raise tax revenues because less capital would be 'piled up' in offshore ventures.

When the UK government reduced the 50 per cent top income tax rate, it conducted a serious analysis of the dynamic behavioural effects[5]. Her Majesty's Revenue and Customs (HMRC) identified a number of potential impacts of high tax rates on behaviour, including reduced hours worked; reduced foreign direct investment; greater avoidance, tax planning and evasion; and reduced human capital formation. Their analysis suggested that, if there were no effect on economic behaviour, the Treasury would lose around £3.5 billion a year as a result of reducing the top tax rate from 50 per cent to 45 per cent. However, as a result of the behavioural effects any decrease in tax revenue would be more or less totally reversed, making the revenue impact of the reduction in the top rate of tax negligible.

In practice, there would appear to have been a number of historical examples of governments reducing tax rates and seeing large increases in revenue. For example, as explained by Laffer (2012), in 1978 the US brought in the Steiger-Hansen capital gains tax rate reduction and then, during the following 25 years or so, there were larger cuts in taxes. The results were interesting. In 1980, the top one per cent of income earners paid taxes equal to 1.5 per cent of GDP or 17.5 per cent of all the income taxes in the US. By 2007, the top one per cent of income earners paid 3.2 per cent of GDP in income taxes and they paid 42.5 per cent of all the income taxes collected. There was a very similar trend in the UK after Nigel Lawson's reduction in the top rates of tax in 1988.

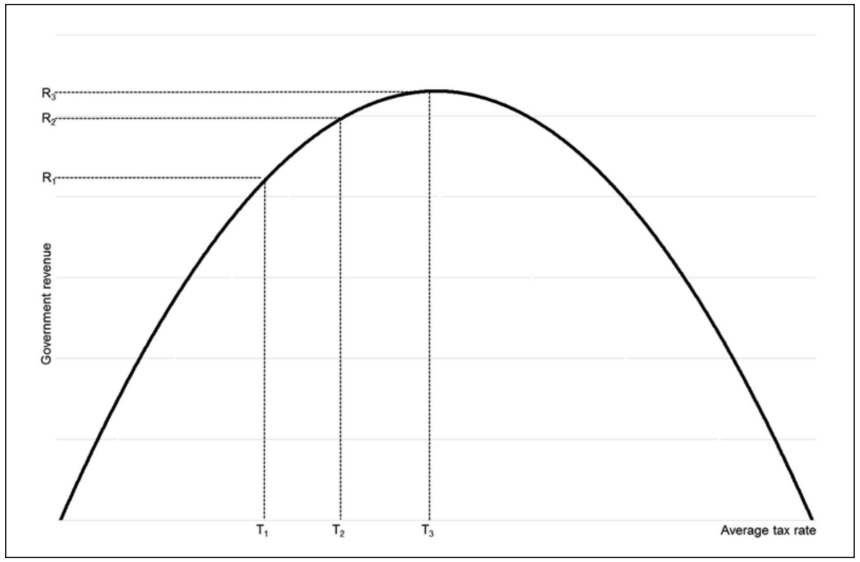
Figure 3 shows an illustrative Laffer curve with three theoretical points marked. It is not intended to be to scale, but to show the direction of the effects. T_1 is the growth maximising level of taxation and T_2 is the welfare maximising level of taxation expressed as the average tax rate relative to GDP. As noted above, the welfare maximising level of taxation should be higher than the growth maximising level and, furthermore, it should be the level at which politicians aim. T_3 is the average tax rate as a proportion of GDP that maximises revenues. There is no point trying to tax beyond this level – nobody gains because tax revenues and therefore government spending will fall. T_3 is sometimes described as the 'optimal' tax rate by politicians and commentators. It is not. It marks the point at which the government can extract no further tax revenue because the growth effects of additional taxation are so great. T_2 is the optimal tax take.

Work undertaken by David B. Smith suggests that the growth maximising share of government spending in GDP (T_1) in the UK is probably in the

[5] See: http://webarchive.nationalarchives.gov.uk/20140109143644/http:/www.hmrc.gov.uk/budget2012/excheq-income-tax-2042.pdf

range 18.5 per cent to 23.5 per cent of national income, using current (July 2016) UK definitions at market prices. He suggests that the welfare maximising share (T_2) is probably in the range 26.5 per cent to 32.5 per cent of national income. Furthermore, his work finds that the maximum sustainable level of government spending is probably in the range 37 per cent to 38 per cent of national income – this is conceptually slightly different from, but likely to be roughly the same as, the revenue maximising share of taxation in national income (T_3).

Figure 3: Illustrative Laffer curve



Of course, there is a great deal of uncertainty attached to these numbers, even with the ranges suggested. In practice, the welfare maximising level of taxation and government spending will depend on the institutional environment in which the private sector can provide welfare, infrastructure and so on. These levels will also depend on the shape of the tax system and how government spending is allocated. If we have a badly designed tax system and government spending determined to a greater degree by vested interests and rent seekers, the optimal level of government spending is likely to be lower. However, what is perhaps most alarming is that, even on the projections set out in the March 2016 Budget and without any relaxation of the purse strings by the new administration,

government spending will only just come down to sustainable levels by 2020-2021.

Types of government spending and growth

Not all government spending harms economic growth and some spending might benefit growth. As such, taxation at some level, if the money is spent on the right things, might be growth enhancing. For example, notwithstanding the literature on private governance (see, for example, Stringham 2015), it can be argued that effective judicial and policing systems are necessary for a thriving business economy. Furthermore, it is possible that investment in certain forms of economic activity (such as pure research) has public good qualities and will be under-provided in an entirely free market. Infrastructure such as ports and roads can also be important for promoting economic growth. In all these cases, there are arguments for private provision rather than state provision. But, even if spending on infrastructure or research is not as efficient in the public as in the private sector, such spending could still increase growth as long as the rate of return from the spending is greater than zero.

Despite this, we should be cautious about assuming that even government investment and research spending will lead to higher growth, though it is more likely to do so than other categories of government spending. Minford and Wang (2011) suggest that tax-financed government spending in areas such as investment or research and development reduces economic growth because the negative impact on growth of the taxes levied to finance the spending outweighs any positive impact on growth of the spending itself. This may be because, amongst other reasons, government-financed investment projects are chosen using political criteria rather than economic criteria and so are not growth enhancing in practice even if they could be in theory.

There is substantial evidence that government consumption expenditure tends to reduce economic growth, whilst government transfers from some groups to others can also undermine economic growth due to the negative effects on work incentives – even ignoring the impact of the taxes used to finance the expenditure.

Whilst there has been a dramatic increase in government spending in the last century, it has grown particularly rapidly in areas that tend to harm growth more or help growth less. For example, government spending

on investment has fallen from over 6 per cent of national income in the late 1960s to less than 3 per cent today. In the same period, welfare payments have almost doubled as a percentage of national income to their current levels of around 14 per cent (this excludes health and education spending).

In the period from 2010-2015, there has been further significant re-orientation of spending. Public order and safety (comprising major parts of the 'nightwatchman' functions of the state) had reductions in real spending of about 15 per cent. Meanwhile, spending on both health and social protection increased in real terms. There is no sign of these trends being reversed. Indeed, they are likely to continue in the years to 2020.

Tax and growth – the evidence

A wide body of evidence suggests that lower government spending and taxation could enhance growth significantly. The main approach economists have used to investigate the impact of spending and tax on growth is through the development of what are known as 'growth regressions'. Sophisticated data sets are used to estimate the effect of a range of economic variables on economic growth, including taxation and government spending.

The results of these growth regressions are clear: taxation has a strong relationship with growth – the higher the level of taxation and government spending, the lower the level of growth.

As a rough estimate, a rise of 10 percentage points in the ratio of taxation to national income reduces growth by 0.5-1.0 per cent per annum. Indeed, an OECD study has suggested that up to one third of the growth deceleration in the OECD between 1965 and 1995 could be explained by higher taxes. Furthermore, because in some European countries tax burdens have increased much more dramatically than the OECD average it is likely that there would have been correspondingly larger effects on their growth rates (Leibfritz et al. 1997).

A summary of a number of the main studies on tax and growth up to 2002 is shown in Table 3:

Table 3: The negative impact of taxation on economic growth

Author	Data coverage	Main explanatory variables	Comment
Barro (1991)	98 countries in the period 1960-1985	Human capital, government consumption, political instability indicator, price distortion	1% point of GDP increase in tax to GDP ratio lowers output per worker by 0.12%.
Koester and Kormendi (1989)	63 countries for which at least five years of continuous data exists for the 1970s.	Marginal tax rates, average tax rate, mean growth in labour force and population	10% decrease in marginal tax rates would increase per capita income in an average industrial country by more than 7%.
Hansson and Henrekson (1994)	Industry-level data for 14 OECD countries	Government transfers, consumption, total outlays; education expenditure; government investment	Government transfers, consumption and total outlays have a negative impact on growth whilst government investment is not significant
Cashin (1995)	23 OECD countries over the 1971-1988 period	Ratio of public investment to GDP, ratio of current taxation revenue to GDP, ratio of expenditure on transfers to GDP.	1% point of GDP increase in tax to GDP ratio lowers output per worker by 2%.
Engen & Skinner (1996)	US modelling together with a sample of OECD countries	Marginal tax rates, human capital, investment.	2.5% point increase in tax to GDP ratio reduces GDP growth by 0.2% to 0.3%
OECD - Leibfritz, Thornton & Bibbee (1997)	OECD countries over the 1965-1995 period	Tax-to-GDP ratio, physical and human capital formation and labour supply.	10% point increase in tax to GDP ratio reduces GDP growth by 0.5% to 1%
Alesina et al. (2002)	18 OECD countries over the 1960-1996 period	Primary spending, transfers, labour taxes, taxes on business, indirect taxes, govt. wage consumption (all in share of GDP).	1% increase in government. spending relative to GDP lowers the investment-to-GDP ratio of 0.15% and a cumulative fall of 0.74% after five years.

Author	Data coverage	Main explanatory variables	Comment
Bleaney, Gemmell & Kneller (2000)	17 OECD countries over the 1970-1994 period	Distortionary tax, productive expenditure, net lending, labour force growth, investment ratio	1% point of GDP increase in distortionary tax revenue reduces GDP growth by 0.4% points
Folster & Henrekson (2000)	Sample of rich OECD/non-OECD countries over the 1970-1995 period	Tax-to-GDP, govt. expenditure-to-GDP, investment-to-GDP, labour force growth, human capital growth	10% point increase in tax to GDP ratio reduces GDP growth by 1%
Bassanini & Scarpetta (2001)	21 OECD countries over the 1971-1998 period	Indicators of government size and financing, physical capital, human capital, population growth.	1% point increase in tax/GDP ratio reduces per capita output levels by 0.3% to 0.6%

Later studies show similar associations. For example, Afonso and Furceri (2008)[6] examine a number of EU and other OECD countries over the period 1970–2004. Their finding is that a one percentage point rise in the government spending to GDP ratio cuts growth in the OECD by 0.12 per cent and in the EU by 0.13 per cent. Larger effects can be found for individual expenditure and tax components with indirect taxes and social insurance contributions appearing to be the most damaging for growth and worse than income tax.

Beyond the 'growth-regression' literature

Despite the apparent consensus in the growth-regression literature, economists do not necessarily find it convincing in terms of identifying a causal relationship between tax and growth. An apparent relationship between higher growth and lower taxation might arise as a result of a third factor which affects both (such as good legal institutions and the rule of law). The regressions might also be affected by outliers or particular circumstances that pertained at particular times or in specific groups of countries.

More robust examination and modelling of the data has recently been undertaken by Lucy Minford (Minford 2015). Minford uses modelling

[6] Reported in the Taxpayers' Alliance, Single Income Tax Report: http://2020tax.org/2020tc.pdf

techniques that are particularly robust and which are very powerful at rejecting false models. There are two other insights which also make her work interesting.

Firstly, as we have discussed, tax rates tend to have their impact at the margin. It is the additional tax that an individual will pay on additional earnings that will determine their desire to work, save or take business risks. Her analysis therefore uses the top marginal tax rate to assess the effect of tax on growth rather than the average tax burden. Secondly, regulation is often used as a substitute for taxation to achieve similar objectives. One obvious example of this is the minimum wage, which is designed to increase the incomes of the poor so that there is less reliance on benefits financed by taxation. She therefore constructs a measure that combines both tax and regulatory factors into one index and examines how changes from the trend in that index affect growth.

Minford finds very strong evidence that taxation affects growth, most likely through the channel of reduced entrepreneurship. The research finds that a 10 percentage point fall in the index that measures tax and regulation relative to its trend produces a rise in output over about thirty years of 24 per cent. This is equivalent to an increase in the growth rate over the thirty years following the cut of about 0.8 percentage points per annum. The model does not distinguish between regulation and tax. However, it is changes in marginal tax rates that have driven the changes in the combined index over the period. As such, it is reasonable to infer that a 10 percentage point cut in the top marginal tax rate would bring about the improvement in growth indicated by the model. Given the government's own research about the dynamic impact of reducing the top rate of tax from 50 per cent to 45 per cent that has been discussed above, this result is hardly a surprise.

Overall, therefore, the evidence would suggest that tax levels affect growth substantially. Modelling using different techniques produces results that are difficult to compare in a precise way but which are very consistent with each other. Whilst governments spend money on services and transfers in ways that they hope will increase welfare, the counterpart of this should not be forgotten. The taxes used to finance such spending can reduce growth and, given the effects of compounding, in the long run this may have a more significant detrimental effect on economic and social welfare.

Designing an effective tax system[7]

The implications of the analysis so far are clear. UK levels of spending and taxation are way above either growth or welfare-maximising levels. Reducing the size of the state would have a positive impact on the dynamism of the economy, without reducing well-being. More worryingly, it is quite possible that UK government spending is at or beyond maximum sustainable levels.

However, there is a remaining question. For a given amount of revenue that the state is determined to raise, how should the tax system be designed? Even if the UK were to substantially reduce the tax burden as a proportion of national income, a badly designed tax system could, all other things being equal, still have a substantial cost in terms of economic growth and welfare.

Principles of an effective tax system

The methods by which governments raise taxes can affect economic growth through several channels. For example, taxes can be designed in ways that make them expensive for taxpayers to pay. This may raise the cost of establishing a business (especially as the costs of tax collection tend to be a fixed cost and therefore bear especially heavily on small businesses). More generally, unnecessary costs of tax collection are a deadweight cost on the economy. In addition, if there is uncertainty in the tax system, this can reduce the incentives for individuals and businesses to invest, as it raises the risk premium required for investment.

Taxes can also be costly if they discriminate against particular economic activities, which can distort decision making and lead individuals and businesses to take decisions that reduce welfare. This arises because the relative tax treatment of two courses of action can lead the less valuable one to appear more remunerative after tax is taken into account.

There are two qualifications to these general rules. Firstly, higher taxes on activities that have what economists call ‘negative externalities’ (that is, social costs or negative spillover effects on the rest of the economy) can increase welfare if they are well designed and targeted. That is because the taxes reflect the additional costs to society of the particular activities that are not reflected in market prices. Secondly, even if the tax system aims at ‘non-discrimination’ in general, mobile factors of production should be relatively lightly taxed because their behaviour is

[7] This section draws heavily on the chapters by Rory Meakin in Hobart Paperback 184.

affected by taxes to a greater extent than that of factors of production that are not mobile. This would justify lower taxes on capital or on labour that was especially mobile.[8] Conversely, factors of production that are extremely inelastic in terms of their supply can be more heavily taxed without affecting economic growth. The obvious example of this might be undeveloped land.

Ideally a tax system should have low negative effects on welfare and economic efficiency; low administration and compliance costs; fair and non-discriminatory procedures in the way companies and individuals are treated; and be transparent and easily understandable.

More specifically, tax systems should be designed so that there is a broad understanding of the basic facts of who pays how much with simple rules, thresholds, schedules and rates. Tax should be codified so that taxpayers know what is expected and can arrange their affairs accordingly with any ambiguity kept to a minimum. To facilitate this, a formal tax strategy should be adopted by the government, with changes announced in advance and with explanations of how each change helps bring the system closer to implementing the overall strategy.

Sadly, the UK system is a long way from meeting these goals. The UK has a very badly designed tax system with high marginal rates, huge complexity, taxes that discourage wealth-creating economic activity and wide-ranging exemptions. The UK tax code is 10 million words long and has doubled in length since 2009.[9]

To see the problem with the UK tax system, one only needs to look at current property taxes. These taxes raise nearly 4 per cent of national income. Council tax is based on a complex system of thresholds and is, in fact, regressive, at least in part. Stamp duty land tax artificially depresses property values, discourages investment and distorts the allocation of assets – for example, by discouraging older people from moving to smaller accommodation when they no longer need as much space. Meanwhile, extremely high marginal rates for high-value properties in the stamp duty system are now believed to be leading to a loss of revenues relative to the previous rates, due to their impact on transactions.

[8] For example, this would justify a special system of taxes applying to “non-doms” (those who are not permanently resident in a particular country), as already exists in the UK.
[9] See: https://www.cchdaily.co.uk/uk-tax-code-now-12-times-size-king-james-bible

Furthermore, there are different rules and rates for each of the following groups of people, businesses or type of transaction as listed below:

- Residential property buyers with one property.
- Residential property buyers who are buying a second property (with different rules for married and non-married couples which discriminate against the former).
- Corporate bodies.
- People buying six or more residential properties in one transaction.
- Shared ownership properties.
- Multiple purchases or transfers between the same buyer and seller.
- Companies and trusts buying residential property.

There is simply no coherence at all in the system used to tax property and this applies to many other areas of taxation in the UK.

A new tax system for a UK with a smaller state

What would an optimal tax system look like if it were designed to raise 20-25 per cent of national income efficiently? Certainly, it would be a radical transformation of the status quo.

If the government were to achieve that objective, it would abolish twenty current taxes. Amongst other taxes, corporation tax, national insurance, capital gains tax, inheritance tax, council tax, business rates, the television licence fee, the apprenticeship levy, stamp duties, alcohol duties, tobacco duties, vehicle excise duty and air passenger duty would be eliminated. Other taxes would be radically reformed too in order to create a coherent tax system.

A simplified and economically efficient tax system would have the following shape:

- An income tax set at a rate of 15 per cent of income above a personal allowance of around £10,000.
- A value added tax (VAT) of 12.5 per cent, with most reduced-rate, zero-rated and exempt items charged tax at this standard rate.
- A new housing consumption tax on rents and imputed rents designed to mimic VAT at 12.5 per cent.
- A new land value tax.
- A fuel duty at around half the current rate.

The move away from existing property taxes and towards a land value tax and a tax on the imputed rent from owner-occupied housing (or a housing consumption tax) would create a tax system much more conducive to growth. Existing taxes on business property would be abolished and home owners would no longer suffer stamp duty when they moved to take a more productive job. The tax on imputed rent would end the bias against rented property that exists in the UK tax system[10] and a land value tax is well understood by economists to be one of the least growth inhibiting taxes available.

Instead of separate taxes on corporate profits, income from shares would be taxed in a similar way as income from corporate bonds,[11] thus ending the tax incentive companies currently have to take on more debt.

This set of taxes would be much easier to administer than the current UK tax code which is amongst the most complex in the developed world. There would be a small number of taxes levied at low rates with no exemptions, improving compliance whilst also enhancing incentives for the reasons outlined above.

The distributional impact

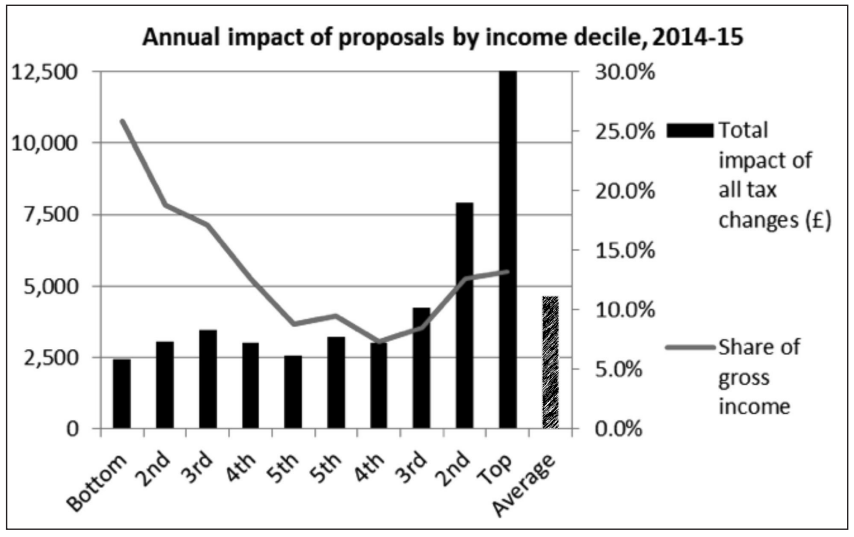
It is often thought that reducing taxes and making taxes ‘flatter’ tends to help the rich and harm the poor. That would not be the case with the reform package overall. Currently, the less-well-off pay a high share of their income in ‘sin’ taxes levied on products the government deems to be harmful, such as alcohol and cigarettes. They would therefore benefit disproportionately from the abolition of those taxes, whilst other aspects of the package (the proposed property taxes, for example) would be

[10] A bias that has been reinforced by the actions of George Osborne in raising stamp duty on let property and preventing all business costs from rented property being fully deductible against tax.

[11] That is, in the hands of the investor.

likely to affect the better off to a greater degree. This means that, overall, lower income deciles gain from the proposed tax reform. The poorest decile would enjoy tax cuts worth 26 per cent of gross income, followed by 19 per cent for the second poorest decile, 17 per cent for the third poorest decile and then 13 per cent for the fourth poorest decile. The third richest decile would enjoy a cut of just 9 per cent while the richest two deciles would both see their taxes cut by 13 per cent of their incomes (*see Figure 4*).

Figure 4: Impact of tax changes by income decile



Conclusion

The size of the state and the design of the tax system matter for economic welfare. The extent to which the size of government has increased would probably take many by surprise. Furthermore, so-called 'austerity' has been limited to small overall reductions in government spending. The government has made strategic choices to increase spending in some areas and to reduce it in others.

Politicians who purport to govern in the name of promoting the welfare of all should be aware that, at the moment, taxation and government spending might not only be beyond the levels at which economic growth would be maximised but are almost certainly way above the levels which would be most beneficial for economic welfare.

Moreover, if the UK had a more coherent tax system the same amount of revenue could be raised at a much lower economic cost. Such a tax system would involve the elimination of a large number of taxes and the simplification of many others. This would both increase the size of the economy (a level effect on GDP) and, by improving the incentives for innovation, potentially increase its growth rate too.

Successive chancellors have systematically sought to make the tax system more complex for political purposes at great economic cost. There is now an opportunity to reverse the damage. What is required is a long-term strategy both to reduce the size of government and to redesign the structure of taxes according to the principles outlined above.

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[12] Where details are not already included in footnotes

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