

Government and economic growth: Does size matter?

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New Zealand Government



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Government and economic growth: Does size matter?

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TREASURY VIEWS

This paper reflects the current views, conclusions and recommendations of the New Zealand Treasury. It is intended to contribute the Treasury's views to current public policy debates.

Access to data used in this study was provided by Statistics New Zealand under conditions designed to give effect to the security and confidentiality provisions of the Statistics Act 1975. The results presented in this study are the work of the New Zealand Treasury and not Statistics New Zealand.

Abstract

The size and structure of the state sector plays an important role in overall economic performance, with general or total government expenditure accounting for more than 40% of GDP. This paper explores the theory and evidence around the impact on economic growth of the level and composition of government expenditure and revenue. It focuses on the implications for potential economic growth over the long term arising from the size and structure of government, rather than its role in smoothing economic cycles or the economic impact of running government deficits and building up debt. It also has a relatively narrow focus on the inter-relationship between fiscal policy and economic growth, rather than broader measures of government size or wider government objectives.

Theory and evidence suggest that it is possible for large governments to undermine economic growth due to the economic costs of raising taxation to finance expenditure. There is strong evidence that taxes reduce economic growth through their negative impact on incentives to work, save and invest. However, much expenditure contributes to economic growth and some taxes are more damaging for economic growth than others. Therefore, the impact on economic growth of the level of expenditure will depend on the type and quality of expenditure and the mix of taxes used to finance it.

Given the importance of the type and quality of expenditure, it is difficult to draw firm conclusions about the scope for changes in the 'size' of New Zealand's government from the type of high-level analysis in this paper. However, it concludes that there appears to be scope to lower the tax take as a share of the economy or, alternatively, to better position the Crown to deal with long-term expenditure pressures without increasing the tax take. This could be achieved by reducing or limiting growth in expenditures that do not measurably contribute to raising the economy's potential economic growth rate.

The economic benefits of lower taxes need to be balanced against other Government objectives. However, expenditure programmes need to meet a high burden of proof in demonstrating that their contribution to government priorities outweighs the cost of financing them.

JEL CLASSIFICATION

E62 – Fiscal Policy

H61 – Budget; Budget Systems

KEYWORDS

Size and structure of government; government expenditure; government revenue; fiscal policy; New Zealand Government; economic growth

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Government and economic growth: Does size matter?

1 Introduction

New Zealand's economic performance over the last six decades has been poor compared with most other Organisation for Economic Cooperation and Development (OECD) countries. While New Zealand has grown at around the average of OECD countries since the 1990s, we have not been able to regain the ground lost in earlier decades, leaving us with a relatively low level of Gross Domestic Product (GDP) per capita compared with a majority of OECD countries.

Some commentators have suggested that New Zealand could lift its growth performance by reducing the size of its government as a share of the overall economy. This paper summarises the theory and evidence around the impact on economic growth of the level and composition of government expenditure and revenue.

This paper focuses on the longer-term growth impacts of the size and structure of government rather than its role in smoothing economic cycles (stabilisation) or the economic impact of running government deficits and building up debt (sustainability). It also has a relatively narrow focus on the inter-relationship between expenditure and, to a lesser extent, revenue and economic growth. We recognise that expenditure is only one dimension of government size – government also affects economic growth through regulation and ownership interventions – and economic performance is only one dimension of government's objectives. Though economic growth is an important contributor to living standards, it is not the only factor and governments must also consider the distributional impact of their policies. However, understanding the economic impact of expenditure and revenue policies is important in analysing all government expenditure and in understanding the trade-offs that are involved in policies to achieve broader objectives.

Theory and evidence suggest that high levels of government expenditure, as a share of the economy, can be detrimental to economic growth due to the economic costs of raising taxation to finance expenditure. There is strong evidence that taxes reduce economic growth through their negative impact on incentives to work, save and invest. The provision of public services may also drag down growth if public sector productivity is lower than in the private sector. However, both theory and empirical research emphasise that we cannot divorce the economic growth impact of the *level* of expenditure from the *mix* of expenditure and revenue. Government has to balance the economic costs of taxation against the benefits of expenditure, much of which contributes to economic growth, such as infrastructure and education spending. The cost of financing expenditure will also depend on the mix and design of taxes, as some taxes are more detrimental to growth than others.

The level and composition of expenditure in New Zealand is in line with OECD averages. However, the share of total government expenditure in GDP has increased significantly over the last five years, driven by increases in central government expenditure. While some of this growth has been in areas that may be supportive of economic growth, more than half of core Crown expenditure is likely to be non-growth enhancing and (until recently) it has been growing at a faster rate than GDP. Reducing these expenditures, and improving the efficiency of government expenditure in general, would help reduce economic imbalances and lift national savings. It would also allow for reductions in growth-distorting taxes, while better positioning the Crown to deal with long-term expenditure pressures without increasing the tax take as a share of GDP.

The benefits of enhancing the growth focus of expenditure must be balanced against other government objectives. However, expenditure programmes and proposals need to meet a high burden of proof that their contribution to government's objectives outweighs the cost of financing them. It may also be possible to reduce the economic cost of financing expenditure by reducing our reliance on the more distortionary tax types, particularly those on personal and corporate income.

Sections 2 and 3 of this paper explore the theory and empirical evidence around the impact on economic growth of size of government. Section 4 analyses the level and mix of expenditure and revenue in New Zealand and section 5 draws preliminary conclusions on the implications for size of government in New Zealand.

2 Why does size matter?

Economic theory suggests that a large government may undermine economic growth through the cost of financing expenditure and differences in the rate of productivity growth between the public and private sector. This theoretical section, and the following section on empirical evidence, focuses on these ‘direct’ mechanisms through which government size can impact on growth. While not covered in this paper, we recognise that there are also a number of more ‘indirect’ impacts. These may work at the ‘micro’ level, such as the impact of benefits on incentives to work, or at the ‘macro’ level, such as biasing growth away from the export to the domestic sector (see, for example, Treasury, 2010a).

This paper also largely draws on theory and evidence from the endogenous growth literature. In exogenous growth models, fiscal policy cannot affect long-term economic growth as it is driven by population growth and unspecified technological progress. However, more recent endogenous growth models shows that fiscal policy can have persistent impacts on economic growth by influencing investment and innovation (see for example, the early contributions of King and Rebelo, 1990; Lucas, 1990 and Barro, 1990).

2.1 Balancing the costs and benefits of expenditure

2.1.1 Costs of financing expenditure

Perhaps the most important mechanism through which government expenditure impacts on economic performance is the costs of raising taxes to finance that expenditure. Taxes affect the decisions of households to save, supply labour and invest in human capital and of firms to produce, create jobs, invest and innovate, as well as the choice of savings channels and assets by investors (Johansson et al, 2008). By lowering the returns to earning income, taxes reduce incentives to work, save and invest, thereby “crowding out” or discouraging private sector activity (see Box 1 for more on the debt financing of expenditure).

The economic cost or ‘deadweight loss’ created from these disincentives will vary significantly. It will depend upon the tax rate and the responsiveness of individuals or businesses to the tax (known as the elasticity). However, the deadweight loss from taxation rises more than proportionately with the tax rate and has an increasing additional or marginal cost (Barker et al, 2008). In other words, increasing a tax rate from 30% to 40% will undermine economic growth more than by increasing it from 20% to 30%.

As well as the level of taxes, the tax structure also matters. Setting the right mix is important, as the distortionary effects of collecting revenue from different sources can be very different (Johansson et al, 2008). Though all taxes have disincentive effects, taxes that reduce incentives to invest in human or physical capital and innovation are particularly damaging. Consequently, theory and evidence suggest that a shift from taxing incomes or profits to property or consumption can enhance growth (see, for example, Barrios and Schaechter, 2008 and Johansson et al, 2008). Consumption taxes may discourage work and investment in human capital but they appear to have a relatively minor impact on the long-run determinants of growth, such as investment, education or technical progress (Bassanini, 2001). Therefore, endogenous growth models tend to make a simplifying distinction between ‘distortionary’ taxes that impact on investment decisions and ‘non-distortionary’ taxes that have little impact on investment.

Box 1: Debt financing of expenditure

In addition to taxation, debt (or asset reduction) can be used to finance government expenditure. However, as government must eventually pay back debt, it simply shifts the financing of expenditure across time (Barker et al, 2008).

The notion of Ricardian Equivalence suggests that people will increase their savings in response to an increase in government expenditures financed by debt, in anticipation of the need to pay higher taxes in the future. In this case, financing expenditure with public debt will be perceived as equivalent to a rise in taxation and will have the same cost as taxation (Barker et al, 2008).

If households are not fully Ricardian, higher debt levels will themselves push up the interest and exchange rates facing households and businesses, particularly if expansionary fiscal policy drives tighter monetary policy. Furthermore, deficits perceived as unsustainable could push up the risk premium of borrowing and may discourage private investment through higher inflation or uncertainty around future government expenditure or taxation. High levels of government debt can also endanger macroeconomic stability if the risk of government default on high levels of domestic debt raises domestic financial system risks (Barker et al, 2008). These risks suggest the impact of deficit financing expenditure may be even greater than tax financing (this is supported by empirical evidence summarised in section 3.2.1).

A Treasury Working Paper (Labuschagne and Vowles, 2010) argues that New Zealand's relatively high interest rates do not currently reflect a risk premium imposed by international markets but instead reflect New Zealand's low rate of saving, which requires tighter monetary policy to maintain inflation within the official target range. Government expenditure is still "crowding out" the private sector through this mechanism - the resulting higher interest and exchange rates divert resources from the tradeable sector to finance government and household consumption (see also Treasury, 2010a).

The design of individual taxes also matters. In particular, a broad-base, low-rate principle has driven much of New Zealand's tax policy in recent years (see McLeod et al, 2001 or Tax Working Group, 2010). Broadening the base of taxes is likely to be a less growth-dampening way of increasing revenues than rate increases as it is less likely to change household or business decisions and discourages tax avoidance activities (Johansson et al, 2008). The administrative efficiency, simplicity, transparency and stability of revenue systems can also minimise the harmful effects of tax on growth by keeping the administrative burden on taxpayers and the public sector low (Barrios and Schaechter, 2008).

2.1.2 Contribution of government expenditure to economic growth

While financing expenditure carries costs to economic growth, some types of government expenditure are beneficial to economic performance. Some government expenditure is a prerequisite for a functioning market economy, such as a legal system to protect private property rights. Beyond this foundational level, expenditure initiatives may lift long-run growth rates by increasing investment in physical capital, knowledge, human capital, research and development or public infrastructure, particularly where market failures lead to under-investment by the private sector. For example:¹

¹ Examples drawn from (Bassanini et al, 2001).

- *Physical capital.* Government investment in physical capital could boost long-run economic growth if investment stimulates technological progress or if the productivity of businesses is boosted from others' investment or innovation (knowledge spillovers). Government can directly invest in physical capital or infrastructure or it can encourage private sector investment.
- *Human capital.* Investments in human capital may have persistent impacts on economic growth if education enables ongoing innovation and advances in technological progress. Individuals and firms may under-invest in human capital from an economy-wide perspective as they will not factor in the positive flow-on effects to other workers and businesses from investment in education and training. This can be compounded by problems in accessing capital to finance investment in education, providing a rationale for government funding of education.
- *Technological development.* Non-rivalry and less than full excludability of advances in knowledge mean that it is not desirable or possible for businesses to capture the full benefits from innovation. Consequently, the private sector may undertake less innovation than is socially optimal. This may justify some government involvement through direct provision and funding of research and development, as well as through indirect measures such as tax incentives and protection to intellectual property rights to encourage private-sector innovation.

However, even when market failures exist, the information constraints facing the public sector in designing appropriate policies mean that government interventions often have unintended consequences. It is also important to recognise that policymakers often focus on addressing market failures to boost overall living standards, rather than economic growth per se. Though economic growth is an important driver of living standards, they are not always synonymous and some policies may lower economic growth but be desirable because they boost other dimensions of living standards.² Furthermore, government expenditure typically extends beyond market failures to provide 'merit' goods and services and income redistribution.

Given that these different types of expenditure are likely to have differential impacts on growth, economists have found it helpful to use a simplification that distinguishes between expenditures that are likely to boost private sector production or productivity (known as 'productive' expenditure) and those that do not (labelled as 'unproductive' expenditure). In practice, it is not straightforward to make these distinctions as, for example, much public spending may have different impacts depending on how expenditure programmes are designed and delivered. Section 3.2.2 highlights that, though there are some broad themes, empirical studies as to what expenditures can be counted as 'productive' are not conclusive.

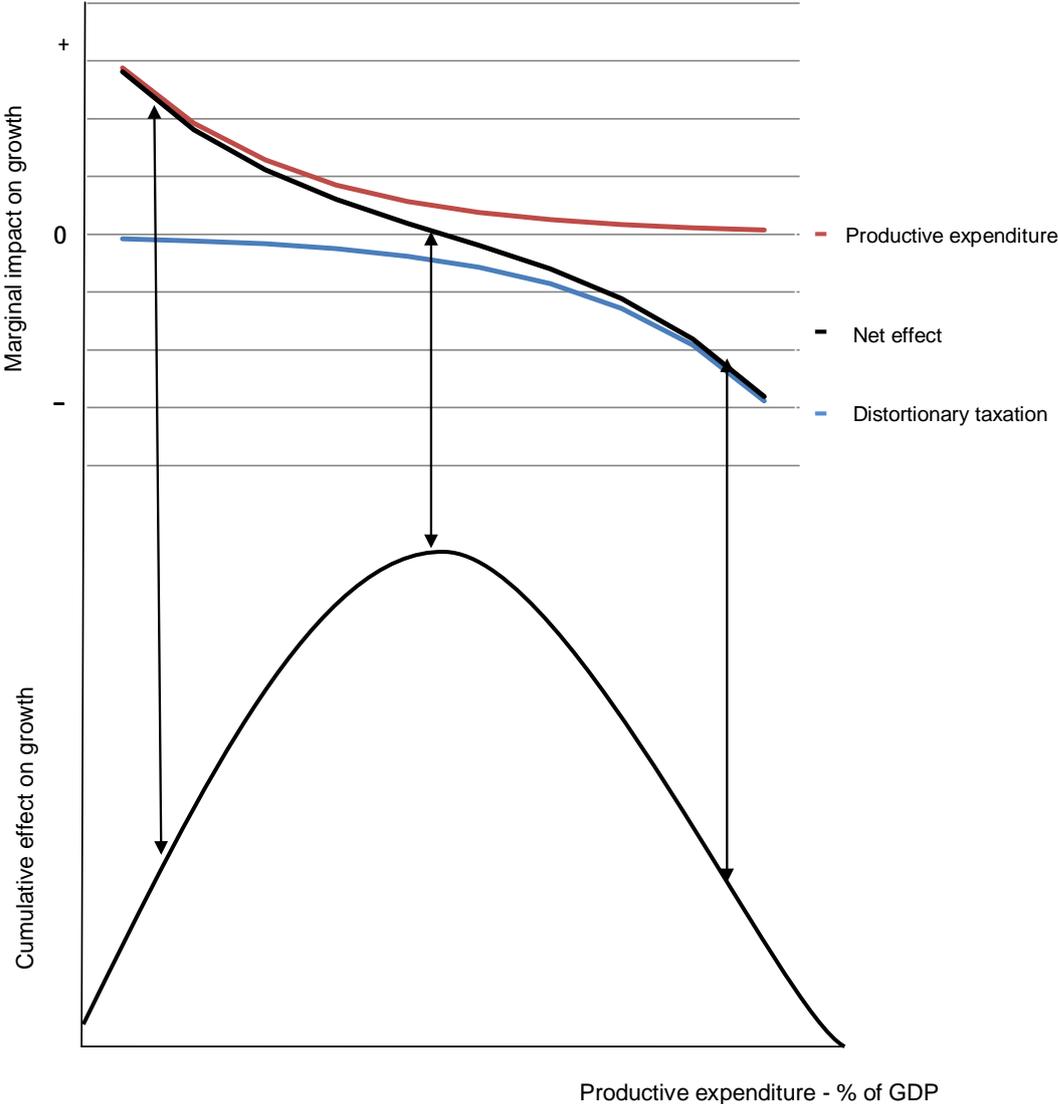
2.1.3 Balancing revenue and expenditure

Even for expenditure that offers measurable economic benefits, the marginal economic costs of raising taxes to fund additional expenditure will at some point outweigh the benefits of the expenditure. This suggests an inverted U relationship between growth-enhancing expenditure as a percent of GDP and economic growth (see Figure 1), as first characterised by Barro (1990). As 'productive' or growth-enhancing expenditure expands from zero it

² For example, the environment makes an important contribution to people's living standards. As businesses do not have an incentive to take into account the impact of their activities on the environment, policies that make them face these costs may lead to an improvement in overall living standards. However, it may also lead businesses to reduce their activities, at least in the short run, and may result in a reduction in economic growth, as measured by Gross Domestic Product (GDP).

boosts economic growth, but the marginal benefit of this expenditure eventually starts to decline, while the marginal cost of raising taxation increases. These trends reinforce and, eventually, additional expenditure becomes a drag on economic growth. The top of the inverted U represents the optimal level of expenditure, from an economic growth perspective, which balances the economic benefits of expenditure against the economic cost of taxes. Therefore, the level of government expenditure can be too big or too small from an economic growth perspective. Economies with large public sectors will grow slowly because of large tax wedges but a lack of growth-enhancing government initiatives may stymie growth in countries with very small governments (Barker et al, 2008).

Figure 1 – Theoretical relationship between ‘productive’ expenditure and economic growth



However, not all expenditure and methods of financing have the same impacts on economic growth. The inverted U is drawn for a given level of “non-productive” expenditure and for a given tax system. ‘Non-productive’ expenditure will erode economic growth potential, as it requires additional tax to finance it but, by definition, does not have an offsetting positive effect on economic growth. Therefore, its optimal level is zero from an economic growth perspective, even though it may advance other government objectives. A reduction in non-growth enhancing government expenditure would result in a higher growth rate for any given level of ‘productive’ expenditure; i.e. it would shift the inverted U curve upwards. In a similar

fashion, the cost of financing a given level of expenditure will depend on the efficiency of the tax system (see section 2.1.1). Moving to a less distortionary tax system would reduce the cost of financing expenditure and also lead to an upward shift of the inverted U.

This highlights that we cannot divorce the economic growth impact of the level of expenditure from the mix of expenditure and revenue (Gemmell, 2009a). While ‘unproductive’ or non-growth-enhancing expenditure is a drag on growth if financed by distortionary taxes, the impact can be reduced if the efficiency of the tax system is improved (see Table 1). While growth-enhancing expenditure is likely to be positive when financed by less distortionary forms of taxation, government can be too large even when all of its expenditures are growth-enhancing, if they are funded by distortionary income taxes.

Table 1 – Growth effects of taxes and expenditure

Financed by an increase in:		Increase in taxes or deficits to finance increases in expenditure:		Tax increases to reduce deficit:
		Productive	Unproductive	
Taxes	Distortionary	Positive (negative) at low (high) government size	Negative	Ambiguous
	Non-distortionary	Positive	Less negative to no impact	Positive
Deficits		Ambiguous	Negative	

Source: Gemmell (2009a)

2.2 Public sector productivity

Section 2.1 followed the endogenous growth literature in using the terms ‘productive’ and ‘non-productive’ to mean the extent to which different types of expenditure enhance private sector production or productivity. However, the more conventional meaning of productivity is not about the type of expenditure but the efficiency of expenditure. If government is providing a large share of the goods and services in the economy, it will tend to drag down economic growth if it has lower productivity than the private sector. Government expenditure policies or programmes may also stifle private sector activity and innovation through the absorption of skilled labour.

It is possible that the intrinsic nature of government services leads to lower efficiency or productivity. Baumol (1967) was the first to highlight that there is limited scope to reduce the quantity of labour used in some types of services without reducing the quality of those services. Therefore, they will tend to lag behind the rest of the economy in turning innovations into productivity benefits. Many government services, such as education and police, may be susceptible to this type of ‘Baumol’s disease’, which could lead to persistent increases in costs relative to the general price index. If this is the case, then economic growth could be enhanced by reducing the share of these types of services in the economy, although this may not boost overall living standards if these services are highly valued. In addition, in some services with a significant government role, such as health care, technological change can often put upward pressure on costs by expanding the scope or quality of available services. Therefore, even where there are productivity gains, there may still be upward pressure on the share of health care in the economy, which is often one of the government’s largest spending areas.

There are also arguments that the nature of the public sector leads to lower productivity. Incentives and contracting problems may make the public sector relatively inefficient. The concentration of ownership in the private sector (relative to the public sector where all citizens are owners) means that owners of private-sector companies have better incentives and ability to monitor the performance of their managers, to improve corporate governance and to align the managers' interests with their own. In the public sector, taxpayers have relatively little incentive to monitor the performance of government agencies (Barry, 2002).

In addition, competition and profit-maximizing incentives may make the private sector more productive than the sheltered public sector (Guriev and Megginson, 2005). The lack of competition in the public sector reduces the pressures for innovation and the lack of exit or 'churn' removes a key market mechanism for allocating resources to their most efficient use. Though markets provide swift rewards and punishments, the signals and pressures for adjusting to changing circumstances, information, and technologies is slower for governments.

Given the strong evidence that competition stimulates economy-wide efficiency and innovation, there is an ongoing debate about the extent to which productivity gains can be achieved by enabling greater competition for public sector agencies, as in the state-owned enterprise (SOE) model (see, for example, Shirley and Walsh, 2000). However, competition does not solve the monitoring issues and it can be difficult for governments to allow public enterprises to go bankrupt (Sheshinski and López-Calva, 2003). These factors provide some insulation from competition to public sector managers and mean that competition may not have as strong a productivity stimulus as in the private sector.

The private sector productivity advantage will not necessarily hold in areas where there are market failures, such as a lack of competition from a monopolistic industry structure. However, even in such cases, regulation may be an alternative to public provision or the private sector may be able to play a useful role in providing aspects of the public good or service (Barry, 2002). Private sector involvement is more likely to provide efficiency gains where goods and services can be well specified, where quality can be measured and where the service requirement is likely to be relatively stable over time. Section 3.3.2 explores the empirical evidence on the extent to which these types of initiatives have increased efficiency.

2.3 Why do governments differ in size?

As well as looking at the impact of size of government on economic growth, there is also a branch of literature focused on the drivers of differences in size across countries. The size of the public sector ultimately reflects political choices and different socio-cultural factors across countries. However, economic theory also provides some reasons for differences in the size of governments over time and across countries (Barrios and Schaechter, 2008):

- Governments may be bigger in wealthier countries as government expenditure tends to grow faster than the economy for both demand and supply reasons. On the demand side, the appetite for public goods expands as nations get wealthier, while at the same time the ability to raise revenues rises (known as Wagner's Law). On the supply side, as highlighted in section 2.2, public sector wages tend to increase more strongly than public sector productivity (known as Baumol's disease), increasing the share of government expenditure in nominal GDP for a given bundle of government goods and services.

- Technological change has an ambiguous impact on the size of government. Some technological developments increase the scope for government activities, such as the traditional example of the invention of street lighting and the more topical example of health care (see section 2.2). However, some technological developments may erode the need for the public sector to be involved in the delivery of some services or create greater scope for private sector involvement in public services.
- Political economy theory argues that the pressures of re-election lead to a bias toward higher deficits and bigger public sectors. The larger the number of parties forming the government and the higher the frequency of elections, the stronger this tendency. It also seems more prevalent in cases of proportional rather than majority-based election systems (for example, see Persson and Tabellini, 1999, 2002).

In addition, smaller countries tend to have large governments as a share of GDP, while more open economy governments also tend to be bigger. However, it is not clear whether openness in itself leads to larger governments or whether small countries tend to have both larger governments and be more open (Alesina and Wacziarg, 1998). Rodrik (1996) argues that openness increases vulnerability to exogenous shocks and, therefore, open economies need a larger government to play a stabilising role. He finds that measures of the riskiness around openness, such as measures of export diversification and the variability of the terms of trade, do play a key role in determining government size.

Despite this correlation, there may actually be a stronger case for a smaller government in a small open economy, like New Zealand, given the upward pressure of government expenditure on the exchange rate (see Box 1 and Treasury, 2010a). As government tends to consume more non-tradeable than tradeable goods and services, it increases the relative price of non-tradeables and, therefore, increases the real exchange rate facing export industries (see Ricci et al, 2008 and Galstyan and Lane, 2009 for some empirical evidence). Therefore, managing growth in government expenditure could be a key dimension to enabling the rebalancing of growth towards investment and exports.

There may also be issues around the ‘race to the bottom’ in a globalizing world where the increasing mobility of capital and skilled workers puts pressure on governments to offer a competitive tax environment (Tanzi and Schuknecht, 1997). This is potentially true for all countries but may be particularly relevant for small, open economies, which depend upon foreign investment and face concerns over the migration of skilled workers. However, investors may also be attracted by ‘productive’ expenditure that, for example, improves the quality of infrastructure or the skills of the labour force. Therefore, the same balancing act between taxation and productive expenditure may hold in an international context.

2.4 Summary

Economic theory suggests that a large government may undermine economic growth through the cost of financing expenditure and differences in the rate of productivity growth between the public and private sector.

First, there is strong theoretical support for the proposition that high levels of government expenditure can be detrimental to economic growth. Though some types of expenditure enhance economic growth, at some point the economic costs of raising taxes to fund that expenditure will outweigh its benefits. This suggests that there is an optimal level of government expenditure, from an economic growth perspective, which balances the economic benefits of expenditure against the economic cost of taxes. However, the economic growth impacts will depend on the tax and expenditure mix, as well as the level of

expenditure. Though government can be too large even when all of its expenditures are growth enhancing, a decline in taxes will have a bigger boost to economic growth if financed by reductions in 'non-productive' spending.

Secondly, if government is providing a large share of the goods and services in the economy, it will tend to drag down economic growth if it has lower productivity than the private sector. The public sector may be generally less productive than the private sector due to the inherent nature of public goods and services (Baumol's disease) and/or the existence of stronger incentives for the private sector to be efficient.

Overall, theory suggests that both the size and mix of government matters for economic growth. Whether it matters more for small and open economies, like New Zealand, is not conclusive. Governments do tend to absorb a higher share of the economy in small, open economies. However, enabling exports, and attracting or retaining investment in a globalising world, suggest potential benefits from a relatively smaller government.

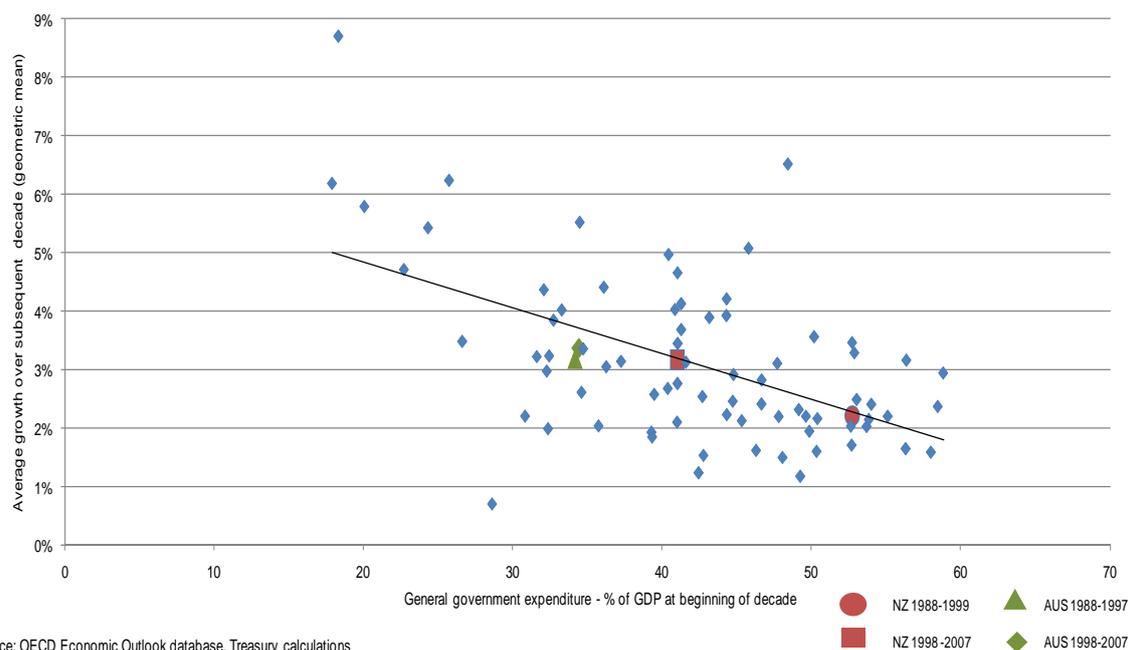
3 Empirical evidence

This section explores the empirical evidence around whether the level of government expenditure and revenue matters for economic growth. It covers three types of evidence: cross-country correlations between government size and economic performance, multi-variable or regression analysis of the impact on economic growth of government size and structure and the potential drivers of differences in productivity between the public and private sector.

3.1 Correlations between government size and economic performance

While it tells us nothing about causation, some studies have identified a negative correlation between levels of government expenditure or taxation and economic growth across countries (see, for example, Gwartney et al, 1998), as highlighted in Figure 2. Each diamond in Figure 2 represents one country in one of the four decades between 1969 to 2008, with New Zealand and Australia’s most recent positions shown.³ Furthermore, Tanzi and Schuknecht (1997) argue that countries with ‘small governments’ have tended to do better on economic indicators and are not significantly different on social indicators.⁴

Figure 2 – Correlation between government size and economic growth



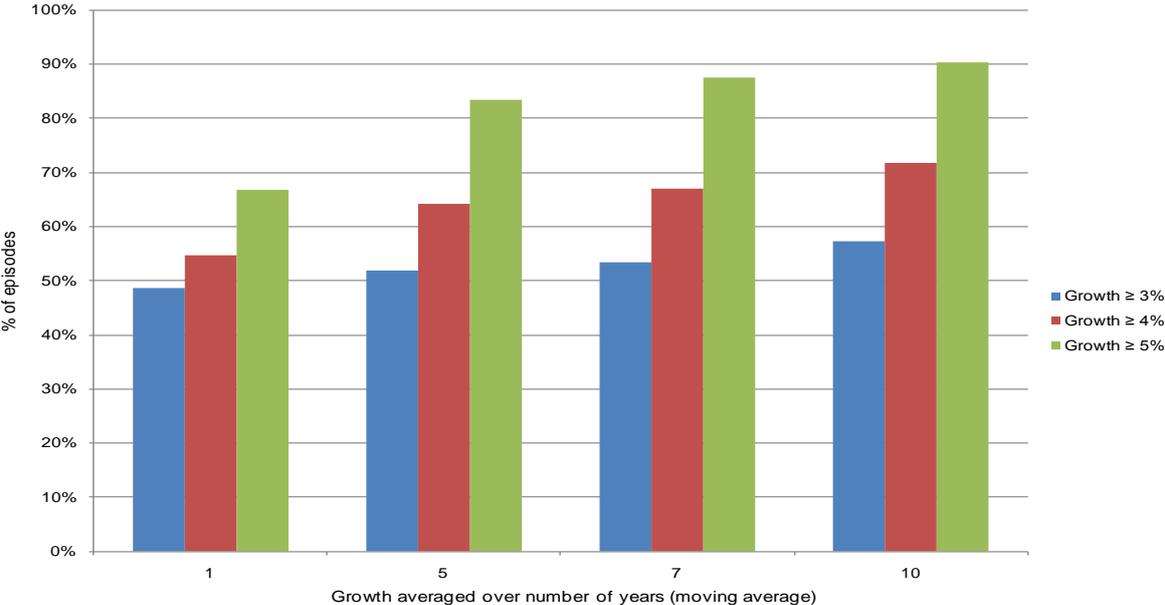
As another example of correlation analysis, countries with smaller governments tend to have longer-lasting periods of higher growth. Figure 3 shows the percent of high-growth episodes

³ The level of expenditure is measured at the start of the decade, which helps to reduce the risk that the correlation is capturing an increase in government size driven by economic growth, rather than an impact on economic growth from the size of government (see section 2.3). Note also that, due to issues of data availability, not all countries have a data point for each of the four decades with New Zealand, for example, having a data point for only the two most recent decades.

⁴ Tanzi and Schuknecht (1997) define big governments as those with spending in excess of 50% of GDP, medium-sized governments with spending between 40 and 50 percent of GDP and small government with spending below 40 per cent of GDP.

in countries with total government spending of less than 40% of GDP over the last 50 years. The growth episodes are varied by the rate of average annual growth and by the number of years for which average growth was sustained. As the target growth rate or time period is increased, the share of growth episodes increases for countries with 'smaller' governments. For example, over 70% of growth episodes where average annual growth was at least 4% for a 10 year period happened in countries with governments of less than 40% of GDP. This increases to around 90% if growth episodes are defined as an average of 5% annual average growth over the same period.

Figure 3 – Percent of high-growth episodes for governments less than 40% of GDP, 1961-2008



Source: OECD Economic Outlook database, Treasury calculations

However, we would advise against putting too much emphasis on these apparent correlations. It is risky to infer causation from correlation analysis; that is to assume that increases in government expenditure are undermining economic performance. As there are a number of other factors affecting economic growth, the correlation between economic performance and size of government may be a coincidence or reflect other factors that influence both variables. In particular, the tendency for both growth to slow and demand for government services to increase as countries grow richer (see section 2.3) may create a misleading correlation (Grimes, 2003). Given that the growth in public services in developed countries in the post-war period also coincided with a general decline in productivity growth, there is a significant risk that the negative correlation between government expenditure and economic growth rates is not causal (Nijkamp and Poot, 2004).

3.2 Evidence of causation: regression analysis

To move beyond correlation to identify whether there is a casual link between levels of government expenditure and economic growth requires cross-country economic growth regressions. These regressions attempt to take account of the range of variables or factors that may affect economic growth. The variables can include initial levels of 'state' variables such as the stock of physical and human capital (in the forms of educational attainment and health). They also typically include 'control or environmental' variables, such as the ratio of government consumption to GDP, share of domestic investment in GDP, the extent of international openness, movements in the terms of trade, the fertility rate, indicators of macroeconomic stability and measures of the maintenance of the rule of law (see Barro Sala-I-Martin, 2003).

There are challenges in identifying the appropriate variables to include, and in finding good measures of these variables, as economic growth theories are not conclusive about what variables are most important for economic growth (Sala-I-Martin, 1997a and b). There are also a number of other methodological challenges. The inter-relationship between expenditure and economic growth creates particular methodological problems (such as endogeneity). There are also data issues due to countries using different conventions for defining the public sector and testing problems created by a lack of variation in size of governments and differences in the efficiency of expenditure across OECD countries (see Barro and Sala-I-Martin, 2003 for more detail on the methodological issues). The 2025 Taskforce highlights that these methodological problems mean the results of cross-country regressions should be read as illustrative rather than determinative.

3.2.1 The mix matters

Partly reflecting these challenges, early econometric studies initially struggled to find a robust relationship between the level of government expenditure or revenue and economic growth. A number of reviews of the empirical evidence found that the link between government expenditure or revenue and economic growth is ambiguous, with similar fiscal variables producing strong positive, negative or insignificant results (see Nijkamp and Poot, 2004, Myles, 2000; Agell et al, 1997, and Temple, 1999). To try to overcome the problem that the results were sensitive to different model specifications, Sala-I-Martin (1997a and b) ran a large number of regressions with different specifications but still found that no measure of government spending appears to affect growth in a significant way.⁵ More recent work by Barro and Sala-I-Martin (2003) found that government size did have a negative impact on economic growth in simple models with a relatively small number of variables. However, it became insignificant when additional variables were added to the model, suggesting that it was capturing the impact of these other variables in the simple models.⁶

However, there is now growing recognition that the lack of robustness of earlier studies was because they failed to take account of the composition of expenditure and how it was financed. The widely differing results across studies may reflect the net effect of alternative methods of financing expenditure or differences in expenditure mix across countries. By

⁵ Sala-I-Martin (1997a and b) ran over two and four million regressions respectively and assigned a level of confidence to each variable, depending on the number of regressions where it shows a statistically significant relationship with economic growth.

⁶ The researchers do caveat that this analysis would not pick up a non-linear relationship between economic growth and government 'size' as predicted by the inverted U of endogenous growth theory.

distinguishing between different types of expenditure and taxes, Kneller et al (1999a) and Bleaney et al (2001) found a positive impact of growth-enhancing expenditure and a negative impact of distortionary taxation on economic performance. Also in line with endogenous growth theory, they found that non-productive government expenditure and less distortionary taxes have no persistent, statistically significant effect on growth.

These studies have been reinforced by other studies by the same authors (such as Gemmell et al, 2001, 2009a and 2011), as well as by other researchers (see Box 2 for some examples and Gemmell et al, 2009a for a summary of relevant studies). As well as these “top-down” studies, there are a range of “bottom-up” studies that show a negative impact of taxes on factors critical to economic growth, such as investment and the size of the labour force (see Myles, 2007 for a review).

Box 2: Empirical studies of composition

Studies that have taken account of the composition of both expenditure and taxation have tended to find a positive impact of growth-enhancing expenditure and a negative impact of distortionary taxation on economic performance. Some examples are:

- In a panel study of 23 OECD countries between 1970 and 2000, Angelopoulos et al (2007) found that OECD countries could improve their growth performance by reallocating public spending towards productive activities and that the average tax rate is negatively correlated with growth.
- Bassanini et al (2001) found a large and significant negative effect of total government revenues on growth, with an additional negative effect coming from a tax structure focusing on direct (more distortionary) taxes, but positive impacts from consumption and investment expenditure.
- Kocherlakota and Yi (1997) also found no impact of fiscal policy on long-run growth when including only taxation or expenditure in their model. However, distinguishing between taxation and public capital spending showed that they both had a statistically significant impact on long-run economic growth.
- Barro and Redlick (2010) use a newly constructed series of average marginal income tax rates, which is a better measure of the disincentive effects of taxation than the traditionally used average tax measures. To overcome problems of the inter-relationship between government expenditure and GDP (endogeneity) they focus on increases in US defence expenditures associated with wars, which are unlikely to be driven by increases in GDP. They found that the simulative impact of increases in defence spending was offset by the economic costs of raising taxes to finance it, with increases in defence expenditure crowding out investment and net exports.

The studies that take account of compositional effects find that the greatest boost to economic growth comes from financing a reduction in the most distortionary types of tax by reducing unproductive expenditure. Some studies also suggest that the gains are still positive if financed by reductions in growth-enhancing or productive expenditure (for example, Kneller et al, 1999 and Gemmell et al, 2011). This suggests that, on average, the benefits of growth-enhancing expenditure in OECD countries may be somewhat outweighed by the costs of taxation. However, given the damaging impact of deficits or debt on economic growth, there is likely to be little or negative gain in financing tax cuts through increases in borrowing (Gemmell et al, 2011 and Romer and Romer, 2010).

There is significant diversity in estimates of the size of the economic growth boost even from reducing distortionary taxes and unproductive expenditure. For example, while Kneller et al (1999a) estimate that a one percentage point cut in distortionary taxation and unproductive expenditure could enable a 0.4 percentage point increase in annual economic growth,

Gemmell et al (2011) suggest only a 0.1 percentage point increase in economic growth rates. While even the latter is significant, there is considerable uncertainty around these estimates and their applicability to New Zealand. In particular, it is risky to assume we can get at least a 1 percentage point increase in growth from a 10 percentage point reduction in expenditure as a percent of GDP. This would depend on the share of unproductive expenditure in our expenditure mix and the extent to which we can identify the right expenditures to reduce. It is also expected that there are diminishing returns from reductions in distortionary taxes and that, the more the state shrinks, the greater the chance that we begin to cut into expenditure that has some growth benefits.

Despite these caveats, overall it seems that the growth impacts of reducing distortionary taxes, particularly via reductions in 'unproductive' expenditure, is likely to be moderate but not insignificant. Moreover, recent work by Gemmell et al (2011) suggests that the 'long-run' growth effects of such changes are likely to be achieved within a few years of the policy change and are likely to persist, at least beyond a five-year horizon, as long as the changes are sustained. Unfortunately, growth-enhancing fiscal initiatives are often reversed. OECD governments have tended to finance increases in growth-enhancing expenditure with increases in growth-inhibiting taxes, or have increased expenditure again thereafter (Gemmell et al, 2011). This type of volatility in fiscal policy has its own dangers for economic growth. Theory and evidence suggests that uncertainty stemming from fiscal volatility can have a negative impact on capital formation and investment.⁷ Unsustainable reductions in expenditure that are later reversed may be more harmful for economic growth than maintaining expenditure at a higher but consistent level.

3.2.2 What is the right mix?

Given that the mix matters, what types of taxes and expenditures should policymakers emphasize? Though there are some strong messages from theory and empirical evidence on the growth ranking of different types of taxes, distinguishing between 'productive' and 'unproductive' expenditures is more contentious.

A number of studies emphasise that it is the marginal rate of specific taxes, rather than overall tax to GDP ratios, that matter for growth (Treasury, 2008). In particular, a review of the evidence suggests that recurrent taxes on immovable property are the least distortive tax instrument in terms of reducing long-run GDP per capita, followed by consumption taxes (and other property taxes), with personal income taxes and corporate income taxes the most damaging for growth (Johansson, 2008). The Henry Tax Review (2010) in Australia also found the deadweight costs of corporate income tax (at 40 cents for every tax dollar collected) and labour income tax (at 24 cents) much higher than for consumption taxes (8 cents) and municipal rates (2 cents). Claus et al (2010) found high welfare costs from New Zealand's top marginal income tax rate of 39%,⁸ while Gemmell et al's (2009b) open economy model suggests that bucking the OECD trend towards lower corporate tax rates could undermine a country's growth prospects.

On the expenditure side, empirical studies can be broken down by how expenditure is classified, typically using either an economic or a functional classification:

⁷ For example, Fatás and Mihov (2003) found that, for a set of 91 countries, higher volatility of discretionary government spending significantly increased output variability which, in turn, lowered growth. In a recent study, Afonso and Furceri (2008) show that even volatility in the cyclical component of public expenditure can undermine growth performance.

⁸ The top marginal tax rate was increased from 33% to 39% in 2001 but was reduced again to 33% in 2010.

- Using the economic classification, the results for public investment have been mixed. In a review of empirical studies, Gerson (1998) reports that only some studies found a positive link between total public investment and growth. More recent studies are also inconclusive. For example, Romero de Avila and Strauch (2003) estimate public investment to have a positive effect on growth in the EU, while Afonso and Furceri (2008) do not find public investment to be significant in explaining growth in the EU and OECD. By contrast, public transfers and consumption are typically estimated to negatively impact on growth (Barrios and Schaechter, 2008).
- Using a functional classification, the types of public expenditure that have been found to raise growth vary strongly with the data sample. Some studies find only education, research and development and public infrastructure spending to be growth enhancing; others also include spending on health, public order and safety, and environment protection (Barrios and Schaechter, 2008). However, in a review of a large number of studies, Nijkamp and Poot (2004) highlighted that studies tend to find that infrastructure and education are positive, while general government consumption and defence are typically negative for economic growth.
- Some studies combine economic and functional classifications. For example, in a review of empirical studies, Barrios and Schaechter (2008) found that investment in transportation and communication was more systematically matched with higher growth. However, in a review of studies using a variety of econometric approaches, Égert et al (2009) found that infrastructure investment in telecommunications and the electricity sectors has a robust positive impact on long-term growth but not in railways and road networks.

Therefore, empirical evidence is not conclusive about what expenditures are good for growth. Even expenditure areas that are generally modelled as non-growth enhancing are not uncontroversial. For example, the endogenous growth literature typically defines social welfare benefits as ‘unproductive’ or providing no growth benefit to offset the cost of financing them. Other commentators would go further and argue that social benefits further undermine economic growth through undermining incentives to work and save. On the other hand, there may be offsetting or growth-enhancing benefits from having a safety net. For example, people may wait for jobs that better match their skill set, or be less risk averse and more entrepreneurial, or invest more in human capital (Kneller et al, 1999b).⁹ In addition, though the aim of social benefits may be to reduce poverty or increase social mobility, they should also reduce inequality. There are mixed views on the relationship between inequality and growth (see Box 3). Whether it is desirable for government to redistribute wealth will depend upon what factors are driving any inter-relationship and the method by which government chooses to reduce it. Whatever the evidence on the impact of inequality on growth, if government wants to reduce inequality for other reasons, it is important that it does so in a way that minimises any possible disincentive effects.

⁹ Note that Gemmell et al (2009a) find that, once the inter-relationship between social spending and economic growth is controlled for (i.e. that social spending will tend to increase in economic downturns), social spending appears to be neutral, rather than adverse, for growth. However, neutral expenditure is still likely to have a negative impact on economic growth as it does not provide any positive impacts for growth to offset the economic cost of financing it.

Box 3: Is income inequality bad for growth?

Traditionally, economic models have suggested that income or wealth inequality has a positive effect on growth. Savings rates models hold that as the marginal propensity to save is higher for rich than for poor people, more unequal societies are likely to save and invest more (Kaldor, 1960; Kalecki, 1971). Work incentives models hold that output is increased where workers are incentivised – through wages relating work to output – to put in additional effort (Mirrlees, 1971).

However, in the early 1990s, numerous theoretical and empirical studies found evidence to suggest that inequality of income or wealth has a negative effect on growth. Political-economy/median voter models and empirical studies suggest that income or wealth inequality negatively affects growth as in unequal societies, a majority of people will vote for redistributive policies, undermining growth because of the economic costs of financing those policies (see Persson and Tabellini, 1994). In credit market imperfection models the combination of borrowing constraints and inequality limit the ability of the less wealthy to invest in human capital, which has important inter-generational impacts (for example, Galor and Zeira, 1993). Socio-political models suggest that income or wealth inequality discourages investment by encouraging non-market activities, such as crime, eroding trust and increasing socio-political instability (see Alesina and Perotti, 1996). These frameworks suggest the need to balance the negative costs of financing redistributive policies with the benefits of creating a socio-political climate more conducive to productive activities and capital accumulation. However, the type of policy response depends upon the cause of the income inequality – social benefits, for example, may not address low human capital in some parts of the population and may undermine economic growth.

Using new longitudinal datasets, several studies since the mid-1990s suggest that the effect of income or wealth inequality on growth is neither wholly negative nor wholly positive. For example, Barro (2000) finds that the effect depends on a country's stage of development, with income inequality slowing growth in poor countries but encouraging it in wealthier ones. Voitchovsky (2005) finds that the effect is sensitive to both the methodology used (with time series data tending to indicate a positive relationship and cross-sectional data indicating a negative one) as well as the size and shape of the income distribution (with inequality having a positive effect in the upper tail of the distribution but a negative effect in the lower tail).

A debate also continues on the impact of inequality on wider social outcomes. For example, in *The Spirit Level* (2009), epidemiologists Wilkinson and Pickett argue that increases in income inequality lead to increases in a range of social problems that affect people at all points across the income distribution. While gaining much prominence in the media, Wilkinson and Pickett's work has been criticised for using correlations to claim a causal relationship between inequality and social problems.

Overall, as Dominicus et al (2006) note in their meta-analysis of 22 key studies undertaken over the past 16 years, there is still no theoretical or empirical consensus on the impact of inequality on growth. The Treasury is closely following the evolution of research on this topic and, when more conclusive evidence emerges, will consider the implications for policy settings. In the meantime, we will continue to outline the distributional effects of policy choices in our advice to Ministers.

The mixed empirical results on how different expenditures impact on economic growth may perhaps reflect the empirical challenges. Gemmell et al (2009a) argue that much of the literature is methodologically weak as many studies do not include all elements of the government's budget, leading to biased results (see section 3.2.1). The more recent literature is beginning to produce some degree of consistency at least in the finding that infrastructure and educational spending tends to be growth-enhancing (Gemmell et al, 2009a). Another issue is that modelling expenditure at the level of functional and economic classifications may mask the significant diversity in the type and quality of different expenditure programmes within these classifications. Contradictory findings may also reflect the reality that more expenditure is not always better, even when it is growth-enhancing. The

impact of 'productive' expenditure on economic growth is not likely to be linear, as the marginal benefit of expenditure will decline as expenditure increases (see section 2.1.3). For example, while Égert et al (2009) found a positive impact of infrastructure investment on growth, the impact varies across countries, sectors and time, with some evidence of over-investment or inefficient use of infrastructure. The mixed empirical results suggest that it is well-targeted and high-quality public expenditure, rather than just expenditure in particular areas, that is growth enhancing.

3.3 Evidence on public sector productivity

As well as the potential 'crowding-out' effects of government expenditure, government provision of goods and services, as a big share of the economy, will directly affect productivity and economic growth. This section reviews the evidence of the potential drivers of weaker productivity growth - the inherent nature of public goods and services (Baumol's disease) and/or the existence of stronger incentives for the private sector to be efficient (see section 2.2).

3.3.1 Baumol's disease

Section 2.2 suggested that some government services might be susceptible to Baumol's disease, suffering greater cost pressures and lower productivity growth than other parts of the economy. However, this is contentious. In particular, the theory assumes that the public sector has taken as much advantage of innovations as possible to boost productivity. If instead the public sector has been comparatively inefficient, then it could lift its productivity growth over the short-term by making best use of existing technologies and processes. In particular, some parts of the private sector service sector, notably those associated with financial intermediation, communications and ICT, grew as fast as other parts of the economy over the late 1990s and first half of the 2000s, as ICT technology transformed these areas.

These situations, however, seem to be exceptions to the general rule that the service sector is inherently constrained in its productivity growth. Recent empirical studies support the general applicability of Baumol's disease in the US (Nordhaus, 2008) and in the European Union (Hartwig, 2010). If Baumol's disease is accepted, then either the nominal share of public services in GDP will tend to increase over time or we would expect the real supply of public services to fall relative to other areas of economic activity. The cost pressure challenges, however, reinforce the importance of ensuring that our state sector institutions and processes encourage an ongoing focus on productivity improvements to maintain service levels while holding debt to sustainable levels (see Savings Working Group, 2011).

3.3.2 Private sector provision of public services

As well as the inherent nature of public services, section 2.2 outlined reasons why the private sector may be relatively more efficient. This proposition has led to a range of initiatives for increasing the private sector role in providing public goods and services, from privatisation to private-public partnerships to outsourcing specific elements of the production process. This section looks at the evidence around whether these initiatives have brought efficiency gains.

The privatisation literature includes a weight of evidence supporting the proposition that privatisations undertaken around the world have brought about a significant increase in the profitability, real output and efficiency of privatised companies (see, for example, OECD, 2003 and World Bank, 2004). Privatisation has led to better quality goods and services, improved competition, more rational pricing, efficient staffing levels, and fiscal gains for governments

through lower subsidies to state enterprises. It is possible that some of these gains could have been achieved through lifting public sector performance, such as increasing competition (see section 2.2). The benefits of privatisation also vary depending on the nature of the business. While the empirical evidence on efficiency gains from privatisation is not as strong for natural monopolies, the benefits are particularly robust when the firm operates in a competitive market (OECD, 2003 and Shirley and Walsh, 2000). Building from this weight of evidence, the Treasury has recently argued that reducing public ownership of Crown-owned commercial companies would be beneficial for economic growth (Treasury, 2010c).

The evidence suggests that privatisation is more likely to boost productivity in areas without significant market failures or where market failures can be managed through regulation. However, even when privatisation is not an option, there may be innovation or efficiency benefits from some degree of private sector provision or contestability through mechanisms such as outsourcing or public-private partnerships (PPPs)/public finance initiatives (PFIs). The Savings Working Group (2011) emphasises the use of better practices, systems and technology from elsewhere, to produce more value, more efficiently. Empirical evidence of the success of these types of initiatives is mixed, perhaps partly reflecting methodological challenges. However, there is support for efficiency gains. For example, in a review of the evidence relating to contracting out and outsourcing, Hodges (1996) found that while the evidence on cost savings from outsourcing is not unanimous, the weight of evidence supports cost savings. Grout (2008) points to a number of studies that show efficiency savings from outsourcing but recognises that the experience with PFIs or PPPs has varied across sectors. Gains from involving the private sector vary dependent on: the ability to contractually define and measure service outputs and outcomes; the ability to genuinely transfer risk from public to private sectors, and to incentivise performance (including penalising poor performance); and the level of competition to provide such services. However, where the public sector is not operating at the efficiency frontier, and has made little progress over time in improving efficiency or outcomes, introducing contestability can generate productivity gains.

3.4 Summary

While cross-country correlations show a negative relationship between the size of government and economic growth, they do not imply causation, and econometric studies have struggled to find a robust relationship between *levels* of total expenditure or revenue and economic growth. However, this may be because these studies did not take account of the composition of expenditure and revenue and recent studies have found a positive impact of growth-enhancing expenditure and a negative impact of distortionary taxation. There is also a range of evidence of the negative impacts of taxes on factors such as investment and the size of the labour force, which affect growth, but that also emphasise that the tax structure matters. Therefore, the impact of the *level* of expenditure or revenue on economic growth is dependent on the *mix* of these fiscal variables. Studies suggest that the greatest economic benefits come from financing reductions in the most distortionary forms of taxation with cuts in expenditures that are unlikely to contribute to growth. However, there is still considerable uncertainty around what expenditures enable economic growth and as to the magnitude of the economic growth benefits from changes to the level and mix of expenditure or revenue.

Though there is an ongoing debate, more recent evidence on public versus private sector productivity supports the theory that the inherent nature of public goods and services means they are likely to have lower productivity growth than in some other sectors of the economy. There is also evidence, albeit mixed, that some forms of private sector provision are more efficient than public sector provision. Introducing contestability in service delivery can spur a step change in performance where the public sector is not operating at the efficiency frontier.

4 Size and structure of government in New Zealand

The previous sections highlight that, according to theory and empirical evidence, both the level and mix of government expenditure and revenue matter for growth. This section looks at how the level and composition of expenditure in New Zealand compares with other countries and how it has changed over time.

4.1 Challenges in making international comparisons

Making international comparisons of the size and structure of government is not straight forward. Government impacts on the economy through a range of interventions: it raises and spends money; it legislates and regulates the activities of households and businesses; and it owns social and commercial assets. Though this section focuses on measures of expenditure and revenue, these should not be seen as comprehensive measures of size, for which we do not currently have a single indicator.¹⁰

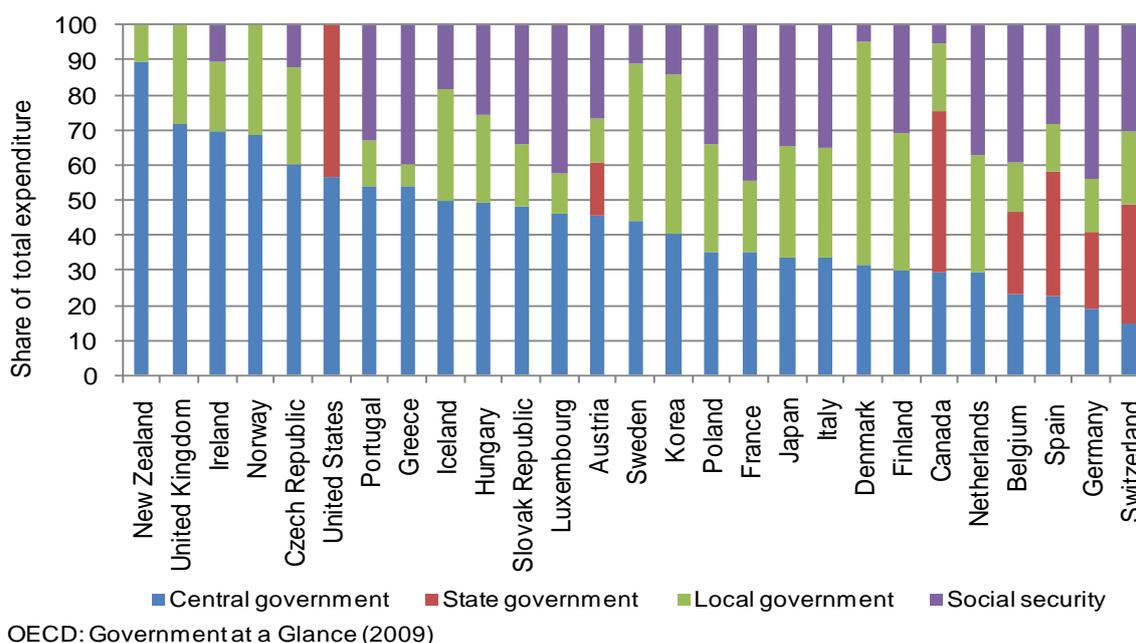
Comparisons of total expenditure and revenue across countries are complicated. One issue is that the allocation of responsibilities across government levels can vary significantly (see Figure 4), so that making comparisons of *central* government expenditure across countries is misleading. In particular, as New Zealand has a very high share of central government expenditure relative to other OECD countries, a comparison that omits lower levels of government would tend to over-estimate our relative size. Therefore, to enable comparisons between countries with different degrees of centralisation, we use measures of government expenditure and revenue that include all levels of government.

There are other complications in ensuring we are comparing like with like that are less easy to resolve. In particular, to make international comparisons we rely on data from international organisations, with the OECD System of National Accounts (SNA) and IMF Government Financial Statistics (GFS) as the most robust sources. However, these organisations are reliant on information provided by member countries and different countries have different conventions for defining the scope of the public sector. To further complicate matters, though they are similar conceptually, there are differences between the OECD and IMF estimates of general government expenditure. Though the differences are relatively small for most countries, they are significant for New Zealand reflecting the different processes through which the measures are compiled. We tend to focus on the OECD-sourced data as New Zealand has a more robust 'bottom-up' process for compiling this data, and it is available on a more timely basis. However, there are still caveats around the OECD measures and limits to their consistency across countries, which mean we can only draw broad conclusions about differences in government size.¹¹

¹⁰ There are some international surveys of regulation in which New Zealand typically rates well. For example, New Zealand ranks first in the OECD, and third in the world, in the World Bank's Ease of Doing Business survey. However, other countries have been doing more to improve some areas of regulation. New Zealand slipped from 4th to 14th in OECD rankings for product market regulation between 1998 and 2008.

¹¹ For example, the OECD measure may over-state the relative level of New Zealand's general government expenditure as we are one of the few countries that do not consolidate transactions between levels of government.

Figure 4 – Government expenditure at different levels



In addition, many countries make use of expenditure mandates and tax expenditures, which are very close substitutes for expenditure and should really be counted as expenditure for the purposes of international comparisons (see Box 4). However, comparable estimates of the value of expenditure mandates and tax expenditures are not typically available.

To compare ‘like with like’ we also have to ‘normalise’ expenditure and revenue to take account of differences in size and incomes between countries. The main focus of this paper is on expenditure and revenue as a percent of GDP. This seems particularly relevant for looking at the impact of ‘size’ of government on the economy as it is a measure of the proportion of the economy’s output or income that is being absorbed by government activities.¹² However, we do look at some per capita measures of expenditure for an alternative perspective.

¹² Though it is marginal rather than average tax rates or shares that will influence private sector investment or work choices, GDP shares are often used as a proxy in the absence of comparable marginal tax rate data.

Box 4: Tax expenditures and expenditure mandates

The government can spend in a variety of ways. Instead of directly spending, i.e. through a cash payment, governments sometimes achieve their objectives by reducing tax obligations (tax expenditures) for a specific group or type of economic activity or by regulating households or businesses to spend money (expenditure mandates). Tax expenditures and expenditure mandates aim to achieve economic, social or environmental policy objectives and in some cases may be able to be replaced by a more transparent direct expenditure programme (Fookes, 2009). Therefore, they lead to an under-estimation of the size of government as they create a new programme with no measured spending. As they are a direct substitute for government expenditure, they should really be counted in a measure of size of government (OECD, 2010).

A number of countries attempt to estimate the value of their tax expenditures, although there are less estimates of the cost of expenditure mandates. Even where estimates exist, international comparisons are complicated by the lack of international agreement on the objectives, scope, or methodology for reporting tax expenditures (Adema and Ladaïque, 2009). New Zealand published a tax expenditure statement with the 2010 Budget, which focused on tax expenditures that represent a clear policy-motivated exemption to current tax practice (Treasury, 2010b). These expenditures have a fiscal cost through a reduction in tax. However, New Zealand has comparably few tax expenditures or expenditure mandates and many are relatively small in size (Fookes, 2009). Therefore, if we were able to adjust fully for their impact across countries, New Zealand's government would look relatively smaller on international comparisons.

These mechanisms complicate comparisons even just across the Tasman. New Zealand has much higher spending on social protection than Australia. However, much of this difference may reflect the use of different mechanisms for funding retirement incomes. In particular, Australia funds a significant chunk of pensions through a mandated employer and employee contribution scheme. It provides only a means-tested pension through the Budget, while New Zealand has a universal basic pension. Australia also provides a number of tax subsidies to encourage private savings, which are much larger than New Zealand's KiwiSaver subsidies. If the value of Australia's expenditure mandates and tax expenditures could be taken into account, then the Australian government may no longer seem so much smaller than our own.

4.2 Size of government in New Zealand

4.2.1 International comparisons

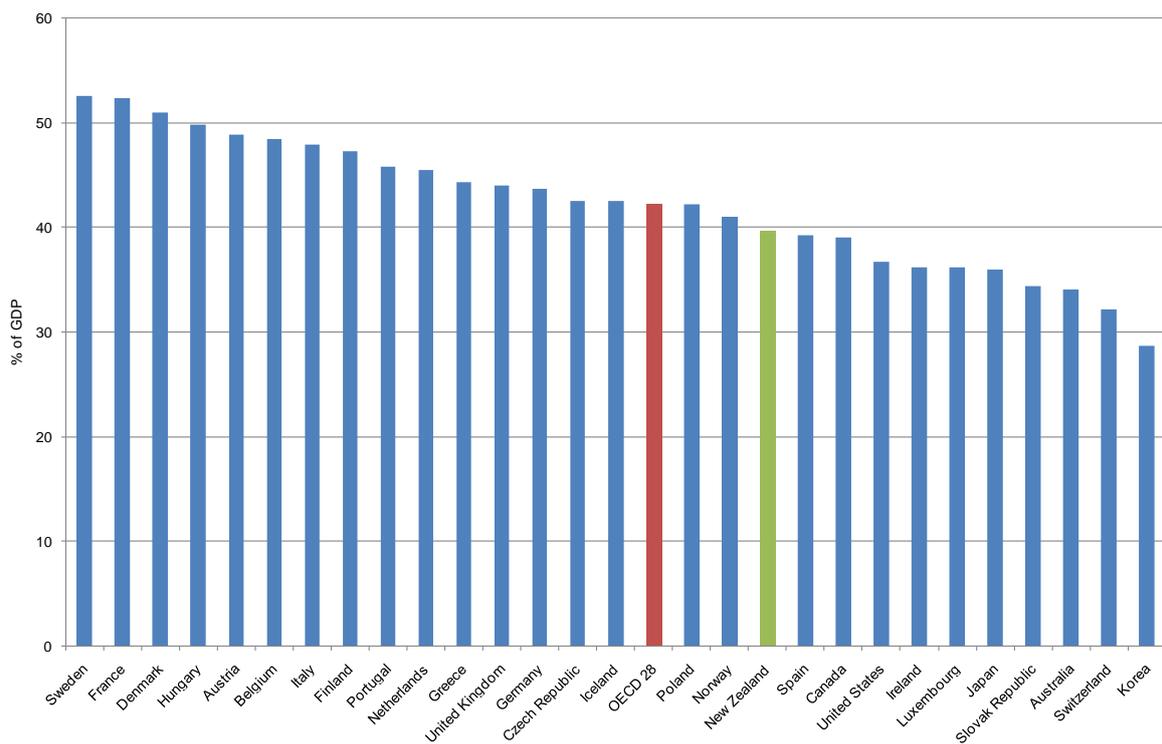
This section provides comparisons of total expenditure and revenue with OECD countries, as well as wider international comparisons of public consumption.

Total expenditure and revenue

New Zealand typically compares itself with other OECD countries, which tend to have closer income levels to New Zealand than countries outside this group. Given that government size tends to grow with income, it is arguably more meaningful to make comparisons with countries of a similar income level. More pragmatically, comparisons of total expenditure and revenue are available only for a sub-set of countries outside the OECD.

The latest available actual OECD data shows that New Zealand's government is broadly in line with the OECD average in terms of expenditure and revenue as a share of GDP. At 40% of GDP in 2007, New Zealand's general government expenditure was slightly lower than the average of 42% for the 29 OECD countries for which data is available (see Figure 5). Reflecting the operating surplus New Zealand was still running in 2007, New Zealand collected a slightly higher share of revenue than the OECD average in 2007 (see Figure 6).

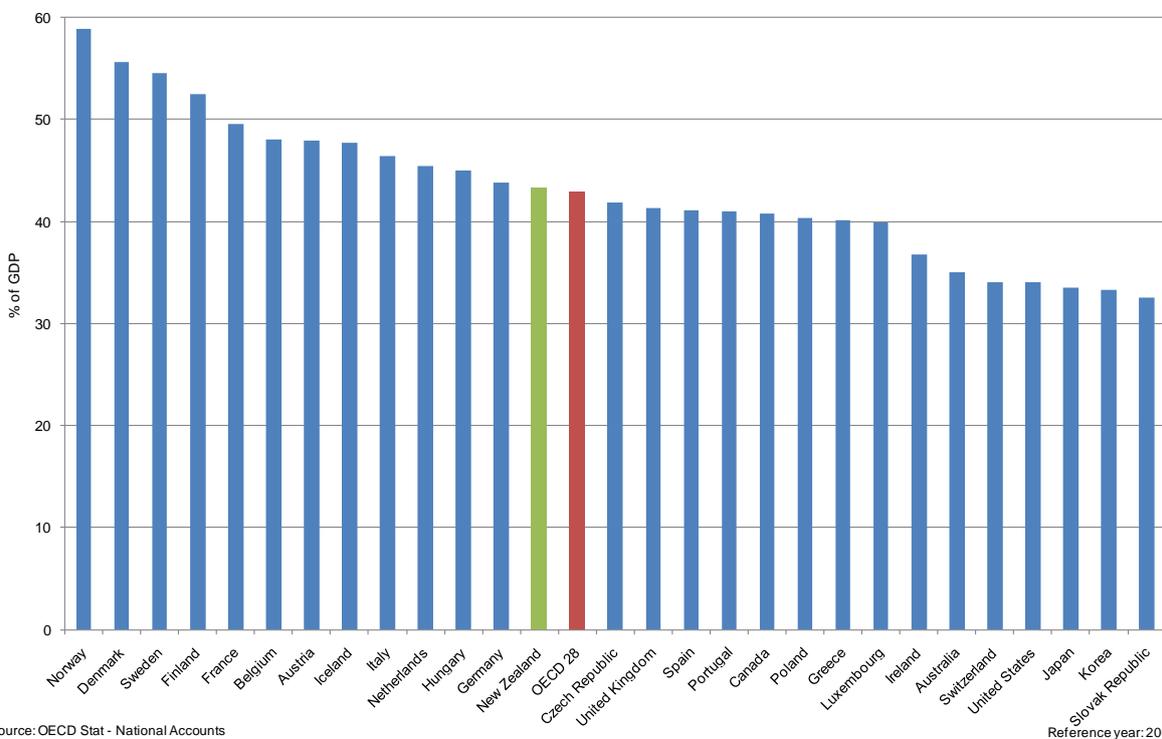
Figure 5 – General government expenditure, as a percent of GDP



Source: OECD Stat - National Accounts

Reference year: 2007

Figure 6 – General government revenue, as a percent of GDP



Source: OECD Stat - National Accounts

Reference year: 2007

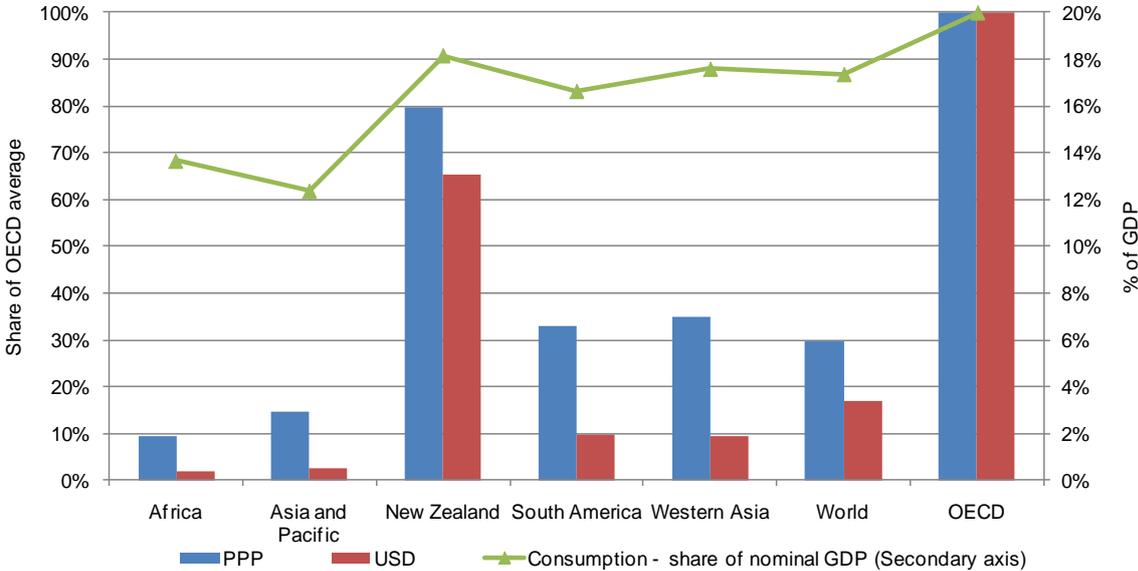
However, the size of New Zealand's government is still significantly higher than the bottom of the OECD range, which is around 30% of GDP, depending on whether it is measured by expenditure or revenue. A number of countries have smaller governments than New Zealand, including Australia and South Korea, with the larger governments generally being European.

Public consumption

An alternative way to measure ‘size’ of government is public consumption, which excludes expenditure on capital, transfers and debt servicing, to provide a measure of government expenditure on providing goods and services. This gives a better measure of the contribution of government to current economic activity or Gross Domestic Product (GDP). Looking at public consumption also allows us to expand our comparisons beyond OECD countries, using World Bank datasets. However, information is also often only available at central government levels for many developing countries.

Figure 7 shows that New Zealand also rates slightly lower than the OECD average on measures of public consumption as a percent of GDP, with governments beyond the OECD being significantly smaller (see the line in Figure 7). However, differences are much bigger when comparisons are made on a per capita, rather than on a GDP, basis, reflecting the lower incomes of these countries (see the bars in Figure 7).¹³ In a similar fashion, though New Zealand’s public consumption is around the OECD average as a percent of GDP, it is relatively smaller on a per capita basis. Though the percent of GDP comparison may be more meaningful for considering the impact on economic growth, this measure can mask real differences in the purchasing capability of governments from variations in income levels. The 2025 Taskforce (2010) highlighted that there are pressures for countries, where average incomes are rising relatively slowly, to keep pace with standards of service provision in ‘comparable’ countries that may not be affordable.

Figure 7 – Government consumption, share of OECD average and percent of GDP



Source: World Bank International Comparison Programme

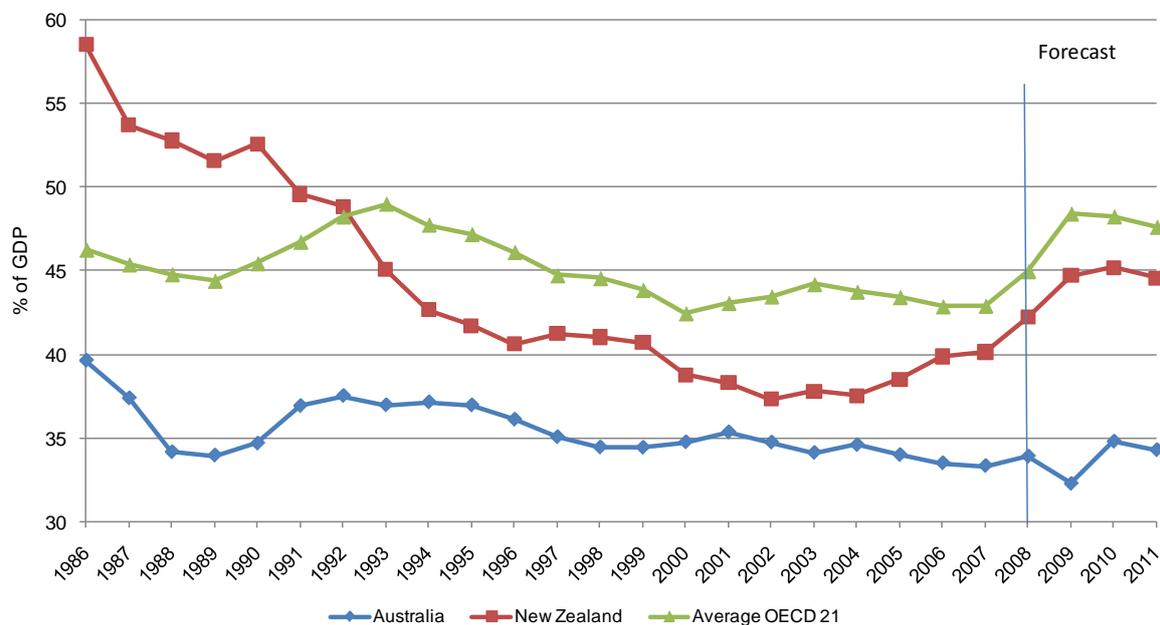
Note: Broad measure of consumption. Reference year: 2005

¹³ Note that the per capita measures are provided on a USD and a purchasing power parity (PPP) basis (using a 2005 reference year), which takes account of differences in price levels across countries. While PPP is a better measure, it does not adjust for the substitution effects caused by differences in relative prices across countries. In particular, as a consequence of relative cheaper labour in developing countries, their governments will tend to use relatively more labour than capital. This means that though exchange rate-adjusted measures tend to under-estimate the size of government, PPP tends to over-estimate it. However, they are probably closer to the “true” measure than exchange rate measure.

4.2.2 Changes over time

Though the size of New Zealand's government is around the OECD average, it has been getting bigger. Government expenditure has been growing faster than GDP since 2005 and has been moving progressively closer to the OECD average (see Figure 8).

Figure 8 – Recent expenditure trends



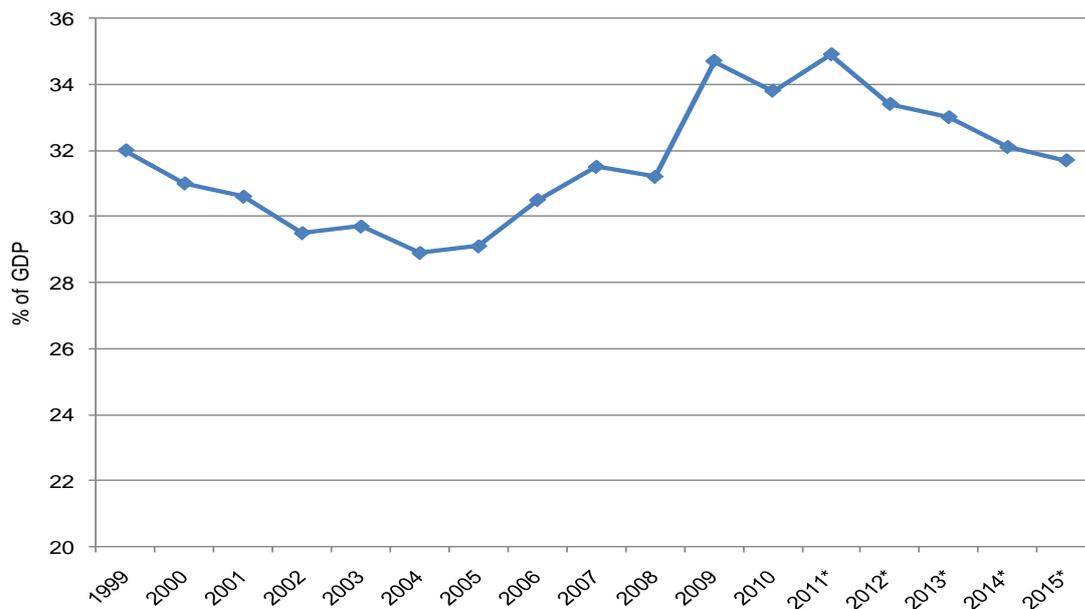
Source: OECD Economic Outlook

This growth in general government expenditure has been driven by central government, with local government expenditure and revenue staying broadly stable as a share of GDP over this period.

Switching from the OECD general government measure to the Treasury's measure of core Crown expenditure shows a similar pattern.¹⁴ After falling from around 41% of GDP in 1991 to around 29% of GDP in June year 2004, core Crown expenditure then increased and is forecast to peak at around 35% in 2010/11 (see Figure 9). This is an increase of around six percentage points over seven years. The economic cycle has played a contributing role to this growth, with the 2008/09 recession leading to higher unemployment expenses and slower growth in nominal GDP. However, this accounts for a small proportion of the expenditure growth (see Mears et al, 2010). Beyond June year 2010, core Crown expenses are projected to trend downwards to reach around 32% by 2014/15.

¹⁴ Core crown expenditure includes the expenses of the Crown departments, Offices of Parliament, the Reserve Bank and the New Zealand Superannuation Fund. It is a different concept from the general government expenditure series used for international comparisons and derived from the national accounts. Apart from core Crown expenditure being on a June year basis, the most significant differences are that core Crown expenditure excludes local government expenditure and gross fixed capital formation (investment) expenditure.

Figure 9 – Trends in core Crown expenditure



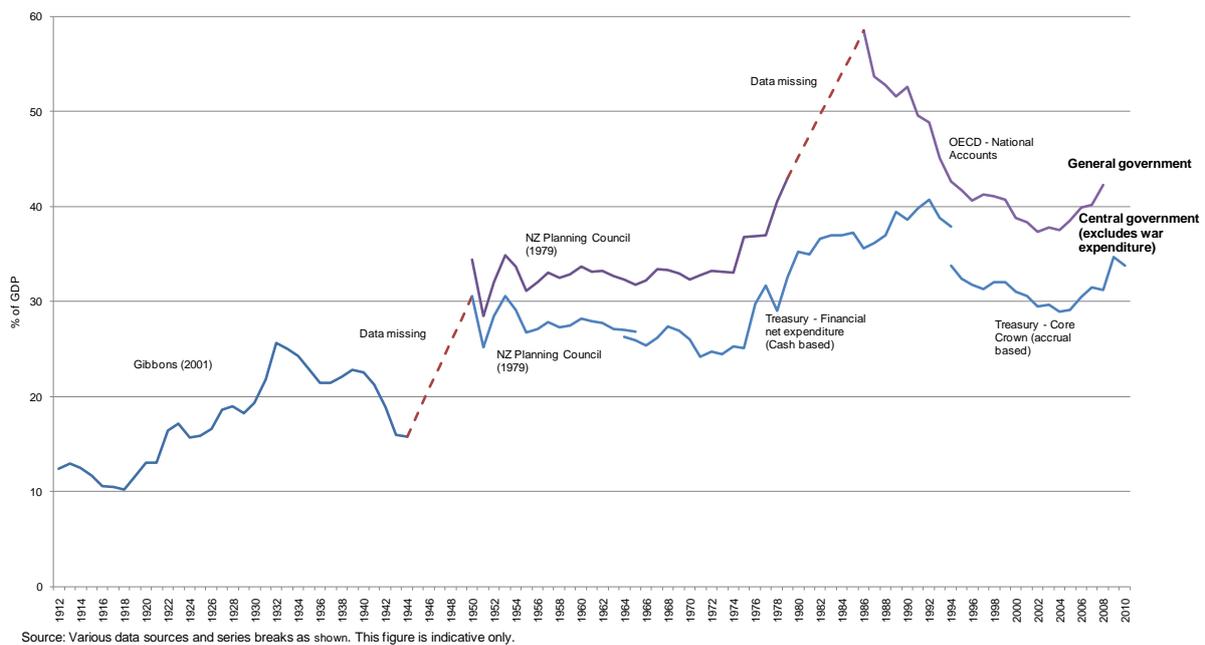
Source: Treasury Half Year Economic and Fiscal Update

* Forecast

Despite these recent fluctuations in central government expenditure, the general trend over a longer time frame has been upwards as the government takes on additional roles. Tanzi and Schuknecht (1997) estimate that average expenditure as a share of GDP across industrialised countries rose from around 12% in 1913 to 22% before World War 2 to over 40% of GDP by 1980 and 46% of GDP by 1995.

Figure 10 shows New Zealand central government expenditure as a proportion of GDP since 1912 and an estimated series for general government from the late 1940s. It patches together the best available government expenditure series but there are considerable variations between series in their coverage and in the methods used to calculate government expenditure, including a transition from cash to accrual reporting. During the 20th century, the central government also took over some of the responsibilities of local government, in areas such as roading and health. However, central government expenditure in New Zealand follows similar general trends and appears to have been affected by similar factors to government expenditure in other developed countries (see Peacock and Wiseman, 1967 and Tanzi and Schuknecht, 2000).

Figure 10 – Long-term expenditure trends



Central government expenditure in New Zealand, excluding trading departments, land development activities and associated loan accounts, appears to have been about 12% of GDP before World War 1. Expenditure then increased because of the war, and remained higher afterwards due to higher debt servicing costs and additional expenditure on widows and military pensions. During the 1920s, the state also increased its expenditure on road building and expanded the range of social assistance available. The Great Depression then resulted in additional taxes to fund unemployment relief. When unemployment fell and the economy rebounded, most of the additional revenue was spent on new welfare and health services, while capital works were also expanded (Gibbons, 2001). World War 2 then resulted in a dramatic increase in government expenditure.

The 1950s and 1960s saw government expenditure stabilise below 30% of GDP. However, the government’s response to economic shocks, policies to expand superannuation and other welfare entitlements, combined with low economic growth resulted in government expenditure, using the Treasury’s financial net expenditure series, climbing to about 35% of GDP in 1979. Expenditure using this series reached a peak of about 41% of GDP in 1991. Despite the recent increases, core Crown expenditure is still significantly below this peak.

The ageing of the population in developed countries will create pressures for the continuation of this long-term upward trend in government expenditure. Many of the bigger European countries in the OECD have an older age structure than New Zealand and are already seeing increases in expenditure driven by an ageing population (IMF, 2010). As the ageing in New Zealand’s population is expected to accelerate from around the late 2010s, there will be increasing pressure on New Zealand’s government expenditure of up to 4% to 5% of GDP. This means the government will face tough policy choices even to maintain the current size of government.

4.3 Composition of expenditure in New Zealand

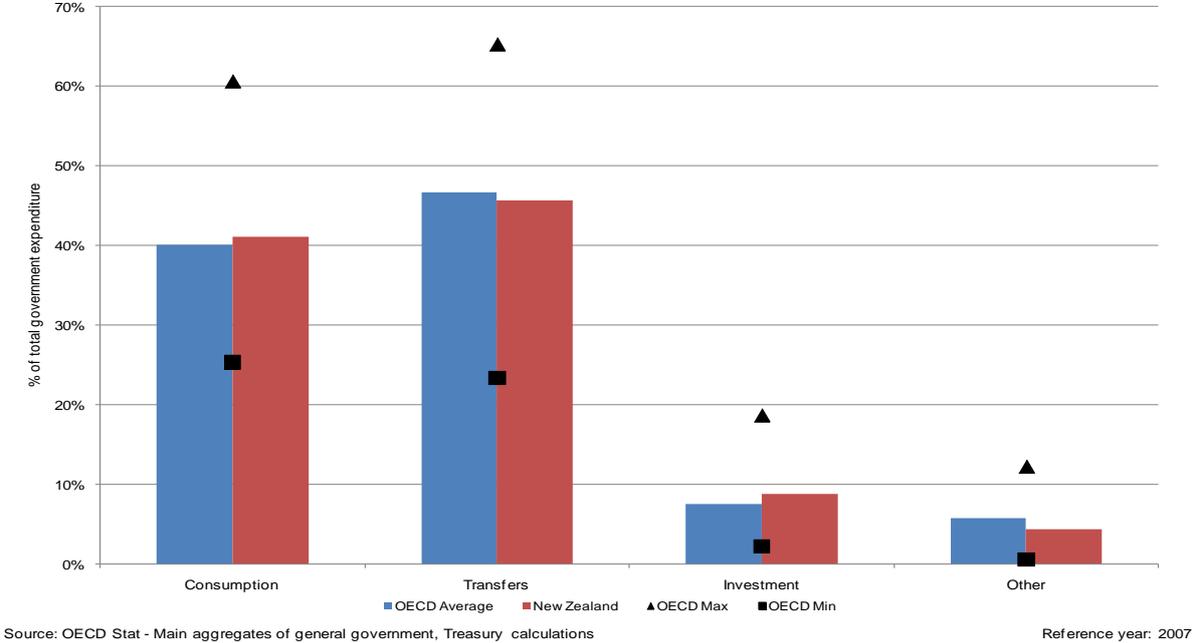
Sections 2 and 3 highlighted that the impact of the level of expenditure on economic growth will depend on the mix of the expenditure. While this section provides some “top-down” analyses of the composition of expenditure in New Zealand, there are significant limits on the extent to

which conclusions can be drawn on composition from such analysis. Therefore, this section aims to raise questions for further exploration rather than provide definitive answers.

4.3.1 Economic classification

One approach to analyse composition is to break down government expenditure according to an economic classification, which distinguishes between investment (gross fixed capital formation), government consumption and transfer payments. Figure 11 shows that New Zealand’s composition is not out of line with other OECD countries in terms of broad economic classifications. We tend to spend a similar share of expenditure on government investment and consumption but slightly less on the less ‘productive’ transfers (see section 3.2.2).

Figure 11 – Government expenditure by economic classification, percent of total expenditure



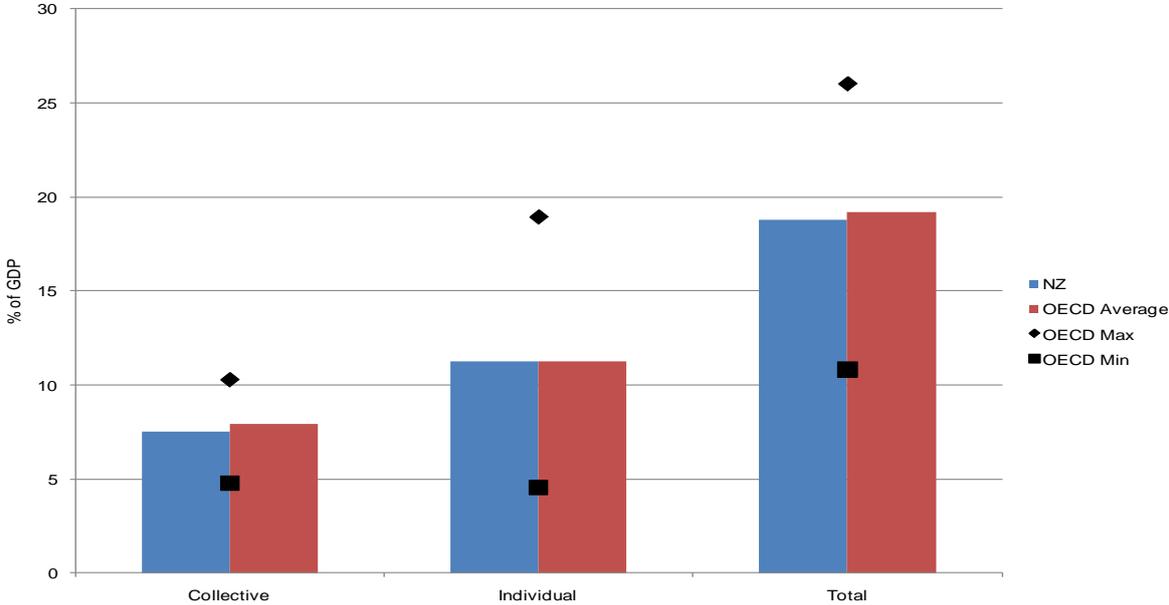
One approach to drilling a bit further down into the economic classification is to look at the extent to which expenditure funds public goods, which benefit most people, or goods and services with largely individual benefits. Government consumption expenditure is defined as providing individual benefits where the acquisition of the good or service by an individual or household precludes its use by other individuals or households and brings little or no benefit to the rest of the community.¹⁵

The New Zealand government’s share of collective or public consumption within total consumption is around the OECD average (see Figure 12). However, at only around 40% of total consumption, there is still a significant proportion of expenditure in areas with mostly individual benefits. While some of this expenditure may be in growth-enhancing areas, it is possible that it is ‘crowding out’ private sector expenditure and there may be scope for greater targeting of this type of consumption expenditure. It is interesting that there is much

¹⁵ By convention, under System of National Accounts methodology, all government final consumption expenditures on education, health, social security and welfare, sport and recreation and culture are treated as expenditures on individual services, with the exception of expenditure on general administration, regulation, research etc.

greater variance in individual than public consumption across countries, with New Zealand's government spending around 6 percentage points more of GDP on 'private' consumption than Mexico's, the lowest spender in the OECD.

Figure 12 – Collective and private consumption



Source: OECD National Accounts at a Glance

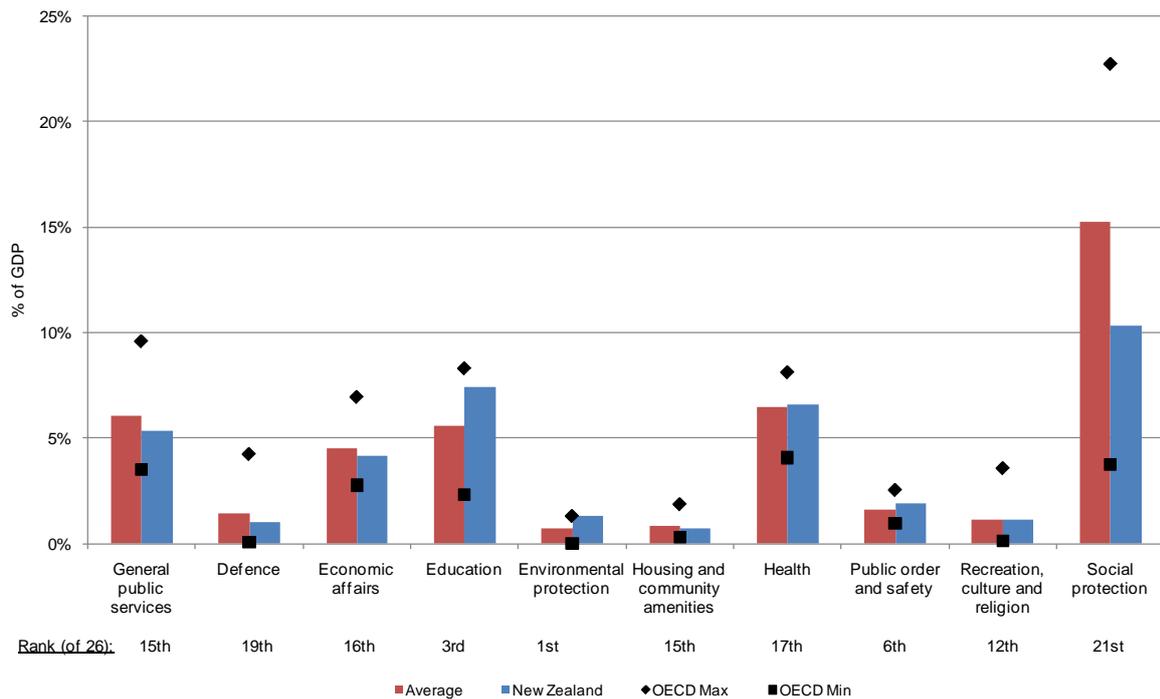
Reference year: 2007

4.3.2 Functional classification

The impact of both consumption and investment expenditure on economic growth will also depend on what it is spent on (see section 3.2.2), which is shown at a broad level by functional classifications.

The functional composition of expenditure in New Zealand is also broadly in line with the OECD average both as a share of GDP (see Figure 13) and as a proportion of total expenditure (see Figure 14). The exceptions are education, where New Zealand is a relatively big spender, and social protection, where New Zealand spends less than the OECD average.

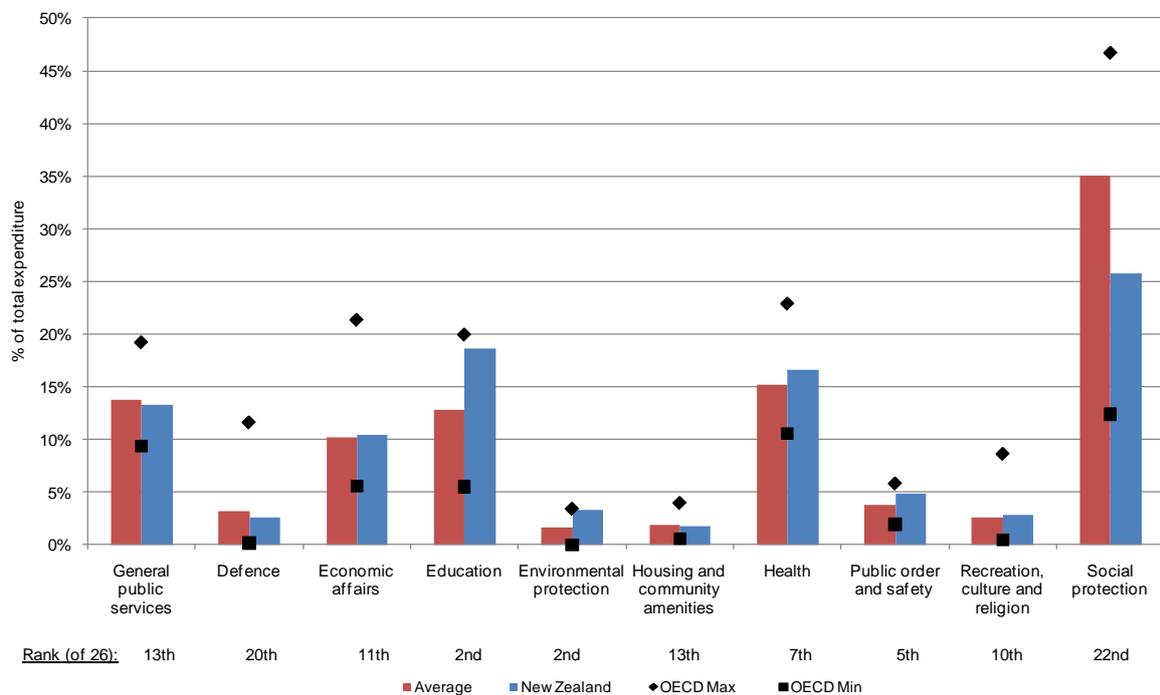
Figure 13 – Government expenditure by functional classification, percent of GDP



Source: OECD Government at a Glance (2009)

Reference year: 2005 or 2006 (NZ 2005)

Figure 14 – Government expenditure by functional classification, percent of total expenditure



Source: OECD Government at a Glance (2009)

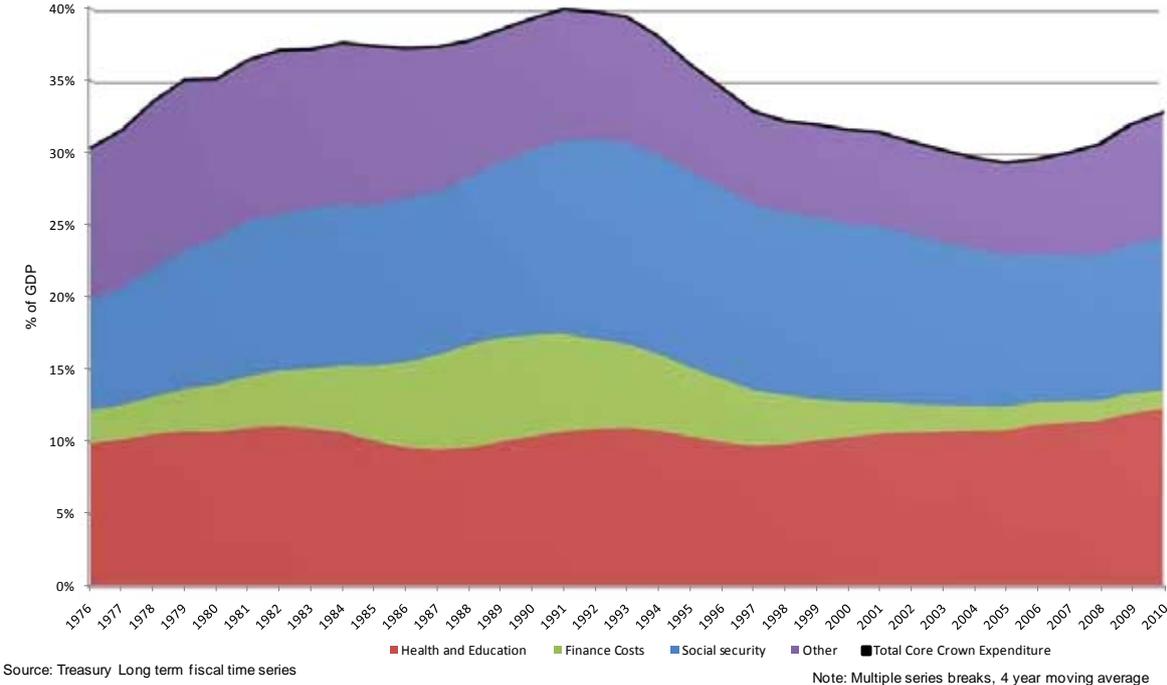
Reference year: 2005 or 2006 (NZ 2005)

The biggest variation in spending across the OECD is in social protection, which is largely composed of income transfers. While the distinction between ‘productive’ and ‘unproductive’ expenditure is a simplification and depends on the design of expenditure programmes, theory and empirical evidence suggest that social protection is unlikely to measurably contribute to raising the economy’s potential economic growth rate. At around 10% of GDP, New Zealand spends less on social protection than most other OECD countries.

Nevertheless, expenditure on social protection varies from under 4% of GDP in Korea to over 20% of GDP in many European countries. Though there is a correlation between the size of overall expenditure in a country and its social protection expenditure, it also varies significantly as a share of total expenditure (see Figure 13). However, as highlighted in Box 4 in section 4.1, these comparisons are complicated by factors such as the use of tax expenditures and expenditure mandates. Adema and Ladaïque (2009) estimate that there is a lot more similarity in social expenditure to GDP ratios across countries when the effect of the tax system and private social expenditure is taken into account.

Despite New Zealand’s relatively low spending on social protection, over half of core Crown expenditure is in areas that are not often considered to have little growth benefit, approximating the classification used by Gemmell et al (2011). Using this classification, growth-enhancing expenditure has been increasing as a share of total expenditure in recent years. This reflects the classification of health and education expenditure as “productive”, which Figure 15 shows has increased from around 10% of GDP in 2000 to over 12% of GDP in 2010. This growth has absorbed much of the gains from falling interest expenses from previous fiscal consolidation and declining social welfare expenditure before the global financial crisis.

Figure 15 – Trends in functional classification for core Crown expenses



Though these compositional shifts suggest a more ‘productive’ expenditure mix, this is misleading. Given the growth in overall expenditure, both productive and unproductive expenditures have been increasing as a percent of GDP. The definition of ‘productive’ expenditure is also debatable and the share of unproductive expenditure increases to around two-thirds of expenditure if a narrower definition of ‘productive’ expenditure is used, excluding defence and health expenditure. In addition, there is a lot of diversity within the expenditure functions classified as growth enhancing, including the rapidly growing health and education functions. For example, health spending on older New Zealanders will give less of a boost to growth than expenditure on those still of working age. Therefore, ‘unproductive’ expenditure is likely to be higher, and have grown faster, than suggested by the broad functional classifications. Overall, there appears to be quite a bit of expenditure in

New Zealand that does not contribute to economic growth. Though reducing this might harm other government objectives, it is likely to be beneficial for economic growth.

4.3.3 Quality of expenditure

It is not just the type of expenditure that matters but also the quality. There may even be some scope to reduce expenditure in non-growth enhancing areas without significant impact on other objectives by improving the efficiency and effectiveness of expenditure.

There are problems in measuring productivity in the public sector and it is not clear that the public sector is responsible for our productivity gap with other countries (see Box 5). There are also a number of challenges in comparing the effectiveness and efficiency of expenditure across countries and it is difficult to draw conclusions about the quality of expenditure from top-down analyses.

Box 5: Public sector productivity in the national accounts

The national accounts provide a measure of public sector productivity, where government is included in the “non-measured” sector. It is in this non-measured sector where New Zealand’s productivity performance is particularly weak and explains the productivity gap with Australia over the last 30 years (Treasury and Statistics NZ, 2010). However, we cannot infer from this that public sector productivity is relatively weak.

The title “non-measured” is significant; outputs for this 35% of the economy are not directly measured. So for much of the public sector, such as public administration and defence, outputs are assumed to match employment, so no productivity gains are captured in the statistics. Some volume measures are used to measure outputs in some sectors, such as the number of full-time students in education or hospital admissions in health. However, there are still no adjustments for any changes in the quality of outputs, which could provide a significant part of the productivity improvement in state agencies.

Even with the inadequate measurements, the poor productivity in the non-measured sector has been concentrated in the non-government sectors, particularly in the period after 1993 when the statistics appear to be more robust. Overall, government accounts for about 42% of the non-measured sector, with the largely private sector activities of property and business services, owner-occupied dwellings, personal and other community services, and financial intermediation services making up the balance. Though all these sectors are difficult to measure, the poor productivity performance appears to be in the property sector, particularly in comparisons with Australia (see Treasury and Statistics NZ, 2010).

International organisations have compiled some composite indicators on the effectiveness and efficiency of expenditure. However, these are largely perception based and also send mixed signals. Though the World Bank Government effectiveness indicator places us 5th out of the 32 OECD countries for which there is data, the World Economic Forum’s Survey of the wastefulness of government spending ranks us at 22nd.

A range of studies tries to measure public sector efficiency across countries by using comparisons of output or outcome indicators of public sector performance with expenditure levels to create a 'production possibility frontier'. Using this approach, Afonso et al (2005) finds that New Zealand is within the 'production possibility frontier' for both input and output efficiency.¹⁶ Barrios and Schaechter (2008) highlight that most of these studies find New Zealand in the middle of the OECD pack in terms of the efficiency of education spending. A recent OECD study also put New Zealand around the OECD average for health efficiency but with particularly low scores on the efficiency of the acute care sector and with very high administrative costs (Journard et al, 2010). These studies are very dependent on the indicators used to measure performance. In addition, the links between government spending and outcomes are influenced by factors other than public spending, although some studies, such as the quoted health study, partially control for these. Despite these caveats, these studies do suggest overall that there is scope to improve the efficiency and effectiveness of expenditure in New Zealand.

There may also be scope for greater targeting of expenditure. Though we spend slightly less than the OECD average on cash benefits,¹⁷ this is largely because of our relatively low pension expenditure, which will increase as our population ages. In comparison, New Zealand transfers about one percentage point more of its GDP to its working-age population (15 to 64-year-olds) than the OECD average (see Adema and Ladaïque, 2009) but still has a relatively high poverty rate among those of working age (see International Labour Organisation, 2010). New Zealand has also made less progress in reducing income inequality than some countries with lower social spending have (IMF, 2010).

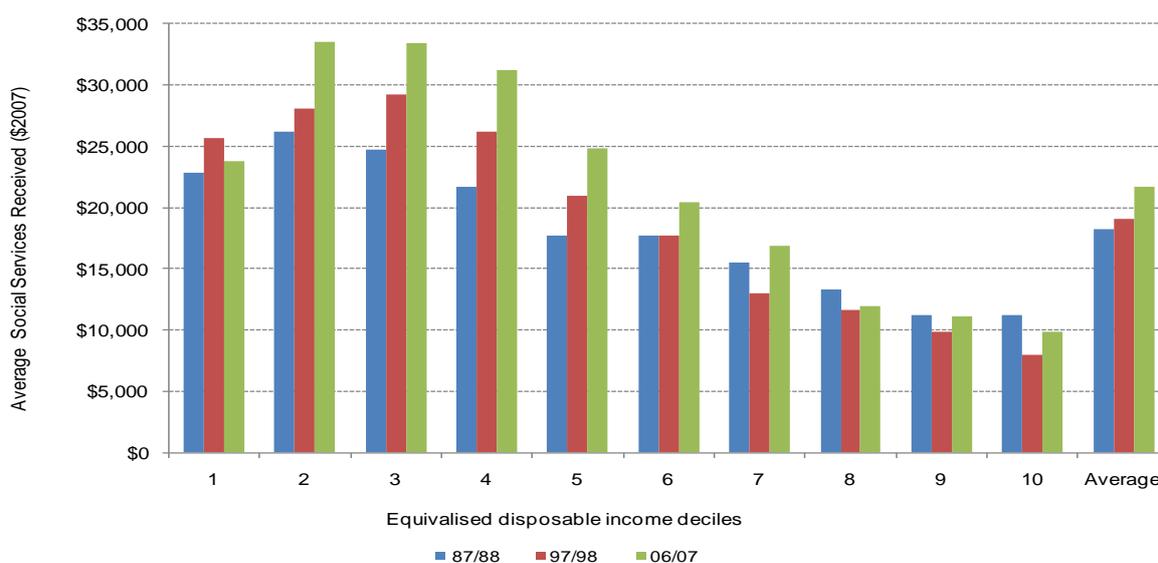
Recent OECD analysis suggests that less than 20% of New Zealand's social spending is means-tested (Adema and Ladaïque, 2009).¹⁸ Preliminary Treasury analysis, as illustrated by Figure 16, suggests that households near the bottom of the income distribution have benefited from increased social expenditure in recent years. However, 'middle-income' earners have also seen substantial gains, particularly since the turn of the century. The 2025 Taskforce (2010) highlighted the risks that the value of expenditure directed towards the 'middle classes' may not outweigh the deadweight costs of taxation to finance these services. However, a move to greater targeting would need to be carefully designed and balanced against the risk of creating high marginal effective tax rates for low-income earners, which can discourage labour force participation or investments in education and training.

¹⁶ Afonso et al (2005) also find that countries with smaller public sectors tend to have higher efficiency than medium or large governments, suggesting diminishing marginal returns from higher government spending.

¹⁷ New Zealand spent around 10% of GDP on cash benefits in 2005 compared to an OECD-30 average of almost 12%.

¹⁸ This estimate is drawn from an OECD report using 2005 data from the OECD Social Expenditure Database. It uses a wider definition than the COFOG social protection classification, including nine policy areas: old-age, survivors, incapacity-related benefits, health, family, active labour market policies, unemployment, housing and other social policy areas. See Adema and Ladaïque (2009) for more information.

Figure 16 – Average cost of social services received by a household in each decile



Source: Statistics New Zealand Household Expenditure Survey and administrative data, fiscal incidence calculations have been made by the Treasury.

4.4 Composition of revenue in New Zealand

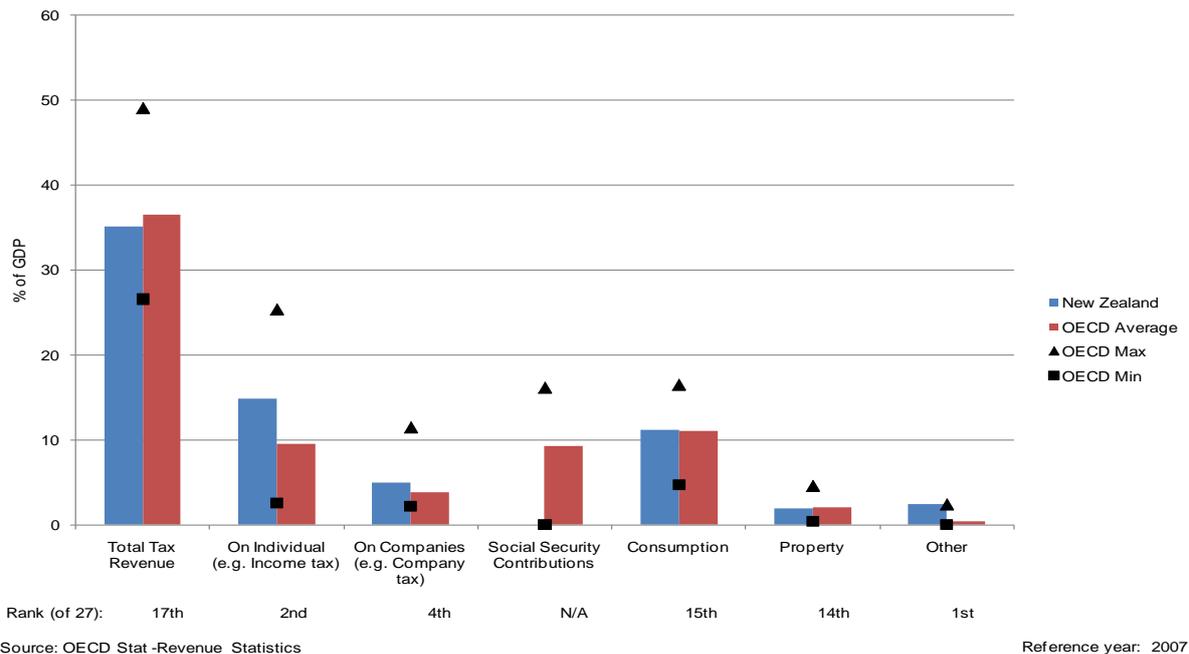
Though there may be scope to reduce expenditure levels, it may also be possible to finance expenditure at lower economic cost by improving the efficiency of the tax system. New Zealand’s tax system is basically sound and generally performs well by international standards (2025 Taskforce, 2010). Past reforms have left New Zealand with the bulk of tax revenue being raised by taxes that have a relatively broad base, with fewer exemptions and concessions than most other countries.

Most OECD countries rely on three main sources of tax revenues: personal and corporate income taxes; social security contributions; and taxes on goods and services. Figure 17 suggests that New Zealand currently has a relatively large proportion of total revenue raised through personal and corporate taxes (see also 2025 Taskforce, 2010), which several models suggest are particularly damaging for growth (see section 3.2.2). This figure does pre-date the Budget 2010 tax cuts, which have reduced personal and corporate taxes relative to consumption taxes. However, there is scope to do more. In particular, as average corporate tax rates in the OECD continue to trend down, New Zealand’s new 28% rate (effective in the coming tax year) will still be higher than the OECD average.¹⁹ A relative reliance on capital taxes has the potential to be particularly damaging in an increasingly globalised world of highly mobile investment.

We also have a wide variety of effective tax rates on capital investment income depending on the type of investment and its source (see Treasury, 2008). Equalising rates of tax on different forms of investment would improve savings and investment, including standardising and lowering the rate of tax on different forms of investment income as far as possible and introducing a tax on capital gains to reduce the diversion of investment into tax-favoured or tax-exempt forms (Treasury, 2008).

¹⁹ In the OECD area, the unweighted average corporate tax rate has dropped from 47.5% in 1981 to 37.1% in 1994, 27.2% in 2007 and 25.9% in 2010 (Treasury estimates based on published OECD data).

Figure 17 – Composition of revenue, percent of GDP



4.5 Summary

The size of government in New Zealand, as measured by total expenditures or revenues, is roughly around or slightly below the OECD average, although our relatively low use of tax expenditures and expenditure mandates may make us look slightly bigger than we really are. However, the government’s share of the economy has been increasing over time and an ageing population will make curtailing this trend a challenge.

Though our composition of expenditure is broadly in line with the OECD average, some evidence suggests there may be expenditure that either does not make significant contributions to stated Government objectives, including economic growth, or is not well targeted. Though it is not possible to draw definitive conclusions from such top-down analysis, it highlights the importance of robust appraisal and evaluation of both existing expenditure and new proposals. Identifying opportunities to reduce expenditures that do not make a significant contribution to government’s priorities, and improving the efficiency of government expenditure in general, would allow for reductions in growth distorting taxes or better position the Crown to deal with long-term expenditure pressures without increasing the tax burden. It may also be possible to reduce the economic cost of financing expenditure by reducing our reliance on the more distortionary tax types, particularly those on personal and corporate income.

5 Not only size matters

The theory and evidence summarised in this paper suggest that governments can undermine economic growth if they become too large. There is strong evidence that taxes reduce economic growth through their negative impact on incentives to work, save and invest. The provision of public services may also drag down growth if public sector productivity is lower than in the private sector.

However, theory and evidence also reinforces that the impact of the *level* of expenditure or revenue on growth is dependent on the *mix* of expenditure or revenue. The cost of financing a given level of expenditure will depend on the mix and design of taxes, as some taxes have a more negative impact on growth than others. Government also has to balance the economic costs of taxation against the benefits of expenditure. Much expenditure contributes to economic growth and government spending also advances social and distributional objectives.

Studies suggest that the greatest economic benefits come from financing reductions in the most distortionary forms of taxation with cuts in expenditures that are unlikely to contribute to growth. However, there is still considerable uncertainty around what expenditures enable economic growth and as to the magnitude of the economic growth benefits from changes to the level and mix of expenditure or revenue. In addition, it is not just the type of expenditure that matters but also its quality – its effectiveness at advancing government’s objectives and its efficiency in minimising the cost of delivering public goods and services.

Given the importance of the type and quality of expenditure, it is difficult to draw firm conclusions about the scope for changes in the ‘size’ of New Zealand’s government from the type of high-level analysis in this paper. That requires more detailed ‘bottom-up’ analysis of the costs and benefits of expenditure programmes. Such an analysis should extend beyond growth to include the wider objectives of government, such as advancing living standards and achieving distributional objectives.²⁰ However, some evidence suggests there may be scope for New Zealand to improve economic growth by reducing or limiting growth in expenditures that do not measurably contribute to raising economic growth and by continuing to improve the efficiency of the tax system.

The share of New Zealand’s total government expenditure in GDP has increased significantly in recent years, composed mainly of increases in central government expenditure. Expenditure has been increasing more quickly than in our OECD counterparts, largely closing the gap with the OECD average. While some of this growth has been in areas that may be supportive of economic growth, more than half of core Crown expenditure is likely to be non-growth enhancing and (until recently) it has been growing at a faster rate than GDP. As recent empirical analysis suggests that the benefits of growth-enhancing expenditure may on average be somewhat outweighed by the costs of taxation in OECD countries, the growth benefits may be greater from reducing total expenditure than from shifting resources to more growth-enhancing areas. There are also a number of economic imperatives driving a need for fiscal consolidation in New Zealand to lift national savings and manage our vulnerabilities, while creating the conditions for more balanced growth (see Treasury, 2010a and Savings Working Group, 2011).

²⁰ A forthcoming Treasury Paper will present a descriptive framework of the factors that the Treasury considers comprise living standards, of which economic growth is only one, albeit important, dimension.

Government objectives do extend beyond growth to wider living standards and distributional issues. There are a number of medium-term pressures on government expenditure from rising expectations, demographics, and higher public sector cost pressures. Given these pressures, reducing the share of public expenditure in GDP may mean cuts in the quantity or quality of public services and government will face difficult policy choices even in maintaining the current size of government. Despite these challenges, both existing expenditure programmes and new proposals need to meet a high burden of proof that their contribution to government's priorities outweighs the cost of financing them. This reinforces the importance of incentivising and enabling government agencies to seek continuous improvements in the efficiency and effectiveness of their expenditure. It is critical to identifying opportunities to reduce expenditure, and the associated tax burden, in ways that lift the living standards of New Zealanders.

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