Australian Government
Commonwealth Grants Commission

Some international themes in fiscal equalisation: an Australian perspective

Research paper 3

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Summary

Many countries allocate funds to regional governments to reduce disparities in government services. This is generally known as horizontal fiscal equalisation. Countries implement it in different ways, and with slightly different goals.

This paper considers four well established systems, identifying differences and common themes.

The Canadian central government funds provinces based on differences in their revenue raising capacity. It brings less affluent provinces close to the national average and provides no payments to more affluent provinces. Canada treats resource revenues slightly differently to other revenues, although this does not have a major effect on the allocation of funds.

In Germany and Switzerland, more affluent regions share the cost of equalisation with the central government. Both countries focus on revenue equalisation, but also have some level of expense equalisation.

Australia stands apart from the other countries in three important ways: the degree of vertical fiscal imbalance is higher than in the other countries; it is the only country in this group to consider all expense needs of regional governments, as well as their capacities to raise revenue from all sources; and an independent agency assesses fiscal capacities and recommends the distribution of equalisation payments.

While seeking to facilitate fairness, equalisation can also raise challenges. For example, there is evidence in some countries that, under some circumstances, fiscal equalisation incentives may distort regional governments' decisions on taxation. Equalisation systems have sought to mitigate some of these incentives.

The unique circumstances in each country mean that an approach adopted in one country may not be appropriate for other countries. Nevertheless, there is value in considering the diversity of approaches to equalisation.

Introduction

Federations often experience vertical fiscal imbalances between central and regional governments resulting from the division of tax and spending powers. There may also be fiscal imbalances between regions. Horizontal fiscal equalisation is a transfer program to reduce differences in the fiscal capacities of regional governments.[1] It seeks to give regional governments the potential to provide similar services without imposing significantly different tax burdens on their citizens. Many federations have some form of horizontal fiscal equalisation.

A wide range of approaches to horizontal fiscal equalisation are found in practice. Each is unique to a country's political, historical and economic origins. However, there are common themes. This paper explores some of these themes. It focuses on the fiscal equalisation arrangements in four federations: Australia, Canada, Germany and Switzerland.

The paper first describes the different approaches to fiscal equalisation in these countries. It then draws out themes that are relevant to the Australian experience of equalisation.

[1] Throughout this paper, we use the term 'regions' as the generic term for subnational governments, and states (Australia), cantons (Switzerland), Länder (Germany), provinces (Canada) or territories for the specific forms in the case study countries.

Approaches to equalisation vary

The four countries examined in this paper — Canada, Germany, Switzerland and Australia — are established federations[2] with parliamentary systems and developed economies. International studies of fiscal equalisation commonly consider these countries.

Many countries have equalisation as part of their intergovernmental relations. Table 1 provides an overview of some key metrics of their arrangements, with the case study countries highlighted. All four case study countries distribute a similar proportion of their gross domestic product (GDP). However, Australia focuses on both revenue and expense equalisation, while the other three focus primarily on revenue equalisation.

Table 1 Fiscal equalisation: some key metrics

Country	GDP per capita	Grants to regions	Revenue equalisation	Cost equalisation
	$PPP	% of GDP	% total equalisation	% total equalisation
Belgium	47,662	15	84	16
Mexico	18,273	11	49	51
Spain	37,998	10	5	95
Netherlands	52,521	10	13	87
Korea	38,350	8	3	97
Brazil	15,553	8	61	39
Estonia	31,739	8	79	21
Canada	46,705	8	100	0
Norway	61,414	8	49	51
Lithuania	32,764	7	40	60
Australia	48,460	7	47	53
Japan	43,279	7	12	88
Germany	50,662	6	100	0
Switzerland	64,712	5	85	15
United States of America	59,532	4	0	0
India	7,059	3	69	31
Latvia	27,592	3	58	42
Ireland	75,648	1	34	66

Sources: Dougherty, S. & Forman, K. (2021). Evaluating fiscal equalisation: finding the right balance, *OECD Working Papers on Fiscal Federalism, no. 36*, Paris: OECD publishing.
OECD-UCLG, 2020, *https://stats.oecd.org*, OECD, accessed 9 August 2021.

[2] Nations with multiple levels of government in which subnational governments hold constitutionally enshrined powers.

Australia

Australia is a federation of six states and two self-governing territories, with populations ranging from 246,000 (Northern Territory) to 8.2 million (New South Wales). Australia's states and territories (states) have large spending responsibilities but limited revenue raising capacity. Commonwealth Government transfers finance 45% of state spending (though this percentage varies significantly between states). This 'vertical fiscal imbalance' is high by international standards.

Equalisation involves the distribution of Goods and Services Tax (GST) receipts, along with pool 'top-ups' from the Commonwealth Government. The Treasurer determines the distribution of the GST pool to the states, drawing on the recommendations of the Commonwealth Grants Commission (the Commission), which is an independent agency. The Commission considers the revenue raising ability and spending needs of each state.

In assessing a state's revenue capacity, the Commission applies national average tax rates to each state's revenue base. This is a form of the 'representative tax system' (RTS) approach. It calculates the capacity of a state to raise revenue from its own major tax bases with an average tax effort. A larger revenue raising capacity means a smaller equalisation payment.

In assessing a state's expense needs, the Commission estimates the cost for each state to provide an average standard of service and stock of infrastructure. It allows for attributes beyond a state's control, such as population size, age, socio-economic status, Indigenous status, population dispersion, private provision of state type services, industry size and wage costs. These influence both the level of demand for services, and the unit cost of providing services.

Until 2020-21, the Commission recommended a GST distribution that provided each state with the fiscal capacity to deliver services at the same level. The objective was to provide all Australians with the potential to access the same standard of state services, regardless of the state in which they live. Australia is transitioning to equalisation arrangements that will ensure that no state will receive less GST per person than the fiscally stronger of New South Wales or Victoria.

Australia's comprehensive approach to equalisation can have a significant effect on states' fiscal capacities (see Figure 1). Tasmania is highlighted as an example.

States start with their own-source revenue raising capacity before equalisation, shown on the horizontal axis.

- Tasmania starts with around 74% of the average revenue raising capacity.

Australia fully equalises revenue raising capacity. If it stopped at this stage, all states would be at 100% on the vertical axis.

- Revenue equalisation alone would bring Tasmania to 100% on the vertical axis. This is shown by the solid arrow.

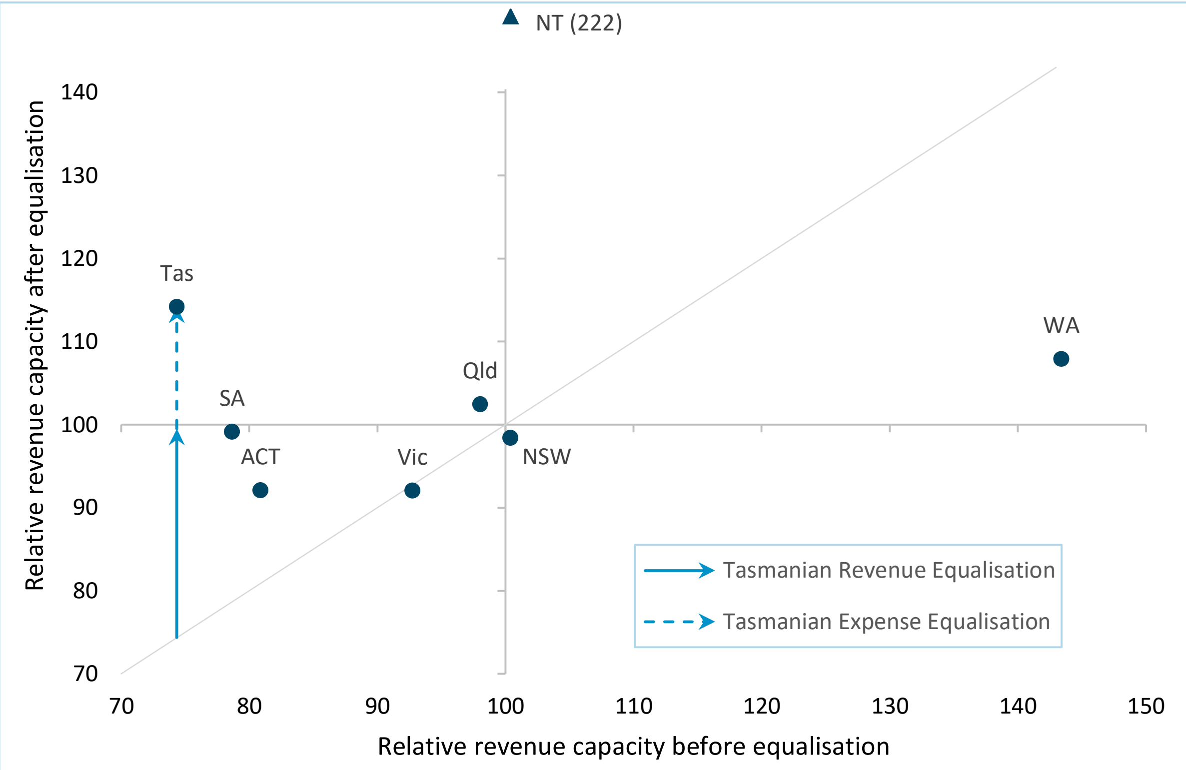
Australia also equalises expenses. This is represented by the distance of each state from the horizontal axis.

- Equalisation payments raise Tasmania to 114% of the average revenue capacity, to assist it to meet its above average expenditure needs. Tasmania's expense equalisation is shown by the broken arrow.

States below the diagonal line receive less than an equal per capita share of GST. Those above that line receive more than an equal per capita share.

- Tasmania is well above the diagonal line.

Figure 1 Australian equalisation outcomes, 2021-22



Note:	ACT	-	Australian Capital Territory	Qld	-	Queensland	Vic	-	Victoria
	NSW	-	New South Wales	SA	-	South Australia	WA	-	Western Australia
	NT	-	Northern Territory	Tas	-	Tasmania			

Canada

Canada is a federation of 10 provinces, with populations ranging from 154,000 (Prince Edward Island) to 14.2 million (Ontario). It also has three territories, including Nunavut with a population of only 37,000. Equalisation in Canada involves a federal transfer program to reduce differences in the revenue raising capacities of Canadian provinces.[3] The principle of equalisation is set out in Canada's constitution: "to ensure that provincial governments have sufficient revenues to provide reasonably comparable levels of public services at reasonably comparable levels of taxation".[4] Canada equalises revenue raising capacities but does not assess expense needs.

Canadian provinces have a low degree of vertical fiscal imbalance, with approximately 20% of provincial spending financed by federal transfers. Canada pays large health, education and social service grants to the provinces. These are allocated on an equal per capita basis. Equalisation payments make up around 30% of overall fiscal transfers to provinces.

The equalisation pool is predetermined and funded from federal general revenue. Since 2009-10, when the federal government determined the size of the equalisation pool and pegged annual increases to economic growth, the size of the pool has been independent of the size of the equalisation task and less affected by changes in revenue disparities among the provinces. This has given certainty to the federal government and guaranteed the provinces a growing pool although the pool may not match the equalisation task.

Distribution raises provinces with weaker revenue capacity to around the pre-equalisation national average. Fiscally stronger provinces receive no equalisation payments; nor do they contribute to the equalisation pool.

Equalisation operates according to a formula set in federal legislation which is reviewed on a periodic basis by intergovernmental committees. The formula assesses provinces' revenue-raising capacity using a 'representative tax system' approach. This means that it applies national average tax rates to each province's revenue bases.

Resource revenues are treated slightly differently to other revenues — the assessment is based on actual resource revenues. Fiscal capacity for natural resources is assessed based on partial inclusion of actual revenue collected by the province. However, a province's equalisation payment cannot raise its fiscal capacity above that of a non-receiving province when all resource revenues are taken into account.

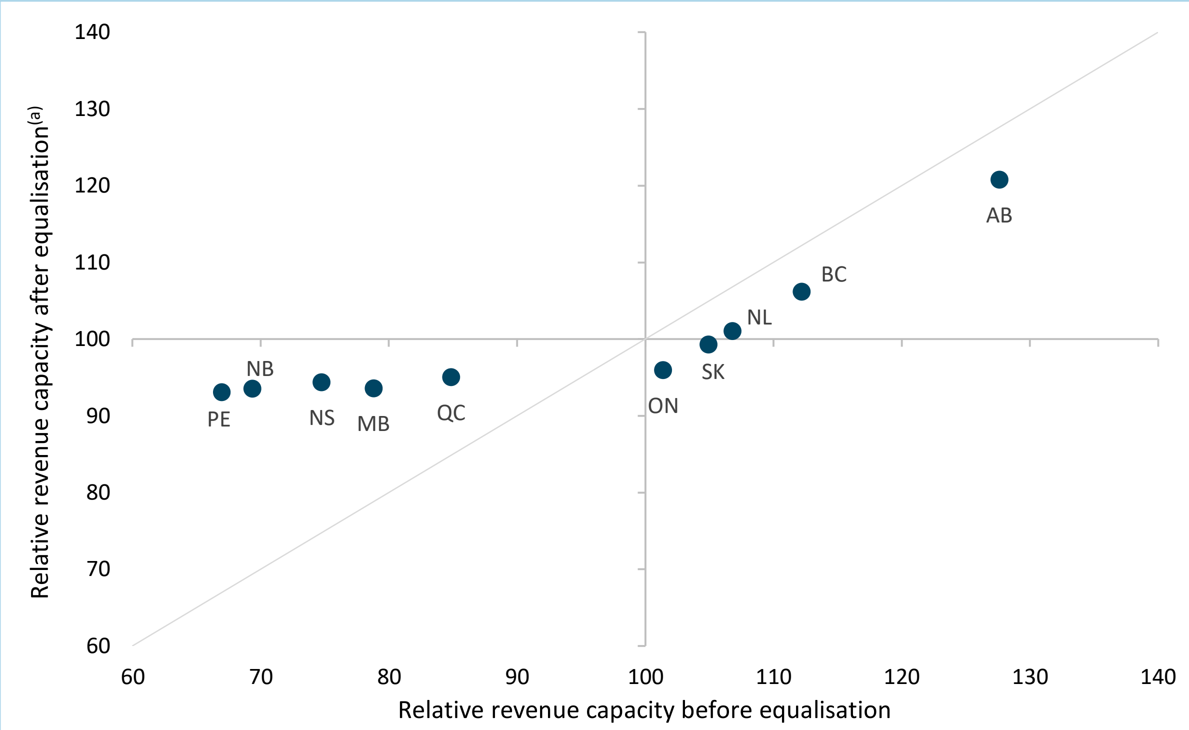
[3] Canada has two types of subnational government: provinces and territories. They are broadly comparable with Australia's states and territories.

[4] Subsection 36(2) of the Constitution Act, 1982.

Canada has a separate system for its territories. Territorial Formula Financing payments enable territorial governments to provide programs and services that are reasonably comparable to those offered by provincial governments, at reasonably comparable levels of taxation. It takes into account the higher cost of providing services in the North, including the challenges of providing services to a large number of small, isolated communities. Each territory's grant is based on the difference between a proxy of its expenditure needs and 70% of its capacity to generate revenues. The remaining 30% of revenue capacity is excluded from the calculation as an incentive for the territories to increase their own revenues and develop their economies.

In absolute terms, provinces with weaker revenue capacity are brought up to around the pre-equalisation average (see Figure 2). This is around 94% of the post-equalisation average. Fiscally stronger provinces receive no equalisation payments. They therefore retain their relative position, at around 6 percentage points below the diagonal line in Figure 2. There is some variation in the post-equalisation revenue capacities of the fiscally weaker provinces, reflecting the partial inclusion of resource revenues. However, as provinces with major revenue streams from resources tend to be fiscally strong, the post equalisation variation among fiscally weak provinces tends to be relatively small. Figure 2 shows the equalisation outcomes for Canada. Provinces with below pre-equalisation average revenue capacity receive payments. For example, Prince Edward Island started with around 67% of the average revenue capacity before equalisation payments raised it to the pre-equalisation average, or 93% of the post-equalisation average. Provinces with above average revenue capacity are unaffected in absolute terms, but they lose some relative advantage.

Figure 2 Canadian equalisation outcomes, 2021-22



Notes:	AB	-	Alberta	NL	-	Newfoundland and Labrador	QC	-	Quebec
	BC	-	British Columbia	NS	-	Nova Scotia	SK	-	Saskatchewan
	MB	-	Manitoba	ON	-	Ontario			
	NB	-	New Brunswick	PE	-	Prince Edward Island			

(a) Revenue capacity after equalisation includes revenue from federal equalisation payments, resulting in a higher average capacity than before equalisation

Germany

Germany is a federation of 16 Länder, with populations ranging from 680,000 (Bremen) to 17.9 million (North Rhine-Westphalia). Equalisation in Germany reallocates funds between the Länder, Germany's subnational governments. This is to ensure a reasonable equalisation of the disparate financial capacities of the Länder. The German Finance Ministry calculates and distributes equalisation payments.

There is little vertical fiscal imbalance in Germany, as tax sharing legislation assigns revenues to the Länder and the Federal government approximately in line with the expenditure requirements of each level of government. The central government sets rates for most taxes, but the Länder tax offices collect the tax.

The Länder and municipal governments share revenues from various bases, depending on population and where economic activity occurs. Fiscally stronger Länder and the central government contribute to an equalisation pool.

Assessments are generally based on actual revenues. Federal legislation determines the rate and base of most taxes. This ensures uniformity of tax laws across Germany, and means actual revenue raised reflects the capacity to raise revenue under average policy. Rates for land tax and local business tax are set at the municipal, or local government, level. Real estate transfer tax rates are set by Länder. While the rates for these taxes are set at the Lander or local level, the base or scope for them is set federally. The federal government determines which assets or transactions can be taxed. Assessed revenue from these taxes is calculated using a representative tax system approach.

A discount of 25% is applied to the land tax and local business tax assessments, as these are municipal rather than Länder revenues. Länder have responsibility for funding equalisation among their component municipalities but have no direct control over these taxes.

Germany includes only 33% of mining revenues in its equalisation formula. The 67% discount recognises there can be social and environmental costs to local citizens associated with mining, while the economic benefits of the industry are shared more widely.

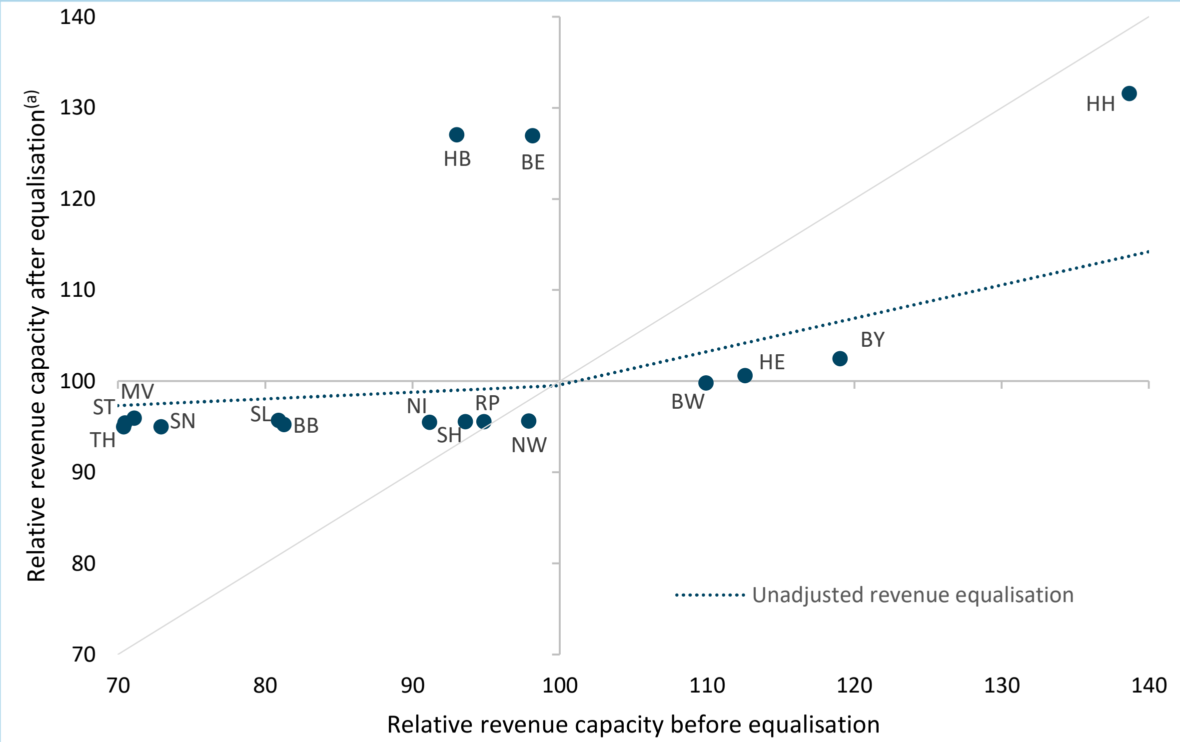
Germany's equalisation system takes some account of expense needs, with adjustments for sparsely populated Länder, port and transport infrastructure, disparities in federal research grants, costs related to high levels of unemployment benefits, unusually low municipal revenues, and administrative expenses of smaller Länder. The largest expense adjustment is for the metropolitan Länder (Berlin, Hamburg, and Bremen). They are treated as servicing 1.35 times their resident populations when calculating fiscal capacity. This accounts for higher demand on services, increased costs of service provision and services provided to non-residents.

Germany does not fully equalise fiscal capacity. Instead, it moves each Länder closer to the national average. Equalisation reduces fiscal disadvantage for Länder with below average capacity to 7.5% of their pre-equalisation disadvantage. It reduces fiscal advantage for Länder with above average capacity to 37% of their pre-equalisation advantage. The dotted line in Figure 3 shows this equalisation. The expense adjustments increase the post equalisation capacity of the three metropolitan Länder and reduce it for the other 13 Länder.

Figure 3 shows the equalisation outcome in Germany. Revenue equalisation moves Länder from the diagonal to the dotted line. Expense adjustments then favour the metropolitan Länder. For example, Thuringia starts with around 70% of the average revenue capacity.

- Revenue equalisation alone would bring it to 97% of the average revenue capacity.
- Expense adjustments result in it ending at 95% of the average revenue capacity.

Figure 3 German equalisation outcomes, 2019



Notes:	BW	-	Baden-Württemberg	HE	-	Hesse	SL	-	Saarland
	BY	-	Bavaria	NI	-	Lower Saxony	SN	-	Saxony
	BE	-	Berlin	MV	-	Mecklenburg-Vorpommern	ST	-	Saxony-Anhalt
	BB	-	Brandenburg	NW	-	North Rhine-Westphalia	SH	-	Schleswig-Holstein
	HB	-	Bremen	RP	-	Rhineland-Palatinate	TH	-	Thuringia
	HH	-	Hamburg						

(a) Revenue capacity after equalisation includes revenue from federal equalisation payments, resulting in a higher average capacity than before equalisation

Switzerland

Switzerland is a federation of 26 cantons, with populations ranging from 16,000 (Appenzell Innerrhoden) to 1.5 million (Zurich). Equalisation in Switzerland reduces differences in fiscal capacity among the cantons, Switzerland's subnational governments. This guarantees them a minimum level of financial resources and compensates for excessive costs due to factors outside their control. The Federal Department of Finance calculates and distributes equalisation payments.

Own-source revenues make up approximately 70% of canton budgets.[5] Individual cantons have access to a wide range of tax bases and operate different tax regimes. The fiscal diversity of cantons is greater than in the other case study countries. Switzerland's richest canton, Zug, has a revenue raising capacity of around 250% of the national average, while the corresponding figure is 65% in Valais, the poorest canton.

[5] Dafflon, B. (2020). Revenue and expenditure needs equalisation: the Swiss answer. In S. Yilmaz, & F. Zahir (Eds.), *Intergovernmental transfers in federations*. Cheltenham, UK: Edward Eldar Publishing, p. 136.

Switzerland has two distinct pools of equalisation funds. The pool for revenue equalisation is determined by the level of disparity between cantons, while the pool for expenditure equalisation is fixed. Cantons with above average fiscal capacity pay into the revenue equalisation fund. The size of their combined contribution is directly proportional to the size of the federal contribution.

The federal government allocates around 14% of Federal Direct Tax revenue for equalisation. In a separate tax sharing arrangement, a further 21% of this revenue goes to the cantons where the tax was collected. Wealthy cantons contribute to equalisation payments from their own sources and are net contributors to the system of equalisation payments. No canton contributes more to equalisation than it receives in Federal Direct Tax revenues.

Revenues from personal income, profits of legal entities and personal wealth taxes are assessed using a representative tax system approach. These represent about 80% of canton own-source revenue.

Expense equalisation is based on broad indicators of need, including social aid recipients, elderly residents, foreign residents, population density, productive land area, and altitude. The weights on demographic indicators draw from a statistical analysis, while the geographic indicators are determined through intergovernmental negotiation.

Cantons with below average revenue raising capacity receive scaled payments that preserve the order of capacity among cantons. This reduces the differences. In 2021, cantons with above average revenue raising capacities paid around 20% of their above average capacity revenue into the equalisation fund, and so retained most of their fiscal advantage. Valais, the canton with the lowest revenue capacity, increased from having 65% of the average capacity before equalisation to 84% of the post equalisation average[6] (see Figure 4).

In 2021, total revenue equalisation payments were five times larger than total expense equalisation payments. The dotted line in Figure 4 shows the distribution under the revenue equalisation formula. The effect of expense equalisation is the relatively small vertical deviation from that line.

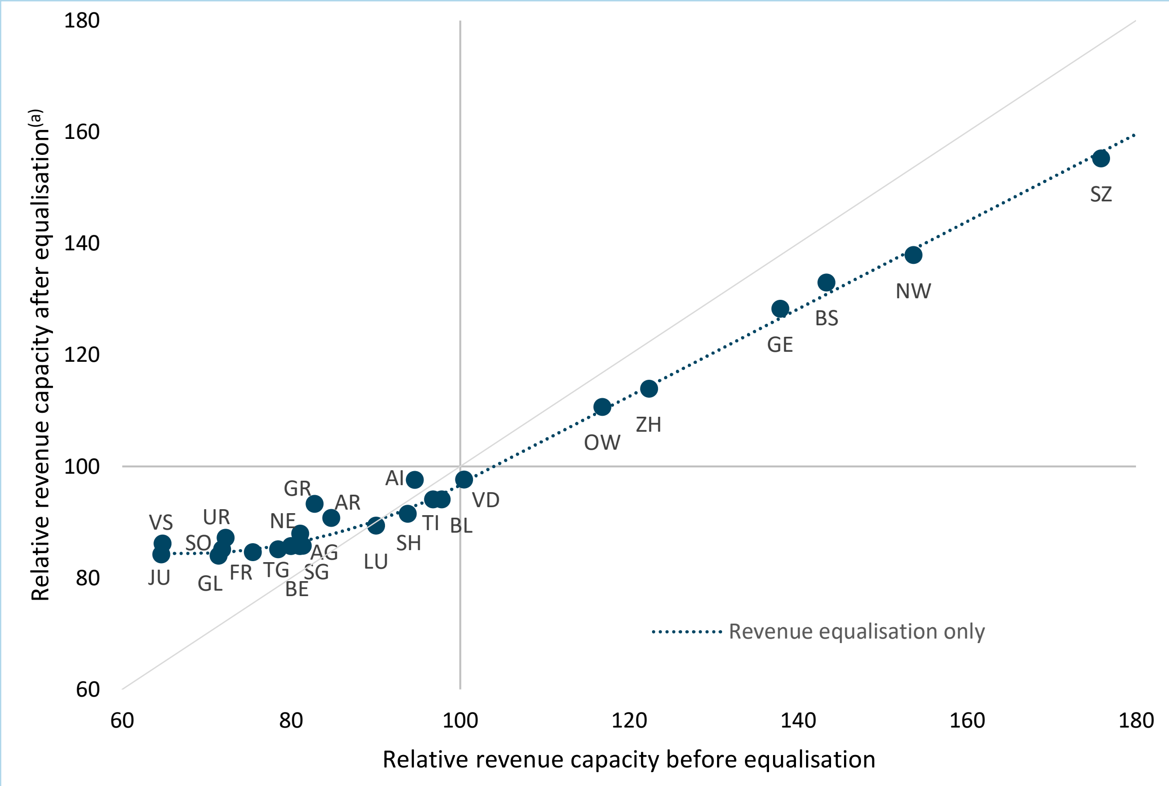
Figure 4 shows the Swiss equalisation outcomes. Revenue equalisation alone would place each canton on the dotted line, any deviation from that line is due to the expense considerations. For example, Valais starts with around 65% of the average revenue raising capacity.

- Revenue equalisation brings it up to 84% of the post-equalisation average revenue raising capacity.

[6] This average includes federal equalisation transfers in addition to assessed revenue capacity. 84% of the post-equalisation average equates to 87% of the pre-equalisation average revenue raising capacity. The Swiss revenue equalisation system guarantees each canton a minimum of 86.5% of the pre-equalisation average capacity.

- Expense equalisation then raises it to 86% of the average revenue raising capacity.

Figure 4 Swiss equalisation outcomes (2021 payments)



Note:								
AG	-	Aargau	GR	-	Graubünden	SZ	-	Schwyz
AI	-	Appenzell Innerrhoden	JU	-	Jura	TG	-	Thurgau
AR	-	Appenzell Ausserrhoden	LU	-	Luzern	TI	-	Ticino
BE	-	Bern	NE	-	Neuchâtel	UR	-	Uri
BL	-	Basel-Landschaft	NW	-	Nidwalden	VD	-	Vaud
BS	-	Basel-Stadt	OW	-	Obwalden	VS	-	Valais
FR	-	Fribourg	SG	-	St. Gallen	ZG	-	Zug (b)
GE	-	Geneva	SH	-	Schaffhausen	ZH	-	Zurich
GL	-	Glarus	SO	-	Solothurn			

(a) Revenue capacity after equalisation includes revenue from federal equalisation payments, resulting in a higher average capacity than before equalisation

(b) Zug (not shown) has 254% of the average revenue capacity before equalisation and 220% after. It receives negligible expense equalisation payments

Transfers can be vertical, horizontal or a mix

Vertical systems of equalisation involve a transfer of funds from higher to lower levels of government. Richer regions draw a smaller share from the pool of funds than poorer regions. Horizontal systems involve governments at the same level contributing to and sharing a common pool of funds. Richer regions contribute to a pool of funds while poorer jurisdictions draw from this pool.

Canada has an unequivocally vertical system, with the federal government creating an equalisation pool from consolidated revenue. It distributes this to provinces.

Australia also has a vertical system. The equalisation pool is a Commonwealth Government tax, the GST. The Commonwealth government has hypothecated this tax for distribution to the states in line with fiscal equalisation. This can lead to perceptions that the GST is a 'states' tax' and that the fiscal equalisation arrangements are a horizontal system.

The international literature classifies Switzerland and Germany as having horizontal elements. In Switzerland, the Constitution says that equalisation should aim to "encourage inter-cantonal cooperation on burden equalisation".[7]

In Switzerland, the federal government provides two-thirds of the equalisation pool and richer cantons provide the rest. In 2019, Zug contributed around 12% of its revenue raising capacity, which given Zug's low taxation effort, represents about 18% of its total revenue.

In Germany, revenue sharing between regions is a key component of intergovernmental fiscal relations. The three levels of government share most tax revenues based on the responsibilities of each level. Hence, Germany does not have significant vertical fiscal imbalance, and inter-regional fiscal transfers between 'donor' and 'beneficiary' Länder are necessary to achieve equalisation outcomes.

Reunification in 1990 deepened regional disparities in the existing system and increased the size of the equalisation task. This put pressure on the horizontal nature of the equalisation system. In response, the federal government increased its share in the equalisation pool, without an offsetting change in the revenue sharing. The federal government, not the Länder, bore most of the costs of the increased equalisation task.

[7] Dafflon, op. cit.

Resource endowments bring challenges for fiscal equalisation

Tax revenue from mining poses several challenges to the equalisation task, with countries responding in different ways. Canada and Germany both treat natural resource revenues differently from other state revenues. Australia has recently changed its equalisation arrangements in response to the effects of mining revenue on equalisation.

Minerals are unequally distributed within a country

Mineral resources are usually geographically concentrated, meaning some regions can generate significant revenues from mineral wealth, while others cannot.[8] When mining generates significant revenue for some regional governments, revenue raising capacities become more disparate and the size of the equalisation task can become larger. Australia's and Canada's fiscally strongest regions have large resource revenues. Nonetheless, with no mining revenues, Switzerland has a larger disparity in revenue raising capacity between regions than Australia, Canada and Germany. This reflects the disparate economies across Switzerland, with some urban cantons having strong pharmaceutical, IT and finance sectors.

The natural distribution of mineral reserves is often the dominant influence on a region's capacity to raise revenue from mining. Regional, and national, governments have some policy controls that can also influence the extent to which these reserves are exploited.

Assessments of mining revenue can pose challenges for equalisation

The concentration of mining revenues in certain regions puts other pressures on equalisation, in addition to increasing the equalisation task. Each system tries to minimise an individual region's choices about tax rates affecting the revenue it receives. However, where certain regions have a disproportionate share of a revenue base, their tax rates largely determine the national average tax rate on that base. This is notably the case for iron ore in Western Australia and the oil rich provinces of Canada.

These pressures can lead to policy changes.

Germany, Canada and Australia have all changed their equalisation systems in response to these challenges.

Mining is a very small source of revenue for German Länder, so it puts relatively little pressure on the equalisation system. Since 2020, Germany has only assessed one-third of mining revenue. This was primarily in response to concerns about the environmental, social and fiscal costs of mining.

[8] Besides constraints in the availability of exploitable natural resources, legislation and regulations are also important.

Over the past few decades, Canada has adjusted its approach to assessing natural resource revenues several times. In recognition of the challenges of applying a representative tax system approach to unevenly distributed resources, Canada's equalisation system now measures resource fiscal capacity based on partial inclusion of actual resource revenues within certain bounds. In addition, changes were made to control the federal government's exposure to volatility in its fiscal commitment. The current system has a capped pool linked to the growth of the economy, which means that volatile resource revenues do not lead to any volatility in the federal government commitment. Resource rich provinces tend to be fiscally stronger than average and so receive no equalisation payments. Therefore, the special treatment of resource revenue is mainly relevant for provinces that are overall fiscally weaker but have some resource revenue.

In recent years, there has been pressure for change in Australia. Volatility in the value of mining production was contributing to significant volatility in the GST share of some states, particularly Western Australia. This contributed to a policy change from the national government. Australia is now transitioning towards a system where no state will receive a per capita share of the GST revenue below that of the fiscally stronger of New South Wales or Victoria. A state that is fiscally stronger than New South Wales or Victoria will retain its fiscal advantage.

Revenue equalisation can influence policy choices

There is a risk that equalisation may result in an (adverse) incentive for regions to avoid improvements in their fiscal capacity. Some systems exacerbate this risk, while others mitigate it. The level of risk depends on the extent to which regions' policy choices can affect their equalisation payments.[9]

Where equalisation is based on actual revenues, each additional dollar raised can result in much of it being lost to other regions. In such a system, a region incurs all the wider economic costs of an increase in tax rates while only gaining its population share of the increase in revenue. To reduce incentive effects, equalisation systems generally use the representative tax system approach. In its 2018 report on horizontal fiscal equalisation[10] the Australian Productivity Commission outlined the conceptual case for adverse incentives even under a representative tax system approach, but it was unable to find evidence of states acting on these incentives in Australia.

The Australian Productivity Commission noted that researchers have found empirical evidence of such incentives in Germany and Canada. German reforms have allowed Länder freedom to set their own rates for the highly

[9] The extent of this is known as the marginal rate of equalisation. This is measured as the dollar value of the decrease in equalisation payment associated with a dollar increase in revenue raised.

[10] Productivity Commission (2018). *Horizontal Fiscal Equalisation, Report no. 88*, Canberra.

elastic[11] real estate transfer tax since 2007, while tax rates on most other taxes continue to be set by the federal government. In the first decade following the change, there were 26 increases in the real estate transfer tax rate among the 16 Länder.[12] These increases could reflect Länder responding to incentives.[13]

Since Germany does not fully equalise revenue raising capacities, equalisation payments provide different levels of incentive in different Länder, at different times.

If a Länder increased its tax rate on the highly elastic real estate transfers tax base, the tax base would shrink. The resulting increase in equalisation payments would be larger for a Länder with below average capacity than for a Länder with above average capacity. Länder with below average capacity have shown a greater propensity to increase this tax. This supports the proposition that Länder respond to incentives created by the equalisation system.

Similar research found that Canadian provinces also appear to be influenced by the incentive to raise taxes on elastic bases when deciding tax rates.[14] Other studies[15] considering rate changes over time, rather than between provinces, also found that provinces change tax rates at least in part in accord with these incentive effects.

Compliance efforts can affect a region's equalisation payments

In Germany, the federal government sets tax rates on most taxes. All Länder therefore have identical tax rates on these taxes. However, Länder have some control over their effort at enforcing tax compliance. Researchers[16,17] have found a relationship between the marginal rate of equalisation and tax enforcement effort. A Länder's choice of the appropriate level of tax enforcement is a complex one, responding to a range of factors. However, there is some evidence that the effect of the equalisation system can be a factor.

In Australia, the Commonwealth Grants Commission generally measures tax bases using reliable data from independent sources, such as the Australian Bureau of Statistics, the national statistics agency. However, sometimes data on the size of a tax base reflect states' tax efforts. In theory, this could mean that if a state spends above average effort

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[11] Frenzel Baudisch, C. & Dresslhaus, C. (2019). Impact of the German Real Estate Transfer Tax on the Commercial Real Estate Market. Hamburg: Leibniz Information Centre for Economics.

[12] Buettner, T. & Krause, M. (2021). Fiscal equalisation as a driver of tax increases: empirical evidence from Germany. *International Tax and Public Finance*, 28, pp. 90-112.

[13] Conceptually, an increased tax rate may result in a shrinking taxable base which in turn can have a negative effect on tax revenues (and economic outcomes) and a positive effect on equalisation payments.

[14] Ferede, E. (2017). The Incentive Effects of Equalization Grants on Tax Policy: Evidence from Canadian Provinces. *Public Finance Review*, 45(6), pp. 723-747.

[15] Smart, M. (2007). Raising taxes through equalisation. *Canadian Journal of Economics*, 40(4), pp. 1188-1212.

[16] Bönke, T., Schröder, C. & Jochimsen, B. (2017). Fiscal Equalisation and Tax Enforcement. *German Economic Review*, 18(3), pp. 377-409.

[17] Troost, A. (2016). Does Fiscal Equalisation Among Germany's Federal States Remove Their Incentive for Tax Enforcement? *Wirtschaftsdienst*, 96(9), pp. 660-666.

enforcing compliance with a tax, after equalisation it would only retain about its population share of any additional revenue raised. While there is a conceptual concern, there is no known research investigating states acting on this incentive in Australia.

Broad indicators are not the solution

One strategy sometimes suggested to reduce the potential for regional policies to influence their equalisation payments is to use broad indicators of revenue raising capacity such as gross state product, rather than the direct measures of the tax bases.

In 2006, Canada rejected a macro-indicator approach because it was unable to accurately measure actual tax capacity. In 2007 Switzerland replaced macro indicators with a representative tax system approach to improve accuracy and reliability. Due to German Länder having limited policy control over their taxation, macro indicators offer a limited increase in policy neutrality. In Australia, the Commission has also considered, but never implemented, a macro-indicator approach.

Partial equalisation reduces disincentives

All countries examined in this paper are comprehensive in the sense that they consider all sources of revenue. However, Canada, Germany and Switzerland do not fully equalise revenue raising capacity. This means that jurisdictions retain more than their population share of any revenue raised. Proponents say this provides fairness and an incentive for efficiency. When equalising among territories,[18] the Canadian government excludes 30% of all measured revenue capacity to incentivise territories to increase their own revenues.

All systems have moderate to high levels of equalisation among regions with below average capacity. However, regions with above average capacity are often less affected by equalisation. In Canada, the federal government makes payments only to provinces with below average fiscal capacity. Non-recipient provinces have no vested interest in the payments other than the total cost to the federal budget. This removes incentive effects on tax policy for the non-recipient provinces. In Switzerland, cantons with above average capacity face a marginal equalisation rate of only 20%.

Germany reduces the incentive effects of policy changes without significantly reducing the level of fiscal equalisation. To encourage compliance effort, in the assessment of Länder's fiscal capacity, any increase in a Länder's revenue from the previous year is discounted by 12%.

Australia does not currently make any adjustments to its approach to assessing revenue to mitigate disincentives created by equalisation. However, the Commission has noted that if the reform policies of an

[18] Canada has separate equalisation systems for its provinces and its territories.

individual state were to have a material effect on its GST share then, in keeping with the policy neutrality principle, it may be appropriate to consider mitigating such effects.[19] Under the 2018 legislated arrangements, payments to Western Australia may not be directly affected by its circumstances, in which case it faces no equalisation-related incentives.

Volatility and lags can cause challenges

Full and accurate data are generally not available in real time. It is therefore not possible to pay equalisation payments in a year based on the fiscal needs in that year. Instead, Switzerland, Canada and Australia all estimate the fiscal circumstances of each state using data from three previous years, with varying lags. Germany operates under a different system, of advances and completions. It provides an allocation in a year for that year. In following years, as data become available, payments are subsequently adjusted.

While the use of lagged and averaged data can provide regions with some certainty in revenue flows, the timing mismatch between economic circumstances and equalisation payments may have some pro-cyclical effects. When a region is experiencing a structural shift or an economic shock, its equalisation payment can vary significantly from its equalisation requirement. Effectively, this mismatch increases the risk that a contractionary fiscal phase coincides with declining equalisation payments.

If payments reflected (perfectly) contemporaneous data, the system would be more responsive to evolving regional inequalities. Equalisation payments would reduce volatility of total all-source revenue, at least for the region with the most volatile own-source revenues. However, in the case of a nationwide economic shock, equalisation payments would not shield regions from declining own-source revenues without the federal government bearing the fiscal cost.

Equalisation reduces differences in post-equalisation fiscal capacities between regions over the medium term. However, under some circumstances, it can exacerbate differences in fiscal capacities in a particular year. Smoothing equalisation payments by calculating each region’s circumstances over a longer period can mitigate this. Ultimately, the choice of smoothing (the length of the moving average and/or the use of weighting) is a balance between predictability and contemporaneity with economic developments.

[19] Commonwealth Grants Commission (2021), Occasional Paper no. 3: Mining revenue and the GST distribution.

Expense equalisation can be approached in different ways

Apart from Australia, the countries discussed in this paper tend to focus more on revenue rather than expense equalisation. Nonetheless, their approaches illustrate some of the issues regarding expense equalisation.

Australia has comprehensive expense equalisation. Germany and Switzerland have some expense equalisation, but with less detail.[20] In part, this reflects that the Germans and Swiss negotiate their methods for calculating expense equalisation, rather than referring these calculations to an independent agency.

In Canada, provincial autonomy has prevented the broad use of expense assessment in the equalisation system. Provinces have expressed concerns that expense equalisation may invite federal oversight of provincial affairs.[21] Canada does, however, equalise expense needs for its three arctic territories. Expense needs in the territories, with their large Indigenous and remote populations, are generally higher than in the provinces.

In Germany, special purpose transfers compensate the specific needs of different Länder (for example supporting the unemployed).

Australia has similar tied grant programs, most notably with education and health national partnerships, which are needs-driven. However, because Australia equalises all expense needs, it also equalises the associated grants. Effectively, the equalisation system indirectly incorporates most of Australia's tied grants.

The Canadian federal government also supports provinces' needs through the Canada Health Transfer and the Canada Social Transfer programs. However, while tied to programs, these payments are explicitly not equalising. They are allocated on an equal per capita basis across all provinces.

Following reunification in 1990, the disparities between East and West Germany led to substantial changes in the system to address the needs of the 'new' Länder. The Eastern Länder were economically less developed and had high emigration and hence declining tax revenues. The need for "uniformity of living standards throughout the federal territory" as mandated in the Basic Law, required "unimaginable needs for infrastructure improvements".[22] Equalisation is usually focused on providing comparable services, or comparable new infrastructure, within the year the funding is made. Germany has an equalisation type program aimed at converging economic, not just fiscal, circumstances. Eastern

[20] Dougherty, S. & Forman, K. (2021). Evaluating fiscal equalisation: finding the right balance. *OECD Working Papers on Fiscal Federalism, no. 36*, Paris: OECD publishing. pp. 11, 26.

[21] Expert Panel on Equalization and Territorial Formula Financing (2006). *Achieving a National Purpose: Putting Equalization Back on Track.* Ottawa, Ontario: Department of Finance Canada, pp. 65-66.

[22] Gunlicks, A. (2002). The impact of unification on German Federalism. *German Politics, 11*(3), p. 139.

Länder received funding to construct housing and infrastructure, provide business development, and pay old loans.

The Australian government sometimes instructs the Commission to exclude payments from equalisation (referred to as 'quarantining'). This may be where the national interest is served by some states having a capacity to provide services above the national average. In the 2021 Update of GST Sharing Relativities, the federal treasurer quarantined a new payment for remote housing in Queensland from equalisation. This gave Queensland the capacity to provide above average standard remote housing, while still being able to provide other services at the national average standard.

In addition to providing support to regions, central governments also spend money in regions for their own purposes. The principle of universality drives much of this spending. For example, the federal government provides social security payments to all individuals who qualify, regardless of where they live. For economic and demographic reasons, some regions will have more people receiving these benefits than others and will attract a higher share of this central government expenditure. This distribution has the same effect as equalising expense needs.

Australian equalisation is similar but different

Table 2 summarises some of the key elements of equalisation in the countries discussed in this paper. The importance of regional governments in the national economy is generally similar across these countries, although in Canada regional governments are significantly larger. All follow a representative tax system approach in their revenue assessments.[23] Finally, while the size and allocation of the equalisation pool vary between countries, all systems support regions' fiscal autonomy through untied grants.

Australia also shares some challenges with other federations, such as volatility, sensitivity about resource revenues, and potential policy incentives.

However, Australia stands apart from the other countries in three important ways. First, the degree of vertical fiscal imbalance is higher than in the other three countries. The federal government directly or indirectly funds almost half of state expenses in Australia. Second, Australia is the only country that equalises comprehensively and follows the same approach for both revenue and expense equalisation. Last, in Australia an independent agency assesses fiscal capacities and recommends to the Commonwealth Treasurer the distribution of equalisation payments.

[23] While in Germany taxes are set at the federal level and are therefore the same across *Länder*, for equalisation purposes this can be treated as a 'fixed' RTS system where average and actual tax rates are the same.

Table 2 Features of equalisation in selected countries

Feature	Australia	Canada	Germany	Switzerland
Vertical fiscal imbalance % (a)	45	20	15	25
State expenses % GDP (2019)	14	22	13	13
Revenue equalisation	Yes, representative tax system	Yes, representative tax system	Yes, actual revenue, but equivalent to representative tax system.	Yes, representative tax system
Expense equalisation	Full equalisation of expenses	Not for provinces. Territory expenses equalised	Simple adjustments for special circumstances	Broad indicators of expense need
Formula derivation	Independent agency within legislated framework	Federal legislation	Solidarity Pact	Federal government
Pool determination	Hypothecated tax stream	Indexed pool	Fiscal gap filling	Fiscal gap filling with a fixed pool for expense equalisation

(a) Federal transfers to states as a proportion of state expenditure.
Source: Commonwealth Grants Commission.

Conclusion

A comparison of equalisation systems between different countries requires careful consideration of the broader context within which such systems take shape. A country's history, economics, politics, geography, and demography influence the architecture of each equalisation system. Despite the observed variation, all the systems examined in this paper, with their respective strengths and weaknesses, attempt to follow a set of universal principles: equity, efficiency, and pragmatism. While no single 'model' can emerge from the approaches observed internationally, some informative insights can be drawn.

Natural resources are a major source of income for some regions. Resource revenue can produce significant disparities between regions and increase the size and sensitivity of the equalisation task.

Revenue equalisation needs to be designed carefully to avoid policy disincentives. International experience suggests that a representative tax system approach generally strikes a pragmatic balance between accuracy, transparency and policy neutrality.

Equalisation systems need to manage volatility while not exacerbating data lags. A balance can be achieved by basing payments on an average of circumstances over several years.

Of the countries considered, only Australia comprehensively addresses disparities in expense needs within the equalisation system. Australia is also unusual in its governance arrangements, with an independent body responsible for producing evidence-based recommendations.