

# **Income Contingent Loans as Public Policy**

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## **Income Contingent Loans as Public Policy**

***Bruce Chapman***

### **1. Introduction**

**W**hat is an 'income contingent loan'? It is one in which repayment depends on the future income of the recipient of the loan. A recipient – individual or business – is provided with finance, from either the private or public sectors, for agreed activities. The key characteristic of this loan is that when those assisted experience adverse economic circumstances they have no repayment obligations in that period, so that the collection of the debt is based on capacity to pay. It is this feature of income contingent loans which delivers the benefits to borrowers of both default insurance and consumption smoothing.

At a symposium entitled *Government as Risk Manager*,<sup>1</sup> the role of, and potential for, income contingent (or income related) loans to address a range of social and economic problems were explored. The author and others were invited to comment at that symposium on the implications for public policy of the use of such loans.

This paper summarises the arguments raised at the symposium and some of the suggested applications of income contingent loans: the Higher Education Contribution Scheme; as an alternative to grants-based drought policy; for the recompense of low level criminal fines; with respect to the payment of white collar crime offences; concerning funding models for the development of Indigenous land; for housing credits for low income earners; and as a basis for R & D funding.<sup>2</sup>

Aspects of the analytical, policy and empirical bases of income contingent loans are considered, with relatively more attention being paid to Australia's experience with HECS. Several other applications are examined in less detail, but there is considerable published research in most of these areas. An attempt is made to draw out the major similarities in, and differences between, the conceptual bases of these apparently quite disparate income contingent loan applications.

### **2. Income contingent loans: conceptual issues**

#### ***Government in a risk society***

**A** major role recognised for government<sup>3</sup> involves the management and distribution of risks. The concept of risk plays a central and unifying role in current analyses of a wide range of social and political issues, similar to that performed by the concept of globalisation in the 1990s.

The role of government, and particularly of the welfare state, has been reinterpreted with an increasing emphasis on risk and uncertainty, and across the social sciences there are different analytical approaches. Neoclassical economists have stressed the extent to which risk can be rationally managed using the tools of expected utility theory. Psychologists, sociologists and various groups of other economists have stressed the limitations of expected utility theory.

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When government is considered in its role as a risk manager, new aspects of both existing policies and future policy options are revealed. In *When All Else Fails* for example, David Moss<sup>4</sup> provides a fine historical analysis of the role of the state as the ultimate risk manager, focusing on institutions such as bankruptcy, limited liability and workers' insurance. Through analysis of US government legislative reforms over the last two hundred years, Moss promotes an understanding of the risk management role of the public sector, which can take many diverse forms, such as laws associated with limited liability, the application of speed limits for automobiles, national health insurance, occupational health and safety legislation, disaster relief and social security. Barr<sup>5</sup> provides a similar treatment of the welfare state, in which the potential role of government is analysed in the context of insurance failure, which is conventionally seen in the economics literature to be a consequence of asymmetric information. In the absence of markets providing accessible and affordable insurance Barr argued that the government has a unique role to play as a 'piggy bank', an efficient institution to manage and decrease the costs to citizens of the unavoidable uncertainties associated with human events.

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In part, the above-mentioned analyses address the special issue of the financing of activities and the capacity of governments to address associated uncertainties. Barr stresses that in this context there are two essential benefits of government intervention that will not be forthcoming from the private loans market: insurance and consumption smoothing. Moss and Barr highlight the possibility of the use of income contingent loans as a prospective risk instrument for the public sector.

In many cases income contingent loans can be thought of as a public sector financial instrument designed to address aspects of so-called 'market failure'. Some of the shortcomings of the operation of the private sector with respect to risk might result in an absence of private sector institutions developing in response to social and/or economic need (such as with respect to the commercial provision of loans for human capital investments), and in this case public sector intervention has the capacity to fill a significant void.

However, in other cases the use of the collection mechanisms typically associated with income contingent loans (in Australia, the tax office) result in significant administrative cost gains compared to the systems they are designed to replace. Also, in many possible applications the issue of equity looms large, since some current government grant schemes are arguably regressive (for example, taxpayer grants to farms for drought relief).

Related to the above is that one of the important motivations for income contingent loans organised through the public sector is that such interventions, compared to commercial bank loans, have the capacity to significantly reduce borrowing risks from private beneficiaries in a way that might be both equitable and beneficial to society generally. These arrangements also mean that finance can be made available for projects that would otherwise not have access to loans. As implied above, there are other reasons for such interventions, such as to reduce public sector outlays and to make fairer government intervention by converting taxpayer financed grants into income contingent loans.

Perhaps the best-known income contingent loan scheme is the Higher Education Contribution Scheme, instituted in Australia in 1989. For the first time with respect to a national intervention, a government imposed a charge on university students to be paid in the future through the tax system, but when and only if former students' personal incomes

exceeded a certain level (and beyond that as a percentage of income above that level). HECS is analysed in detail in sections 3 and 4.

John Quiggin argued in the symposium that HECS provides an attractive model for publicly funded universities. He suggested that a HECS-style repayment mechanism could be attached to the proposal of Alstott and Ackerman<sup>6</sup> and others for a general purpose capital grant to young people, permitting the provision of a more substantial capital sum that could be used for a variety of purposes including education, house purchase, investment in a small business or, as a residual, retirement income.

### **3. Income contingent loans for higher education: the background**

Within the broad conceptual framework so far outlined, the historical perspective and analytical bases in the evolution of income contingent loans for higher education financing are now summarised.

Over the last 16 years or so there has been a quiet revolution in approaches to the financing of higher education. The most important change has occurred in those countries in which higher education systems had previously been funded almost entirely through taxpayer transfers; that is, without contributions from the direct beneficiaries, graduates. It is now the case that many countries, for the first time in many years, have introduced, or are about to introduce, tuition charges. Examples include New Zealand, Australia and the UK.

There is a second and perhaps more significant change concerning higher education financing; that is, the approach adopted with respect to how tuition is to be paid. Charging reforms in several countries have involved the use of income contingent loans. The policy allows charges to be paid by graduates conditional on their future capacity to pay, and is a profoundly different approach from the traditional fee arrangement involving government guaranteed bank loans. This type of approach to higher education financing has been adopted in Australia (1989), New Zealand (1991), South Africa (1994) and Chile (1996), and a complicated variant of the scheme was introduced in the USA in 1994. Income contingent loan policies for higher education tuition and income support are being introduced in 2006 in the UK and Thailand, and in Israel in 2007.

The conceptual bases important to an understanding of these international charging reforms should begin with an examination of the economic case for student contributions to the costs of higher education. In Chapman (1997) and Barr<sup>7</sup> (1989, 2001) it is argued that students should pay some proportion of the costs, and in essence this case rests importantly on issues of equity and the distributional consequences of taxpayer financing. Specifically, because higher education students tend to come from the most advantaged areas of society, and because graduates on average do extremely well financially in the labour market, a fully taxpayer funded system can be seen to be very regressive. There are also compelling arguments for taxpayer subsidies, but there is no consensus as to how high these should be.

Barr and others recognise that, left to itself, the higher education system will not be able to deliver either fair or efficient outcomes. This is a market characterised by significant uncertainties for students, and high risks for prospective lenders. And because there is no collateral in the event of a student borrower's default, banks will not be interested in the provision of loans to help disadvantaged prospective students cover tuition and income support needs. Government intervention is necessary.

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Internationally there are two approaches to the problem. The first is the provision of bank loans with a government guarantee, usually to a subset of students, and this is the approach adopted in the USA and Canada, among others. The second is income contingent loans.

Government guaranteed bank loans have the significant benefit of removing the cost to the lender of default. They also allow private sector financing of important aspects of the higher education system. However Chapman (2006) argues that a government guarantee for bank loans does not address other important aspects of the higher education financing process. They are as follows:<sup>8</sup>

- (i) While the lender is protected from the costs of default by the government guarantee, the borrowers — students — are not. This means that students taking out bank loans might not be able to meet their repayment obligations and, in an extreme situation, could be declared bankrupt. Such an outcome has a very serious consequence: it necessarily adversely affects a former student's credit reputation, and thus access to or the price of other loans, such as to finance the purchase of a house.
- (ii) The availability of bank loan assistance is restricted by governments to a subset of prospective students, with the qualification and/or the level of support typically defined by means testing on the basis of family income.<sup>9</sup> A problem with this restriction is that some parents or partners with high incomes might not be prepared to help a prospective student pay tuition, or offer income support. In these circumstances the means-testing rule implies that a prospective student faces up-front charges and income support problems.
- (iii) Bank loans are characterised by repayments of set amounts over a given time period. This means that, independently of a borrower's ability to meet the repayment obligation, in periods of future economic difficulty a borrower could experience economic hardships in order to meet the commitment.

Income contingent loans have two important benefits compared to government guaranteed bank loans, both related to the risk management for borrowers. The essential point is that with an income contingent loan, if the borrower's circumstances are adverse in a particular period, no loan payments are required. This results in insurance, providing both default-protection and consumption smoothing.

The current funding arrangements for the Australian higher education system could be used to transform the financing of TAFE and other areas of tertiary education. Indeed, the introduction of the FEE-HELP system<sup>10</sup> in 2005 has made the economics of the matter even more straightforward, since students are now able to access income contingent loans to directly pay the fees for non-HECS educational services. The politics of the issue, involving both State/Territories and Commonwealth jurisdictions, is likely to be more complicated.

The following section offers a summary of the evidence concerning the effects of HECS in a range of areas for the period 1989 to 2004.

#### **4. The HECS experience in summary**

Significant findings are now available from detailed investigations of the effects of HECS. These relate to: the effects on the aggregate demand for higher education places; the effects of the system on the access of disadvantaged prospective students; the consequences for public sector revenue; and administration costs. The main points are:<sup>11</sup>

- (i) HECS has had little apparent effect on private average returns to higher education, and neither does there seem to have been any aggregate decreases in student demand, as

measured by enrolments. The data suggest that higher education enrolments in Australia have increased considerably, by around 70 per cent, since the introduction of HECS. This has happened for two reasons: there were no obvious overall deterrent effects for students from the new system; and in response to the expectation of high future revenue, Commonwealth governments — particularly in the late 1980s and early 1990s — substantially increased higher education expenditure and thus the number of places for students.

- (ii) It appears that there have been few consequences for the accessibility to higher education for students from relatively disadvantaged backgrounds, at least as represented by enrolments. Broadly speaking, the socio-economic make-up of the higher education student body was about the same in the late 1990s and early 2000s as it was before HECS was introduced.<sup>12</sup> This may not, of course, be the consequence of the income contingent repayment characteristic of the system, since this might have happened also with other financing approaches. A further qualification is that there may have been a small negative effect on applications for expensive courses from relatively disadvantaged males in response to the major changes to HECS instituted in 1997.
- (iii) The charge has delivered considerable revenue, of the order of \$A(2004) 12 billion over the first 15 years after its introduction. It was projected that the system would provide around \$A(2004) 1.2 billion per year in 2005, about 25 per cent or more of annual recurrent higher education costs. And,
- (iv) HECS seems to be inexpensive in administrative terms,<sup>13</sup> costing less than 4 per cent of current annual revenue to administer. This is because the collections are fairly straightforward given the mechanisms of the Australian Taxation Office.

There are some caveats and qualifications to several of these conclusions, essentially along the lines that the findings with respect to revenue, aggregate demand and student access cannot be traced directly to the fact that HECS is an income contingent loan *per se*. Much of the 1989-2005 Australian higher education experience might well have resulted from the introduction of charges financed in other ways, such as up-front fees with scholarships. As well, it is critical that the institutional and administrative arrangements are appropriate to allow such schemes to be implemented, and in many countries this will not be the case.<sup>14</sup>

## **5. Additional Australian income contingent loan case studies**

The remainder of this paper examines, in brief, some of the applications of income contingent loans considered at the ASSA Symposium, and analysed in detail in other publications. The goal in these summaries is to whet the appetite rather than offer a full meal, and the focus will be on the reasons that an income contingent loan might be apposite in these policy areas.

Following consideration of the case studies there is a discussion of the differences and similarities between them. As well, there is an explanation of the critical role played in income contingent loans of both adverse selection and moral hazard, and what these problems mean for policy design and implementation for each of the particular potential projects.

### ***Income contingent loans for drought relief***<sup>15</sup>

Australia is the driest inhabited continent on earth; it also experiences a high degree of climate variability. As such, drought is a frequent occurrence and drought of some magnitude is occurring somewhere in the country most of the time. Since the arrival of European-style agriculture, drought has been a recurring problem for Australia's farmers, and the impact has been felt well beyond the

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farm sector. Although agriculture's contribution to the Australian economy has reduced from 18 per cent of GDP in 1952–53 to around 2.7 per cent in 2006,<sup>16</sup> drought still has a significant impact on the overall economy. In October 2002, the Australian Bureau of Agricultural and Resource Economics (ABARE) estimated that drought would reduce economic growth in 2002–03 by 0.7 per cent, implying lost output of about \$5.4 billion.<sup>17</sup>

Australia has in place a National Drought Policy which provides government support to farm businesses as well as a welfare payment to farm families. The farm business support is in the form of a grant for interest rate subsidies on commercial loans, raising questions of equity and effectiveness. An alternative policy instrument for the delivery of support to drought-affected farm businesses is possible.

A consideration of the history of Australian drought support policy and the arguments typically offered as justifications for government subsidisation of farmers experiencing drought should be seen in the light of the cost of drought relief and the essential problems associated with conventional approaches to the issue. These include: the regressivity of using grants financed by all taxpayers, many of whom would be less advantaged over their lifetimes than the owners of farm businesses; the lack of a clear case for subsidising farmers in difficulties; and the subjective, *ad hoc* and often highly political contexts in which the circumstances leading to drought support grants have been defined.

Instead of grants-based drought relief there could be government-financed loans with the feature that repayments would be required only if and when farm revenues have recovered; that is, an income contingent loan. As with the other possible applications of income contingent loans considered in this paper, the advantages compared with the conventional financing mechanism of a bank loan include the provision of both default insurance and revenue smoothing for the borrower, in this case the farm business. A drought income contingent loan, as at least part replacement for government grants, is highly likely to be more equitable than a grants system financed entirely by taxpayers.

Botterill and Chapman (2006)<sup>18</sup> report in some detail repayment streams and levels of revenue estimates of such a proposed scheme. It is apparent that even in the case of the income contingent loan requiring repayments at very low proportions of gross farm revenue the returns to the government are manageable in a fiscal context. A major question, not yet completely addressed, concerns the case for having any drought relief subsidies in the first place. While a revenue contingent loan scheme for farmers could be designed to be subsidy-free, it remains unclear why farm businesses specifically should qualify for such assistance.

#### ***Low level criminal fine repayments***<sup>19</sup>

The suggestion that income contingent loans could apply to this area is motivated by the facts that current collection processes for low level criminal activity are very inefficient and expensive for the public purse, a very large proportion of fines remain uncollected, and with the current fine collection arrangements there can be very high social costs. The latter might even involve the imprisonment of perpetrators of low level criminal activity who do not meet their fine repayment obligations.

A different approach could offer a fairer and cheaper way of collecting fines. A proposed Fine Enforcement Collection Scheme (FECS) would use the tax and/or social security systems to collect fines for low level criminal activity that were not recovered within a grace period (of, say, a month), with most of these being of the order of \$500 to \$1000. The payments would depend on the person's future income, and would thus be paid back at a rate that would fluctuate with the offender's capacity to pay. There would need to be relatively low income thresholds for repayment

to make the scheme viable, perhaps using the rules for the collection of non-custodial child support payments. The estimated revenue streams associated with this framework are illustrated in Chapman *et al.*<sup>20</sup>

Low level criminal fines involve a large number of small debts, owed by people who are relatively poor, and on whom the wider society wishes to inflict a measured degree of suffering. The public policy issues are therefore rather different from those posed by student debts paid out of relatively high incomes or drought-relief debt paid out of the revenue from bumper crops. Those latter debts are essentially lifecycle or seasonal transfers designed to give borrowers access to their own money at a time when it is most useful to them.

The FECS can be seen as balancing risks for the individual and the community. For the individual it almost eliminates the risk of a fine turning into something more costly such as the seizure of a car or even imprisonment. As well, it reduces offenders' chances of avoiding paying some or all of the debt. For the community it ensures that the loss of revenue through non-payment of fines is minimised, and the unnecessary costs associated with penalty escalation are avoided. For magistrates FECS would produce a greater certainty that fines imposed would be collected, and this would enhance the credibility of the sanction. Thus Chapman *et al.* (2004) argue that the FECS approach offers the possibility of improving the administration of justice by re-positioning the government's role as a risk manager.

The analysis<sup>21</sup> so far places relatively little emphasis on the potentially critical issue of State versus Commonwealth government jurisdiction. While the courts concerned are State and Territory based, the collection of an income contingent debt would necessarily involve the Commonwealth government through the Tax Office. How this might work in practice has not yet been comprehensively addressed.

#### ***Penalties for insider trading and collusion***<sup>22</sup>

Collusion and insider trading impose a wide range of costs on both society and the economy. Both forms of criminal conduct deliver an inequitable distribution of gains and impose a range of negative externalities such as reduced economic efficiency, lowered faith in the structure of markets, and financial costs to governments.

For regulators a major problem associated with collusion and insider trading is the lack of information available to investigators. Without evidence from participants the tasks of detecting criminal activity and achieving successful prosecutions are made particularly difficult. It is hard to determine accurately the extent of collusion and insider trading, but some estimates are available. In recent years, reductions in trade barriers and increased globalisation have probably resulted in increased collusive activity,<sup>23</sup> with the OECD estimating that the value of commerce affected by collusive conduct in 16 large cartel cases that had been examined was greater than \$55 billion.<sup>24</sup>

Recent examples of collusion include:

- Hoffman La-Roche was fined 462 million Euros for participation in an international vitamin cartel in 2001.
- Lafarge was fined 250 million Euros for participating in a cartel in the plasterboard industry in 2002.
- TNT, Mayne Nickless and Ansett Freight Express were fined more than \$A11 million for cartel behaviour in the Australian freight industry.

While there have been relatively few prosecutions for insider trading in Australia, some researchers have suggested that between five and ten per cent of all trades involve insider information.<sup>25</sup> Related to this is that a study of Australian executives found that 52 per cent of

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respondents would be willing to buy shares in the knowledge that their own company was about to make a favourable announcement.<sup>26</sup> It would therefore appear that the detection and prosecution of insider trading lags well behind its prevalence.

Chapman and Denniss (2005) suggest that financial incentives could be offered to individuals or firms participating in illegal activity in return for the provision of evidence against other participants. In order to ensure that large incentives can be offered, and large fines levied, it is also suggested that a revenue contingent repayment mechanism be utilised to extract both incentive payments and fines from firms (on the basis of future profits) and individuals (on the basis of future income) convicted of these offences. The use of a revenue related penalty payment increases the certainty of collecting reparations while reducing the 'incentive' (or necessity) for recourse to bankruptcy.<sup>27</sup>

### ***Indigenous land development***<sup>28</sup>

Indigenous landowners control significant assets — over one million square kilometres of land — often with substantial resource rights and income earning potential. The levels of inactivity and missed opportunity on Indigenous land are of such magnitude as to represent a major risk both for Indigenous landowning communities, in terms of their future economic and social wellbeing, and for the national interest in terms of ecological vulnerability and the social and political costs of Indigenous disadvantage.

The role of government as risk manager in such circumstances and the principles that must underpin any intervention program targeted to the commercial development of Indigenous land care have been outlined in Altman and Dillon (2005).<sup>29</sup> Using the framework for profit-related loans recently developed,<sup>30</sup> and elements of an existing venture capital support program, they suggest the Innovation Investment Fund Program, a new investment scheme to assist development and natural resource management in the growing Indigenous estate.

The proposed scheme can be conceptualised as a profit-contingent loan arrangement and as a form of capped public investment. The proposal addresses key elements of the market failure (considered further below) that exists in relation to financing development on Indigenous land, provides incentives for greater private sector investment, and ensures that commercial and social risks are shared equitably between government, private sector investors and Indigenous-owned corporations, to avoid problems of adverse selection or moral hazard.

An example of how the scheme might work is as follows: members of an Indigenous community would prepare plans for a project, which would be vetted by business and other leaders of the community. Suitable projects would be recommended as qualifying for financial assistance in the form of a loan provided by the government. The provision of the government loan could be made contingent on assistance also being provided from the commercial banking sector, with such assistance being much more likely if there is a high possibility of additional government funding in the form of an income contingent loan.

Once the project is underway the government loan assistance could be used in part for the project as well as to begin the commercial loan repayments. It would also act as a buffer to the risks and difficulties typically encountered in the initial stages of investment projects.

In the Altman and Dillon proposal the government loan would start to be repaid when and only if the project was in a moderately healthy state, with repayments being contingent on profits, for example. The receipts could then be used to finance other Indigenous community projects. There are important benefits of the scheme in the form of risk management. As argued previously, income contingent loans in this and other contexts provide both default-protection and income (in this case, profit) smoothing, and have the critical potential to remedy a market failure associated with private financing of Indigenous projects.

Altman and Dillon recognise that market failure in this area of activity takes the following form. Due to group ownership and inalienable tenure, Indigenous land cannot be used as collateral for a bank loan. As is the case with respect to the financing of human capital, banks will thus be highly reluctant to lend to Indigenous interests. Government intervention is therefore required.

***Housing credits for low income earners***

A paper by Gans and King (2006)<sup>31</sup> promoting the use of housing credits to repaid on the basis of individuals' future incomes starts with the presumption that home ownership is a major goal for many Australian households. For households that have low, irregular incomes, however, home ownership and even adequate rental accommodation may be unachievable. The housing problems facing low income households might be helped though a system of income contingent loans. This system could provide a type of insurance for housing, a 'housing lifeline'.

Australia has one of the world's highest levels of home ownership. In 1999–2000, there were around 7.2 million households in Australia. Approximately 70 per cent of these houses were owner-occupied, and 26 per cent of occupiers rented accommodation. While current home ownership rates are approximately 69 per cent in the United Kingdom and 67 per cent in the United States, they are only approximately 41 per cent and 51 per cent for Germany and the Netherlands respectively.<sup>32</sup> Further, by international standards, a large proportion of Australian home owners — almost 90 per cent — live in stand-alone or separate houses. In this sense, the quality of home that is owned by most Australian households is high compared to countries where apartment living is the norm.

However, many low income households in Australia traditionally have been excluded from home ownership and rely on the rental market for their housing needs. Further, these low income households are more likely to be dependent on government housing. To give an example, if we consider households comprising an adult couple with children, approximately 79 per cent own their own house and only 20 per cent are renting. Conversely, for one-parent households, only 49 per cent are home owners, 30 per cent rent from private landlords while 17 per cent rent from State or Territory Housing Authorities.<sup>33</sup> Of all renters, approximately one quarter rely on housing provided by a government authority.

For both owners with a mortgage and renters, housing costs Australia-wide come to approximately 20 per cent of gross income. But housing costs as a percentage of income vary significantly between geographic locations and between households. In particular, low income households may find adequate housing unaffordable, particularly in high-cost areas of Australia such as Sydney and Melbourne.

Housing affordability for low income households may be exacerbated, or assisted, by the interaction between different markets for housing and between housing and associated markets. As noted by Rothenberg *et al.*,<sup>34</sup> '[h]ousing is not . . . a single commodity but a complex of variously related commodities; the urban housing market is not one perfect market but a set of interrelated submarkets'. Housing differs substantially in terms of quality between inner city apartments, affluent separate dwellings and outer urban public housing. For many households, housing is also a major investment asset. Indeed a house is the single largest asset most households will ever purchase.

Housing markets are inextricably linked. As new high quality dwellings are built and purchased by the most affluent households, lower quality housing becomes more affordable for purchase by lower income households through a type of 'trickle down' process referred to as 'filtering'. The rental market and the market for home ownership are similarly connected through factors of supply and demand. For example, the construction and purchase of inner city apartments in Sydney,

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Melbourne and Brisbane for investment purposes has driven the rental returns on these apartments down to approximately 3 per cent (in 2003).<sup>35</sup>

Housing markets are also tied to financial markets. Most households require borrowed funds to buy a house and the lack of availability of mortgage funds can limit the housing options for low income households. In order to design government policies to appropriately assist low income households with their housing needs, it is important to understand both the drivers of housing affordability and the linkages between housing markets and related markets. Government policies towards low income housing have often been geared towards households with a long term income problem. In other words, governments and welfare groups have concentrated on households that face long term affordability problems for housing. An obvious solution for households facing a long term problem of housing affordability is for the government to either provide on-going rent assistance for these households, or to directly provide housing.

While some low income households are well served by these policies, they fail to address the needs of households who face a short-term income crisis. These households could be better served through a system of income contingent loans, similar in motivation and justification as the other income contingent loans examined.

This 'housing lifeline' would not simply provide *ex post* protection for low income households but would also increase *ex ante* accessibility to housing and related financial markets for low income households. A system of income contingent loans for housing reduces risk for both buyers and providers of housing services, both from bankruptcy and with respect to the potential repayment difficulties that are associated with other forms of financial assistance.

The proposal emphasises the gains of default-protection and consumption smoothing to those assisted, as is the case with other income contingency loans. However, at this stage more work is needed in the area of program design, to make sure that there is appropriate vetting of assistance and with respect to the parameters and income units to be used.

### ***Applying income related loans to R & D financing***<sup>36</sup>

Innovation is the engine of growth in the modern knowledge economy, yet market processes in relation to innovation have some severe limitations. The existence of externalities is widely understood and recognised as leading to sub-optimal investment in innovation. Some benefits can be privately obtained from research and development for the innovator, including important 'first mover' advantages, but the inability to appropriate all the benefits arguably limits the incentive to innovate. Governments understand this and respond typically with an array of support programs for basic research and commercialisation, as well as through the provision of intellectual property protection.

A second problem irrespective of externalities is to be found in funding. For instance asymmetric information and moral hazard (see the discussion in section 6 below) are hard to eliminate as problems, and this reduces the ability of businesses to fund or insure their innovation activities. But equally important is that funding may also be restricted in knowledge markets for ideas because the intangibility of the innovation might well mean that asset backing for loan purposes is unavailable. This suggests potential borrowing problems for those without other realisable tangible assets that can be used as loan security.

It is also the case that financial institutions may not be prepared to lend to start-ups or small businesses that need to expand because the proposal needs further development (for example, a business plan, a new corporate structure, additional management or other skills). For these and other reasons, not only will the overall supply of innovation be reduced below desirable levels, but the process might well be skewed against small businesses, a reason being that one of the few

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realisable assets commonly available to small business innovators is the family home, suggesting the possibility of its sale when ventures fail. Indeed linked to this may even be 'merit good' issues.

Governments can respond to this by doing two things: seeking to improve the pre-finance capabilities of firms; and, assisting with finance to better foster allocative efficiency, including provision of the external benefits otherwise lost to the economy.

However, along with recognising this role for government, there is the need for commercial funding involvement as well.<sup>37</sup> Therefore Dadd and Withers propose a Fund that:<sup>38</sup>

- would require firms to have had, or to undergo, business training and to accept assistance in developing proposals to a finance-ready stage as a condition of entry into assessing and approving financing arrangements; and
- would provide part of the finance through a revenue (or profit) contingent loan to be repaid through taxation on future positive net earnings, to complement a further proportion of the finance that would be provided on normal commercial terms.

The scheme has the following advantages:

- it could act to improve the functioning of loan markets where innovation activities are below what a government might consider to be optimal;
- because some part of taxpayers' subsidies would be recovered when the enterprise is succeeding commercially, there is an important 'mutual responsibility' dimension;
- not only is it fair that average taxpayers don't eventually foot the bill for all subsidies to successful enterprises, the fact that there are returns to the public sector should also be seen to be desirable because of the associated potential to reduce national budgetary pressures;
- the repayments thus allow the financing of more innovation projects than could be forthcoming if the scheme was solely grant financed (or through lower taxes, or higher provision of alternative government services); and
- such a scheme essentially provides a form of revenue (or profit) smoothing, and thus diminishes financial pressures on small innovative enterprises at the time when this is most needed.

Again, and for reasons considered in the following section, the proposal requires further thought with respect to the vetting of applicants, an issue addressed in the context of adverse selection. There are special issues in this area as well, including the difficulty of monitoring adequately the implementation of R & D processes.

## **6. Similarities and differences between the income contingent loan case studies**

### ***Introduction***

The case studies outlined briefly above suggest that there is potential for the application of income contingent loans to a range of diverse activities. While the impetus behind policy actions of these types is apparently quite different, there are a number of common motivational factors for reforms of these types. In all applications there are also shared policy challenges.

### ***Income contingent loan policy motivation: disparate and common characteristics***

At first blush it might seem difficult to find obvious points of similarity concerning the justification for the application of income contingent loans to areas as diverse as drought relief, low level criminal

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activity, white collar crime, Indigenous investment financing, housing credits for low earners and R & D financing. Further, it would seem to stretch the imagination even more to draw strong connecting threads between these disparate policy applications and the essential case made earlier for the adoption of income contingent loans for higher education financing. But there are some useful points of similarity and comparison.

One of the justifications for replacing grants for drought relief with a top-up revenue-contingent loan is the apparent regressivity of financing drought relief only from general tax revenue. As noted above it must also be emphasised that, for a given size of a budget, every dollar spent in this way is, after all, a dollar that cannot be spent in other areas, such as for schools, hospitals and the reduction of poverty.

This rationale for the part-replacement of grants with loans for drought relief is remarkably similar to the case typically offered for the introduction of charges for higher education. That is, without a contribution from students higher education is almost entirely underwritten from the taxes of all citizens, with the majority of those taxed being far less advantaged over their lifetimes than are typical graduates. As pointed out elsewhere,<sup>39</sup> a higher education system financed by the taxes of all is almost certainly a regressive use of budget resources. This is also clearly the case with respect to grants-based drought relief: the farmers so assisted are likely to be more advantaged over their lifetimes than the majority of taxpayers providing the finances.

On the other hand, the motivation for the case studies concerning the collection of criminal reparations on an income contingent basis is quite different from the tax equity rationale for both drought relief and HECS. Obviously current court approaches to low level criminal activity do not involve directly the use of taxpayer resources. Instead, the rationale for the adoption of income contingent loans for the payment of fines is related to the administrative efficiencies, and the fairness, of collecting reparations through the tax system, depending on an offender's income. Fines for low-level crimes are extremely expensive to collect in terms of court resources, and the likely costs to offenders who through default face the possibility of imprisonment, as well as those to the taxpayers for that imprisonment, are highly significant as well.

Indigenous community project financing is promoted as another possible income contingent loans intervention. Essentially such government intervention can be designed to encourage commercial capital market involvement in investments for Indigenous communities, providing social as well as private benefits. Moreover, there might also seem to be significant issues of market failure in this area. The market failure is remarkably similar to that operating in the area of higher education financing: there is no collateral available to a commercial bank in the event of default from the Indigenous land development project, because of group ownership of the land and inalienable tenure rights.

In the Altman and Dillon plan there is potential to address market failure and to also provide incentives for greater private investment. The sharing of commercial and social risk between government, private investors and Indigenous-owned corporations should assist to avoid problems of moral hazard and adverse selection. However, the motivation is different from HECS: the proposal is oriented to a group or community venture rather than to individuals, and the scale and the mix of private and social costs and benefits are also apparently quite different.

Government intervention of these kinds has the capacity to assist some of the least advantaged citizens in periods of particular adversity, and as well, to provide support in situations in which the private capital market would be unlikely to assist. Again, the possibility of a market failure might exist, but should be considered in the context of the capacity or otherwise of the private commercial sector to offer insurance against an inability to cover housing costs.

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Income contingent loans for housing are designed to provide quick and committed lines of credit so that households have liquidity during temporary shocks to income (from, for example, unemployment or poor health). The goal is to mitigate the housing-related risks from income shocks as well as to prevent those shocks from translating into conditions that would cause dislocation and transition to long-term poverty. In this respect they differ from income contingent loans for higher education in that the uncertainty is relatively short-term.

There are familiar justifications for the use of income contingent loan instruments for R & D funding as well. It is recognised that grants for innovation financing have the strong possibility of being regressive in their distributional impacts, as seems to be the case with respect to current approaches to drought relief.

The motivation for suggesting income contingent loan mechanisms for support of innovation arises from difficulties for small businesses securing and servicing finance for innovation. This comes from having inadequate asset security for debt in what are often very risky, uncertain and long-term investments in new processes and products. The average rate of private return is high, but this is accompanied by much unrealised innovative potential for the community along the way (because of commercial failure independent of innovative merit) and also much personal hardship for businesses (and their families) where that potential is not realised.

Governments have chosen to respond through support of basic research or the provision of grants and concessions, neither of which typically reaches most small innovators. The motivation has a common structure to other income contingent loan applications, but in this case the emphasis is usually more on efficiency than equity (though the latter has a role), the social returns from externalities are better documented than for education (and are very high), the deficiencies of the capital markets are more complex than for human capital (in the presence of private equity and venture capital options), and taxation administration of business income rather than personal income raises different tax policy issues.

### ***Capital market incapacities and the insurance aspects of income contingent loans***

It seems to be the case that there is no single shared reason for the provision of income contingent loans across this range of proposals. But there are nevertheless several important factors shared as a rationale for policy intervention in all: the lack of an efficient capital market response in the absence of government intervention; and the delivery of social benefits with an intervention of income contingent loan forms of assistance. Both are now considered.

An important theme in all the proposed policy areas is that, if left alone, there would not be a private capital market response to the demand for finances that would deliver efficient levels of activity. To understand why capital markets are unlikely to be associated with the right level of assistance for higher education financing and with respect to the other case studies, two issues matter. The first is that, for all the activities analysed, expected future outcomes are characterised by considerable uncertainty. The second is that these uncertainties are associated with substantial risks for either a prospective lender or a prospective borrower. The nature of these risks and the associated benefits of an income contingent loan approach are now explained for each of the cases.

The financing issue for a commercial bank is that the expected variance of students' future incomes streams is such as to imply a real possibility of default. While this is true for most bank lending, a particular problem for the bank is that in the event of default on a student loan — and unlike the case for lending for the purchase of a house, for example — there is no saleable collateral. This is why all commercial bank loan schemes which finance student loans (for

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example, those in Canada and the US) come with a government guarantee to pay the bank the remainder of a defaulting student's debt.

As explained in detail in Chapman (2006),<sup>40</sup> for a student borrower there is also risk, taking two forms. The first is that of default, which is likely to be associated with damage to the borrower's credit reputation and thus access to and/or the cost of future borrowing, such as for the purchase of a house. The second risk from having a debt to be paid according to time alone is the possibility of adverse future financial circumstance, which would then be associated with repayment hardships.

An income contingent loan for higher education financing solves these problems of risk for the student borrower. Income contingent loans provide both default insurance and consumption smoothing, simply because debt obligations are determined by capacity to repay.

For drought relief there are similar risks to those involved in higher education financing, and these exist for both prospective lenders and borrowers when non-income contingent loans are involved. For the bank the future value of the property is uncertain, meaning that in the event of default there is the prospect of the lender being unable to recoup the full value of the outlay. And for the borrower, the farmer, there are in many cases very high costs of default and the loss of the property to the bank. Specifically, the psychological costs to a farmer of the loss of a property which has been in the family for many generations might well be far greater than any losses faced by prospective lenders. For a farm borrower an income contingent loan takes away this risk.

With respect to criminal fines, it would be absurd to suggest that offenders could access loans from commercial banks to cover their fine payment obligations. The risks to the bank of default would seem to be much greater than is the case for higher education financing, and the lack of saleable collateral in the event of default is very obvious. The default-protection and consumption smoothing characteristics of an income contingent loan collection are again the beneficial aspects of this form of intervention. As well, these characteristics of income contingent loans increase substantially the prospects of the collection of a much higher proportion of the debt.

With respect to investments in Indigenous community projects it is arguable that income contingent loans have several advantages over leaving the financing to the market. A critical issue is that banks might be excessively reluctant to finance Indigenous projects because of perceived repayment risks. As well, projects of these kinds might be characterised by their presumed capacity to deliver externalities, such as those associated with Indigenous autonomy and self-determination. For both reasons, without government intervention there will be under-investment in the area from a societal point of view. Because of default-protection and consumption smoothing, income contingent loans increase the likelihood of the firms and projects surviving, and thus maximise the possibility that bank debts associated with the projects are repaid.

Similarly, with the housing credit proposal a commercial loan market will not allow low income borrowers to cover rent or mortgage obligations in times of adversity. The market focuses on the role of asymmetric information as a major problem for a bank, but there are also the same risks of repayment hardship and default for prospective borrowers in a non-income contingent loans context as is the case for students, farmers, criminal offenders and Indigenous community entrepreneurs.

The issue of asymmetric information for bank borrowing with respect to R & D investments is familiar. Even if banks made loans available to those in short term financial difficulties, an income contingent loan approach is a superior instrument for borrowers because of the insurance characteristics.

***Income contingent loan policy design: disparate and common characteristics with respect to adverse selection and moral hazard***

All the case studies, and income contingent loan policies in general, have in common two major design challenges. These arise from what economists label adverse selection and moral hazard. These are now considered with respect to the case studies outlined above.

*Adverse selection* is the term given to the notion that particular forms of economic instruments or policy will attract individuals most likely to benefit from the arrangements, and discourage the participation of those least likely to gain. A classic example is that of medical insurance, in which at any given price the potentially sickest people are more likely to want to be covered, and the potentially healthiest least likely. Consequently, without the use of screening devices (such as age, medical background and being a smoker, for example), the schemes will be dominated by individuals most likely to experience ill health. Over time this can result in higher premiums and the lower participation of the relatively healthy.

The possibility of adverse selection with respect to income contingent loan take-up is very real, the essential reason being that this type of loan provides benefits to those who expect to perform least well financially in the future. If a student's future income is low, or a farm business does not properly recover from drought, repayments are lower for members of these groups.

In some applications consideration of the problem of adverse selection is not necessary. For example, for the use of the tax system to collect criminal fines there is no possibility of selection issues arising since fine payment is compulsory by law. But in other areas the potential for adverse selection to undermine the basis of an income contingent loan is very real.

With respect to the financing of higher education, students with a HECS debt who earn very low lifetime incomes will end up paying off less than their total debt. If the first income threshold of repayment is sufficiently high it is even possible that a minority of students will repay none of the debt at all. Thus a form of adverse selection might be possible with schemes such as HECS if prospective students had choices over whether or not to take the option.

This potential problem is addressed with respect to the Australian, New Zealand and UK income contingent loans for higher education through a simple rule: repayment is not a choice, but is compulsory for all higher education students in these countries. It is arguable that a form of adverse selection might exist in that some students might choose to pursue higher education in countries without income contingent loan arrangements, but the marginal costs associated with studying overseas would seem to be sufficiently high that this is not an issue.

Adverse selection could also be a feature of an income contingent loan applying to drought relief since those farm businesses not expecting to be viable in the future are also the businesses with the most to gain from the arrangement. This is recognised in the models proposed by Botterill and Chapman and is the reason for suggesting that government loan assistance only be made available to farms also taking or extending a commercial bank loan at the same time. The bank can then be used as a vetting agency, since the commercial sector would not be interested in underwriting loans for which expectations of repayment are not high.

Of interest for drought relief policy design is that the potential availability of a top-up income contingent loan would likely encourage bank involvement since additional finances would then be available to help in the repayment of the commercial loan. Governments would need to pay particular attention in this context to the extent of the top-up allowed.

There is also a clear adverse selection issue for prospective businesses interested in income contingent loan financing for the development of Indigenous community projects. Without appropriate vetting procedures, prospective borrowers who expect their project to do poorly will be

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relatively encouraged to participate. This form of adverse selection is the reason that Altman and Dillon argue that the financing of the projects should involve vetting decisions by community leaders, as well as financing contributions from each of three parties: the communities themselves; a commercial bank; and the government agency providing the loan. The involvement of the bank is particularly motivated by the possibility of adverse selection, in much the same way that bank involvement in a drought income contingent loan would help ensure that there are minimal prospects for an assisted farm business not being in a position of financial recovery once a drought is finished.

The housing credit line also has a real potential to be undermined by adverse selection. The individuals gaining the most from accessing a housing income contingent loan are those expecting to repay the least in the future, so a government would need to put in place procedures to ensure that only the genuinely needy qualify. This could be done through access to health and employment records, for example.

The second design issue for income contingent loan policies concerns what is known as *moral hazard*. Moral hazard exists when there are incentives for those covered by an economic instrument to behave in unethical ways in order to avoid meeting their responsibilities. In this context, put simply, moral hazard is related to the possibility of assisted individuals or businesses cheating on their repayment obligations. It is an issue for all income contingent loan policy applications.

With respect to HECS, the financial basis for collection is an individual debtor's level of taxable income, and the first threshold for repayment (in 2005) is around \$(A)36,000 per annum. Since after the debt is incurred there is a real rate of interest subsidy, the moral hazard could take the form of debtors reducing measured taxable income below this level to gain financially. If this is achieved through reduced effort, and/or from tax deductions associated with self-employment, there is clearly a cost to the taxpayer. The fact that repayments seem to be about what is expected implies that, empirically, this form of moral hazard has not turned out to be important.<sup>41</sup>

The other form of moral hazard with respect to income contingent loans for higher education financing is that graduates can avoid repayments by leaving the country. While schemes such as HECS and the UK income contingent loan are extremely unlikely to encourage emigration it is still the case that taxpayers pay an implicit price for the time that debtors remain overseas for any reason because there is a real interest rate subsidy. This could be fixed with the use of tax agreements, or, alternatively, HECS debtors could be required by law to repay a minimum amount if they are living overseas for more than, say, six months.

A form of moral hazard for income contingent loan drought debtors relates also to the financial repayment base. That is, the use of a farmer's taxable income would result in little of the loan being collected, since there are so many deductions available for farm businesses. Instead, the use of the farm's gross revenue can overcome the moral hazard involved, since even with very low percentage repayments (such as 2 to 5 per cent of annual gross revenue) being collected, expected time periods of repayment are quite reasonable from the perspective of the (government) lending body.

Moral hazard issues are addressed in part in the FECS system for the collection of criminal fines through the setting of the collection parameters. That is, it is recognised that low level criminal fine repayments would not be collected with the use of the current HECS first income threshold of repayment, simply because at around \$36,000 per annum this is too high to enable a good proportion of the fines to be collected. The reality is that the majority of crimes of this kind are committed by low skilled young males, whose expected levels of taxable income are low. Instead,

the Chapman *et al.* scheme proposes the use of the collection parameters of the Australian non-custodial child support scheme, where contributions are required at very low levels of income and with low rates of repayment result in reasonable repayment periods from the perspective of the government.

Income contingent loan collection of white collar crimes fines, such as insider-trading by individuals, or collusion by companies, also raise issues of moral hazard. It is suggested that the HECS model would work reasonably well for the former, and for companies a solution would be to add several percentage points to profit taxes per year until a collusion debt is paid. It is important to recognise that the incentives to avoid repayment of income contingent loans can be affected by setting annual rates of repayment low. In the collusion case, illegal behaviour by companies to keep annual loan payments low would only provide small financial gains so long as the marginal rates were as low as, say, 4 per cent per year.<sup>42</sup> There are also clearly moral hazard issues with the use of income contingent loans for Indigenous community investment projects, which take two forms: individuals with both bank and government assistance could shirk in terms of work effort; and, businesses could minimise measured incomes to defer repayment. To encourage work effort, the Indigenous investment community income contingent loan requires the financial partnership not only between a bank and the government, but also with initial contributions from the communities involved in the project. The fact that those assisted will share the costs of poor work effort through the potential loss of their own outlays is a design aspect of the scheme motivated by the need to avoid this form of moral hazard.

Moral hazard is relevant to the design of the housing credit line. Those interested in assistance could, for example, encourage their own job loss, or feign ill health. However, this seems very unlikely to be a significant issue given that the housing credit does not in itself increase the lifetime incomes of those assisted. A real rate of interest on the debt would help minimise both low effort and moral hazard.

Finally, for R & D investments financed with an income contingent loan there is presumably a small incentive to lower effort since high profits result in higher repayments. One way of addressing this, in part, would be to have the loan repayment rates low and extended over relatively long periods.

The critical point concerning both adverse selection and moral hazard issues with respect to different income contingent loan applications is that possible solutions will take a variety of different forms, depending on the nature of the problem that a reform is designed to redress. Since there will be disparate approaches, policy development should include a clear recognition of the economic and institutional characteristics of each specific prospective application of an income contingent loan.

## **7. Summary**

The potential for social and economic policy of the use of the financial instrument known as income contingent loans has been considered from the perspective of a range of disciplines, including economics, political science, anthropology and criminology. These were associated with the financing of: higher education; drought relief; the payment of fines for both low level criminal offences and white collar crime; Indigenous land development projects; and R & D investments.

Different reasons were offered as motivations for the adoption of income contingent loans. There is clearly a 'market failure' involved in the financing of higher education, for example,

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and this can be addressed in a way that allows both consumption smoothing and default protection for student borrowers. In the collection of fines for criminal offences, on the other hand, it is arguable that the use of an income contingent loan mechanism provides the capacity to decrease significantly the administration costs associated with reparative justice. In several of the cases considered, such as for drought relief and R & D financing, it was suggested that current approaches to policy are regressive.

It clear that there are significant issues of adverse selection and moral hazard involved with the use of income contingent loans, and that these take quite different forms depending on the area under consideration. In each possible application considerable attention needs to be focused on issues of policy design and detail, to avoid potentially high costs.

Income contingent loans as a risk management public policy instrument are a different way of thinking about a role for government, and are neither uncontroversial nor fully worked out in many areas of suggested reform. However, as the examples touched on indicate, this unusual approach to the financing of important economic and social activities apparently offers significant potential.



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- <sup>1</sup> Convened in Canberra on 8 November 2004 by the Academy of the Social Sciences in Australia.
  - <sup>2</sup> Specifically, speakers concerned were John Quiggin, who considered the conceptual basis of having the public sector act as a bearer of citizens' risks, an issue raised and developed by Barr and others; medical indemnity insurance (Philip Clarke); drought policy (Linda Botterill); low level criminal fines (David Tait); the payment of white collar crime offences (Richard Denniss); funding models for the development of Indigenous land (Jon Altman); housing credits for low income earners (Stephen King); and R & D funding (Amanda Dadd and Glenn Withers). The papers on which they are based are referenced below.

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- <sup>3</sup> See Moss, DA (2002). *When All Else Fails*, Cambridge, MS: Harvard University Press.
- <sup>4</sup> *Ibid.*
- <sup>5</sup> Barr, N (2001). *The Welfare State as Piggy Bank*, Cambridge: Cambridge University Press.
- <sup>6</sup> Alstott, Anne and Bruce A Ackerman (2000). *The Stakeholder Society*, Yale University Press.
- <sup>7</sup> Chapman B (1997). 'Conceptual issues and the Australian experience with income-contingent charges for higher education', *The Economic Journal*, 107, 442: 738–51; Barr (2001) *op cit*; and Barr, N (1989). *Student Loans: The Next Steps*, London: Freedom Press.
- <sup>8</sup> Chapman B (2006). *Government Managing Risk: Income contingent loans for social and economic progress*, Routledge, London.
- <sup>9</sup> In the US, for example, the household income of young people defines the borrowing amounts available. In the Canada Student Loan program students from relatively high income household backgrounds are ineligible for any assistance.
- <sup>10</sup> See Chapman, B and Gillian Beer (2004). 'HECS system changes: impact on students', *Agenda*, 11, 2: 157-174.
- <sup>11</sup> Detailed discussion is available in Chapman (2006) *op cit*.
- <sup>12</sup> See Chapman B and Chris Ryan (2005). 'The access implications of income related charges for higher education: lessons from Australia', *Economics of Education Review*, 24, 5: 491-512.
- <sup>13</sup> Chapman (2006) *op cit*.
- <sup>14</sup> *Ibid.*
- <sup>15</sup> Linda Botterill presented a summary of the work done over several years with Bruce Chapman. For the best exposition of this work see Botterill, Linda Courtenay and Bruce Chapman (2006). 'Turning grants into loans: income contingent loans for drought relief', in Chapman (2006) *ibid.*: 122-139.
- <sup>16</sup> ABS (Australian Bureau of Statistics), *National Accounts*, Ref. No 5062.0, Canberra.
- <sup>17</sup> ABARE (Australian Bureau of Agricultural and Resource Economics) (2002). *Drought Continues to Devastate Crops*, Media Release, Canberra, 29 October.
- <sup>18</sup> Botterill and Chapman (2006) *op cit*.
- <sup>19</sup> At the symposium David Tait reported on the following paper: Chapman, B, Arie Freiberg, John Quiggin and David Tait (2004). 'Using the tax system to collect fines', *Australian Journal of Public Administration*, 63, 3, September: 20-29.
- <sup>20</sup> *Ibid.*
- <sup>21</sup> See full discussion in Chapman *et al* (2004), *ibid.*
- <sup>22</sup> This section is based on the analysis of Chapman B and Richard Denniss (2005). 'Using financial incentives and income contingent penalties to detect and punish collusion and insider trading', *Australian and New Zealand Journal of Criminology*, 38, 1: 122-140.
- <sup>23</sup> ACCC (Australian Competition and Consumer Commission) (2002). *Submission to the Trade Practices Act Review*, June, Canberra: ACCC.
- <sup>24</sup> OECD (2002). *Report on the Nature and Impact of Hard-core Cartels and Sanctions Against Cartels Under National Competition Laws*. Paris: Directorate for Financial, Fiscal and Enterprise Affairs, OECD.
- <sup>25</sup> Richards, C (2000). 'Insider trading — the case against fairness', *The Law Report*, 26 September, online <<http://www.abc.net.au/rn/talks/8.30/lawrpt/stories/s188636.htm>>
- <sup>26</sup> *Ibid.*
- <sup>27</sup> Case studies to illustrate how the fine collection mechanism could be used, and estimates of the revenue streams associated with examples of both insider trading and collusion, can be further reviewed in Chapman and Denniss (2005) *op cit*.
- <sup>28</sup> Jon Altman made a presentation at the symposium based on the work of Altman, J and M Dillon (2004). 'A profit-related investment scheme for the indigenous state', Discussion Paper 270, Centre for Aboriginal Economic Policy Research, Australian National University. This paper assesses the state of commercial development and resource management on Indigenous land, particularly in remote Australia.
- <sup>29</sup> *Ibid.*
- <sup>30</sup> Chapman, B and R Simes (2004). 'Profit related loans for economically disadvantaged regions', Discussion Paper DP481, Centre for Economic Policy Research, Australian National University.

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- <sup>31</sup> Gans, J and S King (2006). 'Income contingent loans for low income households', in Chapman (2006) *op cit.* 196-216.
- <sup>32</sup> Productivity Commission (2003). 'First home ownership: discussion draft', Melbourne, December.
- <sup>33</sup> The statistics referred to here are from the Australian Bureau of Statistics (2003) *Year Book Australia*.
- <sup>34</sup> Rothenberg, J, GC Galster, RV Butler and J Pitkin (1991). *The Maze of Urban Housing Markets: Theory, Evidence and Policy*, Chicago: University of Chicago: 3.
- <sup>35</sup> Productivity Commission (2003) *op cit.* 21.
- <sup>36</sup> See Dadd, A and G Withers (2005). 'Applying income related loans to R&D financing', Australian National University, mimeo.
- <sup>37</sup> The reasons are developed in their paper. Dadd and Withers, *ibid.*
- <sup>38</sup> A proposed scheme along these lines is also to be found in Macquarie Graduate School of Government (MGSG) (2005). *Study for a Masterplan for Human Resource Development for Malaysia*, Sydney and Kuala Lumpur, June. 3 volumes (mimeo). One of the co-authors of the paper under discussion (Withers) also co-authored the MGSG Final Report.
- <sup>39</sup> In Chapman (1997) *op cit.*, and an issue raised persistently by Barr (1989, 2001) *op cit.* and others.
- <sup>40</sup> Chapman (2006) *op cit.*
- <sup>41</sup> This issue is examined in Chapman, B and A Leigh (2006). 'Do very high tax rates induce bunching? Implications for the design of income-contingent loan schemes', Centre for Economic Policy Research Discussion Paper Series Number 521, Research School of Social Sciences, Australian National University, Canberra. They find evidence of bunching but its empirical significance is small.
- <sup>42</sup> Chapman and Denniss (2005) *op cit.*



