1 What is HFE? — A review of the literature

This Chapter aims to present the theory of fiscal equalisation in an accessible way for the benefit of future policy makers by providing a non-technical guide to the major debates and unresolved questions. Other useful overviews of the literature include Hancock and Smith (2001), Boadway (2004), and Boadway and Shah (2007).

1.1 The essence of the debate

The idea of fiscal transfers within a federation to support fiscally weaker subnational jurisdictions (hereafter referred to as 'States') greatly preceded the development of the 'modern fiscal equalisation literature'. Provision of basic support to fiscally weaker States was, for example, a key issue in the lead up to the Federation of Australia in 1901 and led to formal arrangements for ongoing assistance to States through the establishment of the Commonwealth Grants Commission (CGC) in 1933.

Early discussion of equalisation transfers in Australia focused on practical and political issues such as ensuring the continued viability of all States, supporting a minimum standard of services and compensating for any losses in revenue associated with joining the federation. As such, the debate was centred on assisting States themselves rather than on delivering equity for their citizens.

In contrast, the modern fiscal equalisation literature focuses on interpersonal equity and locational efficiency. Buchanan (1950) argued that federal systems of government require fiscal transfers to offset the uneven distribution of taxpayers and service recipients between States. Without such transfers, identical people in different States would face higher taxes or lower services even if States attempt to apply identical policies. This would lead to inequitable treatment of individuals in like fiscal circumstances when compared with a unitary State and, in turn, to inefficient incentives to migrate based on fiscal differences rather than market forces.

Much of the subsequent literature extends and endorses Buchanan's basic theory and arguments. However, there are contrary views and arguments. First, there is concern that implementing a system of equalisation transfers creates its own problems by distorting State policy incentives. There is also debate about the merits of Buchanan's equity principle, with some disputing whether full interpersonal equity is supported by the nature of all federal compacts and others suggesting that differences in underlying wealth rather than fiscal differences should be the basis for equalisation transfers. Even Buchanan (2002) later softened his initial arguments, stating that final judgment must be pragmatic and must take into account the facts on the ground in particular settings.

1.2 Early discussions

It is unclear where the idea of transfers to support fiscally weaker states originated, but it was a key issue in the broader debate about the formation and functioning of federations in Australia and Canada, and probably elsewhere. It appears that the early rationale for these transfers was largely to ensure that all States would benefit from joining the federation. There was also a general concern with equity among citizens, particularly with ensuring that all States could fulfil their constitutionally mandated responsibilities to a minimum standard.

Smith (1993) provides a comprehensive summary of the initial debates about fiscal transfers in Australia. She says that a key question in the lead up to federation in 1901 was how to ensure the continued viability of the smaller States after federation while still being fair to the large States.

Much of the focus around the time of federation was on the distribution of any surplus federal revenue between States. Consideration was initially given to whether the revenue should be distributed based on where it was collected, or the number of citizens in each State (per capita). Smaller States were concerned that they would not be viable under collections-based methodology, but the large States were opposed to a per capita distribution. The compromise reached was that revenue would be distributed on the basis of historical collections, which allowed States that had relied on taxing interstate trade to have more revenue returned to them. To this end, Western Australia was also allowed to continue to impose tariffs on goods from other States for a further five years. Arrangements were also made to allow the Commonwealth to make special assistance payments to any State if it deemed it necessary.

Another issue was how much of the federal surplus would go to States. The smaller States successfully argued that 75 per cent of Commonwealth revenues should be available to States. However, New South Wales was opposed to long-term continuation of this scheme, so it was set to expire in 1910.

Immediately after federation, the smaller States argued that, with the prospect of guaranteed access to the federal surplus disappearing in 1910, the financial clauses were unfair to them. These concerns came to a head in 1909 and 1910 in the debate about the introduction of a Commonwealth age pension, which would require a significant part of the Commonwealth's surplus revenue. Faced with the prospect of competing with the Commonwealth for tax revenue, the States agreed to a legislative guarantee of 25 shillings per capita of Commonwealth revenue for a further 10 years.

The agreement between the Commonwealth and States on the pension also allowed smaller States, which did not have the revenue to introduce their own age pension, to make a lesser contribution to the costs of funding the federal age pension. Smith (1993) argues that this is the first acknowledgement of interregional transfers on the basis of nationhood principles and the need to ensure some minimum level of service for all.

Between 1910 and 1920 large additional payments were also made to Western Australia and Tasmania, though these were seen as compensation for reduced customs revenue, rather than payments to address fiscal disadvantage.

Widespread use of fiscal transfers on the basis of 'need' began in the 1920s.[1] In 1923, the Commonwealth introduced payments for roads under a formula that particularly

1 The concept of 'need' that was used at this time was relatively general in comparison to the technical definition now used by the CGC, based on capacity to achieve average policy.

benefited the less populous States and was seen as being given to States whose needs and responsibilities exceeded their revenue raising capacity. It was also increasingly recognised that economic and fiscal differences between States were persisting after federation, rather than their capacities converging (as had been envisaged).

In 1926 the Lockyer Inquiry was established to examine Tasmania's need for further grants assistance. Tasmania's submission to the Inquiry argued for grants on the basis that weaker States in a federation are subject to persistent economic and fiscal differences. This included the concern that in a federation it was difficult to avoid raising standards of public services to match other States. The Inquiry recommended assistance to Tasmania based on capacity and the cost of providing necessary services conditional on certain tax reforms.

South Australia also requested consideration of its needs for special assistance to enable it to maintain the standard of progress of wealthier States. A Royal Commission established to investigate this issue reported in 1929, endorsing assistance on a similar basis to that for Tasmania.

Problems with the ad-hoc and political nature of ongoing payments led to the establishment of the CGC in 1933 to put payments on a more systematic footing. The CGC rejected the earlier principle of compensating for disabilities arising from the effects of joining the federation as it was generally agreed that, with the passage of time, such difficulties had become impossible to track. The CGC instead focused on the principle of fiscal need.[2] However, the idea was to provide for a minimum standard and the basis for determining this was explicitly stated to be the positions of State governments rather than individuals (Smith 1993).

Perhaps the closest foreshadowing of Buchanan's later concerns is Giblin (1930), referred to in Smith (1993), who argued that Tasmania was losing population to the mainland, making it hard to maintain public services within tolerable tax levels.

1.3 The basic case for equalisation

In these early discussions, the nature and extent of equalisation transfers were largely a matter for judgement. In contrast, Buchanan (1950) provides a more systematic foundation for equalisation.

Buchanan begins by identifying the following problem with federal systems of government. States generally adopt redistributive policies (that is, they tax some individuals[3] and use the revenue to provide services to others), creating differences between the taxes paid by different types of individuals and the level of services they receive. These differences are later described as 'net fiscal benefits' (NFBs). If taxpayers and service recipients are unevenly distributed between States then some States would

2 Again, the definition of fiscal need was a general one, to be contrasted with the past focus on compensation, rather than the technical definition of need now employed by the CGC.

3 In this context, companies and their shareholders can be thought of as types of individuals.

have to levy higher taxes to deliver the same services.[4] This means that some people would face higher taxes for the same services, or receive lower services for the same taxation level than otherwise equal people that live in a different State, even if those States attempted to apply identical policies. In other words, because States engage in redistribution, if they have different compositions of citizens — which is very likely — individuals who are otherwise identical will have different NFBs.

Buchanan then points out that if those same taxing and spending policies were applied by a single central government rather than separate States with different compositions of people within their borders, those differences in NFBs would not arise. He argues that it is inequitable and inefficient for individuals within a single political and economic union to be treated differently solely because of State borders. He says that individuals in like circumstances should receive the same fiscal deal, just as individuals in like circumstances should receive the same treatment before the law. He also argues that arbitrarily different treatment is inefficient because individuals could be motivated to migrate between States on the basis of fiscal differences rather than locating where they are most productive and happy.

Buchanan explains that these concerns can be addressed by transfers to offset differences in NFBs resulting from the uneven distribution of taxpayers and service recipients between States. In fact, Buchanan (2002) later observes that it is in the interest of the State with the higher NFBs to 'pay'[5] the citizens of the State with lower NFBs *not* to migrate, noting that the most direct solution would be to provide transfers directly to individuals. For example, he considers whether the federal government could levy higher taxes in one State and use the proceeds to provide compensation in another. However, he acknowledges that this would be impractical and may undo State level redistributive decisions. Therefore, he proposed the establishment of a system of equalising fiscal transfers to State governments, to provide them with the *capacity* to provide horizontal equity for their citizens, even if the system cannot ensure that outcome actually occurs without violating the sovereignty of State governments.

1.4 Further work on equity

Some subsequent works have challenged the strength of horizontal equity as a moral principle, while others have suggested that something other than horizontal equity should be the driving force behind fiscal transfers.

Challenges to horizontal equity as a moral principle

A number of authors have disputed the moral force of Buchanan's notion of horizontal interpersonal equity.

4 Petchey and Walsh (1993) outline other possible sources of NFBs including cross subsidies through non-marginal cost pricing in the provision of services like water, electricity and transport, economic rents from government trading enterprises and differences in the cost of service provision.

5 Or as Buchanan put it in an interview in 2001, to 'bribe people to stay in the poorer regions'. http://www.aims.ca/en/home/library/details.aspx/359 accessed 22 June 2012.

Sovereignty based objections

Petchey and Walsh (1993) argue that the standard literature ignores the differences in societal values underlying the different degrees of equalisation that occur in different countries. They say that true federal systems are the result of a compact between autonomous political units and cannot simply be treated as a unitary State that has chosen to devolve responsibility to a subnational level.

Essentially returning to earlier justifications for equalisation, they argue that the case for equalisation can be derived in several ways:

- based on compensation for the effects of joining a federation, including the loss of an independent exchange rate and monetary policy to facilitate adjustment to economic shocks
- due to converging expectations for services post federation
- to facilitate regional economic convergence and promote social cohesion
- to ensure the viability of each State and promote conditions for effective interstate competition with all States on an equal footing.

Petchey and Walsh (1993) suggest that, for these reasons rational State governments should support a system of full and comprehensive equalisation regardless of the standard horizontal equity argument. However, observations show in practice a strong tendency of donor States in all federations to support a reduction in the level of equalisation. In any case, Walsh (2011) later expresses the view that there may not be sufficient unity within the Australian Federation to justify full equalisation. His reasoning is that State citizens are likely to feel that they have some 'property rights' in the relative fiscal strength of their jurisdiction.

Objections to cost equalisation

Brennan and Pincus (2010) endorse the idea of horizontal equity as a general principle. However, they argue an unreasonable commitment to interpersonal equity is required to justify equalisation on the basis of cost factors. Pincus (2011) goes on to argue that this means that the Australian system should not equalise for interstate cost differences, including those related to economies of scale in the distribution of the fixed costs of local government.

Equalising for past policy differences

An area that has not received much attention in the literature is how to deal with fiscal capacity differences that arise from past policy choices. In some instances, States may have lower (or higher) fiscal capacity because of past policy failures (or successes). Hancock and Smith (2001) suggest that perhaps States should receive compensation for past policy failures. If they do not, then individuals in States that now adopt the same set of policies may receive different outcomes, which may distort migration incentives. On the other hand, States may be less inclined to make good policy decisions if they know that failures will be compensated through equalisation. Hancock and Smith argue that, even on equity grounds, there is a limit to how long a State's current population should continue to be held responsible for the decisions of past governments.

Different definitions of capacity to provide horizontal equity

Buchanan supported the idea of transfers to State governments to provide the capacity for interpersonal horizontal equity. He explained that this involves transfers to enable all States to adopt the same tax and service policies. This raised the question of what to do when States adopt different policies (as they often do in practice), which led to the aim of providing transfers so that States could implement the average policy. The rationale is that if the goal of equalisation is to ensure the same policy choices in different States achieve the same results, then the States should achieve different outcomes only to the extent they make different policy choices.

Various authors have raised concerns with basing equalisation transfers on the amount required to achieve average policy, particularly on the revenue side.

Barro (1986, 2002) argues that all tax is ultimately paid from income of individuals so this is what should be used, not just the tax bases that governments can access. Collins (2000) makes a similar argument, as does Usher (1995, 2002). Usher is particularly concerned about the possibility of transfers from 'poorer' to 'wealthier' jurisdictions by looking at the revenue raised by States, rather than income. To illustrate Usher's concern, Wilson (2007) notes that in Malaysia equalisation based on average policy would redistribute funds away from Sabah and Sarawak even though they have much lower than average income because they have the largest share of revenue from petroleum resource rents and few other revenue sources are allocated to the States. Garnaut and FitzGerald (2002) raise a similar point when they criticise the Australian equalisation system for redistributing funds to the Australian Capital Territory even though it is the State with the highest per capita income.[6]

Barro (1986, 2002) proposes that the best measure of fiscal capacity is the total resources available to a State, modified by transfers from the federal government and the possibility of exporting the burden of some taxes to non-residents. Usher supports Barro's adjusted measure, but suggests there may be an additional need for imputation for leisure. Abelson (2010) makes a similar suggestion, focusing in particular on adjustments for transport costs. Albouy (2012) suggests a need to adjust for differences between nominal and real incomes, though it is not clear that he is arguing for an approach based on underlying capacity.

Boothe and Hermanutz (1999) and Smart (2002) also object to the link between capacity and government policy, but they propose relatively simple 'macro' measures based on State shares of gross national income (GNI) or personal disposable income.

Aubut and Vaillancourt (2001) and Wilson (2007) respond that all of these proposals serve an objective of redistribution, rather than equalisation — instead of equalising the capacity to provide comparable levels of public services at comparable levels of taxation, they attempt to level per capita national income. They argue that the proposals put forward by Barro and others would result in transfers to States with lower average incomes. This may deliver a similar result if States simply taxed income, however, if

6 The main reasons that the Australian Capital Territory is assessed as having below average revenue raising capacity is that it has no access to mining revenue and has a much greater proportion of untaxable government payrolls than other States.

States raise their revenue elsewhere, then States with low incomes may already be able to provide the average level of services. Alternatively, transfers on the basis of income may under represent the lack of capacity in low income States.

The source of some of the debate about this issue may be loose use of terminology. Buchanan (1950) appears to propose some objective measure of capacity based on wealth, though he emphasises that the key is equalising NFBs. Similarly, Boadway (2004) also talks about equalising differences in wealth, despite rejecting macro indicators of capacity. Additionally, although Wilson rejects an underlying measure of capacity, he does write about the need to equalise potential revenue. However, he is simply saying that capacity should be assessed based on average policy, so that, for example, States with lower tax rates do not receive additional transfers because they are receiving less revenue.

Benchmarking State capacity against what States could do, say if they adopted some ideal set of policies, would increase equalisation transfers to States that have a lower capacity under that ideal set of policies than they have when assessed against the average of current policies. States that benefit under this approach would not necessarily be those that come closest to adopting the ideal policies, nor would States that took steps to implement reform see any increase in their equalisation transfers.

1.5 Further work on efficiency

Buchanan argued that equalising transfers promote efficiency by offsetting incentives to locate based on arbitrary differences in fiscal capacity. Much of the subsequent literature on the efficiency of equalisation transfers is devoted to formalising and critiquing this idea. The other key theme, particularly in more recent work, is whether a system of equalisation transfers reduces efficiency by distorting State decisions.

Fiscal equalisation and migration

Buchanan and Wagner (1970), Buchanan and Goetz (1972), Flatters, Henderson and Mieszkowski (1974), and Boadway and Flatters (1982) support and formalise the theory behind Buchanan’s initial claim that equalisation promotes more efficient settlement patterns. However, a number of possible limitations have also been raised.

Could equalisation transfers distort migration decisions?

Independently of Buchanan, Scott (1950) argues that fiscal transfers counteract market incentives for individuals to move where they are most productive. Buchanan (1952) initially responded by showing that not all transfers distorted decisions. In particular, equalisation transfers correct for distortionary fiscal incentives, but do not change an individual’s incentive to locate where they are most productive or have the highest amenity. Buchanan and Wagner (1970) later acknowledged Scott (1950) was focusing on the effect of fiscal transfers in an economy that was not in a long-run equilibrium.

The key point here is that, if an economy is in disequilibrium then fiscal incentives may enhance incentives for necessary structural adjustment, though this would largely be by happenstance and would become distortionary over time. Ergas and Pincus (2011) further develop the idea that fiscal incentives could encourage structural adjustment, arguing that fiscal incentives that would otherwise distort settlement patterns may be efficiency enhancing if they counteract other distortionary policies, such as labour market policies that reduce interregional wage differentials.

Is it distortionary to equalise for cost differences?

Boadway (2004), and Brennan and Pincus (2010) argue that one area where equalisation could distort settlements is in relation to cost equalisation. They argue that if some locations cost more to service then this should be allowed to influence settlement patterns and not be offset by equalisation payments. Petchey and Walsh (1993) note that equalising for cost can be efficiency enhancing as long as it only provides capacity to treat similar high cost locations in the same way.

Does equalisation produce optimal incentives?

Buchanan and Goetz (1972) show that equalisation can be efficiency enhancing, but also note that equalisation cannot be relied upon to generate the optimal migration pattern, given the potential for both positive and negative non-fiscal externalities. For example, equalisation cannot offset externalities in relation to traffic congestion. Buchanan (2002) re-emphasises this point in reflecting on his contribution to the fiscal equalisation literature and Petchey (2009) makes a similar argument.

Does equalisation promote locational efficiency if States adopt different policies?

Buchanan (2002) also adds a further caveat that if States do not adopt the average policy then their citizens will still face fiscal incentives to move. For example, he noted that a State with relatively more poor citizens may adopt tax policies which are detrimental to wealthy residents, causing them to leave despite the existence of equalisation transfers. On the other hand, a key motivation for having a federal system of government is to allow some policy variation, both to accommodate differing local preferences and to promote policy competition (which equalisation facilitates by ensuring that all States have the fiscal capacity to compete on the same footing).

Is equalisation unnecessary because fiscal benefits are capitalised into land values?

Feldstein (1970) argues that any differences in NFBs would be capitalised into the value of land, and so would not induce inefficient settlement patterns. However, Flatters, Henderson and Mieszkowski (1974), in investigating how to determine a region's optimal population, show that Buchanan's concerns hold even in a model where land is fixed and labour is mobile. Shah (1988) points out that most federations do not fulfil the conditions necessary for full capitalisation to occur (namely, small open areas and costless mobility).

Fiscal equalisation and State policy

Another key criticism of equalisation transfers is that they distort the decision making of State governments. These concerns are discussed below in several categories.

Rate effects

Courchene and Beavis (1973) point out, in the Canadian context, that equalisation creates an incentive for States to have higher taxes in areas where they have below average capacity (and vice-versa). In essence, these incentives occur because if the average revenue raised increases, so does the amount that must be transferred to give

States equal capacity to achieve average policy. This means that States gain by increasing tax rates where they have below average revenue raising capacity or decreasing tax rates where they have above average capacity. Courchene and Beavis note that the size of these incentives can be substantial, but do not know to what extent States actually respond. Subsequent work emphasising the existence of these effects includes Bird and Slack (1990), Courchene (1994), Usher (1995), Petchey (1995), Swan and Garvey (1995), and Petchey and Levtchenkova (2004).

Petchey (2009) notes that most studies have focused on the effects of revenue equalisation, but many countries also practice expenditure side equalisation, which raises similar issues.

Base effects

Smart (1998) demonstrates that equalisation reduces a State's perceived marginal cost of public funds by compensating for any reduction in the size of a tax base that occurs when tax rates increase.

Kothenburger (2002), and Bucovetsky and Smart (2006) argue that this could actually improve efficiency by eliminating the benefits of inefficient interstate competition. Competition can occur because a tax cut in a single State causes an inflow of the tax base to that State, which will offset some of the revenue lost from the tax cut at the expense of other States. Cai and Treisman (2004) provide some practical evidence from Russia, China and the US on the costs of inefficient interstate competition.

There is no overall consensus on this issue. Bucovetsky and Smart (2006) acknowledge that equalisation could undermine efficiency to the extent that it compensates for losses to the country as a whole (rather than just movement of resources between States). Additionally, Ergas and Pincus (2011) argue that the downward bias from interstate competition may help to compensate for an upward bias that occurs because States fail to take into account the negative effect that an increase in State taxes has on the federal tax base.[7] However, empirical analysis of Hayashi and Boadway (2001) suggest that this vertical interaction may actually drive State taxes down, as increases in federal taxes lower their capacity to levy their own taxes.

Smart (2007) examined the history of Canadian tax rates and found evidence that Provinces that received equalisation payments were more likely to have higher taxes, and this was influenced by changes in the equalisation system from 50 to 100 per cent. Hayashi and Boadway have similar findings. Other research, supporting a link between fiscal equalisation and incentives includes Esteller-More and Sole-Olle (2002), Buettner (2006), Dahlby and Warren (2002) and Snoddon (2003).

The flypaper effect

Henderson (1968) and Gramlich (1969) identify an issue with untied fiscal transfers that has come to be known as the 'flypaper effect'. They note that when an individual's income increases only the proportion paid in taxes is used to fund public services — the rest is used for private savings or private consumption. They say that increases in government income from non-tax sources (such as fiscal transfers) should be distributed

7 Keen (1998) provides a summary of the literature on these vertical tax externalities.

in a similar way (that is, most of it should be returned to individuals through tax cuts). However, they find that, in practice, grant revenue tends to stick with government, (as flies to 'flypaper') and only a small proportion is returned to individuals as tax cuts.

There is an enormous literature on the flypaper effect. Most summaries of this literature[8] suggest that increases in personal income increases public spending by two to five cents for every dollar, whereas transfer payments increase public spending by 30 to 100 cents. Typically, this result is presented as an undesirable consequence of voter ignorance and self-interested governments that seek to maximise public spending.

However, there is ongoing debate about whether the flypaper effect really exists and, if it does, the extent to which it is undesirable. The key argument is that many transfers are made with the explicit purpose of increasing public spending by local or State government so you would expect to see an increase in their spending (potentially at the expense of spending by other levels of government). The related idea is that it would be inefficient for State or local governments to finance these expenditures themselves because they have access to less efficient tax bases, including because of potential interstate competition. Inman (2008), and Hines and Thaler (1995) contend that these arguments cannot fully explain the flypaper effect, but Dahlby (2011) disagrees.

Transfer dependency

Courchene (1981) found that equalisation meant people were more likely to stay in poorer States, creating a situation of 'transfer dependence'. Garnaut and FitzGerald (2002) argue that a similar situation has arisen with respect to recipient States in Australia's equalisation system.

Insurance and stabilisation

Another issue is whether equalisation encourages risk-taking by spreading the impact of fiscal shocks across all States. From a positive perspective, von Hagen and Hammond (1998) argue that equalisation can help stabilise State fiscal circumstances. On the other hand, Persson and Tabellini (1996), Lockwood (1999), and Bordignon et al (2001) argue that equalisation can discourage States from taking appropriate precautions to protect themselves.

1.6 Modelling

There have been several attempts to model the welfare effects of equalisation transfers. Consistent with the bulk of the theory, most of these works have suggested that equalisation results in welfare gains, though there have also been some contrary findings. As with all modelling, all of these findings are heavily driven by the underlying theoretical assumptions.

Winer and Gauthier (1982) estimated the migration effects of changes between 1971 and 1977 to make the Canadian equalisation system more comprehensive. They concluded that Provinces that are fiscally advantaged due to the presence of resource rents tend to attract migrants and that equalisation transfers tend to reduce migration out of the fiscally disadvantaged Provinces. Drawing on these results, Watson (1986) estimated that the marginal migration related efficiency gains from the 1971-1977

8 See for example, Inman (2008), and Hines and Thaler (1995).

changes were around $1.4 million per annum (in 1971 Canadian dollars), with further gains from moving to a full equalisation system of $35 million per annum. Watson noted that these results were small and well below the deadweight loss from raising the revenue used to fund it. On the other hand, he acknowledged that there might be significant non-marginal gains from equalisation.

Wilson (2003) argued that Watson (1986) underestimated the welfare gains from equalisation by calculating the annual efficiency gain from equalisation based on only annual changes in settlement patterns. Wilson points out that in the long run the annual welfare gains from equalisation need to be calculated based on the stock of inefficient migration prevented. He assumes that fiscally motivated migration will take around 50 years to reach the new equilibrium and finds that the marginal benefits of the 1971 to 1977 changes are around $60.3 million per annum (in 1971 Canadian dollars). He also argues that a transcription error may have led Watson to estimate the deadweight loss at double its actual level, and that deadweight loss from the total transfer may be an inappropriate basis for estimating costs given Provinces may have raised the revenue themselves anyway. Additionally, this proposition only captures the benefits of a marginal change in equalisation, not the benefits of equalisation that might have existed prior to 1971 or additional equalisation on top of the 1977 changes.

Albouy (2012) finds that the combined effect of Canada's system of equalisation and other federal transfers is to reduce national income by 0.41 per cent, or $4.3 billion per year (in Canadian 2012 dollars). One of Albouy's concerns is mining revenue not being fully equalised, but his key argument seems to boil down to the contention that even if nominal tax rates are the same, real tax rates are different because of cost of living factors. This means HFE may compensate States with lower nominal tax capacity, even if their real capacity is the same.

Dixon et al (1993, 2002, 2005) produce modelling that suggests equalisation in Australia produces efficiency costs, partly by encouraging people to live in high cost locations, but largely due to the flypaper effect. The most recent of these papers estimates that moving to an EPC distribution would improve welfare, but puts the upper bound at $150 million a year (in 2000-01 dollars).

Murphy (2012) estimates that abolishing the current HFE system and moving to a modified EPC system, where HFE transfers are abolished for everything other than expenses related to indigeneity, is estimated to lead to a permanent loss in living standards of $295 million per annum in 2009-10 terms. Murphy observes that although the quantification of loss would change depending on the size of HFE transfers, HFE was systematically pro efficiency. The main drivers of the welfare loss are population migration in response to different fiscal capacities in the States and increased taxes. It is assumed that migration reduces welfare if it is simply responding to differences in the fiscal benefits in each State rather than economic productivity. Therefore welfare is lower in all States if HFE is abolished in favour of a modified EPC system.

Murphy (2012) found that the Dixon et al (2002) result was due to an inconsistency in limiting migration movement from fiscal differences due to non-market amenity (congestion) effects on utility, but not calculating the welfare loss inclusive of those utility effects.

In a submission to the Review, Western Australia produces estimates (which it acknowledges are 'conceptual' and 'indicative') that suggest there would be potential national benefits from reducing the extent to which GST grants are redistributed from Western Australia to other States. They argue that if this additional money were used to fund public investments in Western Australia (specifically in the energy and transport sectors) it would result in three times more private investment in their State compared with if it were invested in other States. The results produced by Western Australia indicate a potential increase in national annual GDP of about 1.5 per cent in real terms (or $19 billion per year) and a boost to Commonwealth tax revenues of $4 billion per year in real terms — similar to the current full HFE subsidy to recipient States.

1.7 What conclusions can be drawn from the literature?

This review of the academic literature on equalisation shows that the modern theory, based on horizontal interpersonal equity and locational efficiency, provides a conceptual model for determining the financial transfers that should occur between States within a federation in order to be fair to all citizens and avoid inappropriate migration incentives. In theory, it provides a precise point of equalisation/equality for which to aim. However, the model is not without its critics, and even its original architect acknowledged the problems likely to be faced in seeking to give effect to the theory in practice.

Australia is the federation, amongst other nations with whom we often compare ourselves, that applies the theory of fiscal equalisation most rigorously. South Australia, Tasmania, the Australian Capital Territory and the Northern Territory regard this as a major achievement. On the other hand, New South Wales, Victoria, Queensland and Western Australia see major problems with the implementation and outcomes of the current system. The significant concerns of this second group of States — representing 90 per cent of Australia's population — have caused the Panel to inquire closely into whether there are modifications to be made to the current practices that might produce tangible benefits outweighing any costs.