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COMMITTEE FOR ECONOMIC DEVELOPMENT OF AUSTRALIA

# Sharing the Costs of Parental Leave

## Paid parental leave and income contingent loans

**Bruce Chapman, Tim Higgins and Lynnette Lin**

CEDA INFORMATION PAPER 91 JUNE 2008

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## About this paper

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# foreword

CEDA's goal is to promote intelligent analysis and vigorous debate on Australia's biggest policy challenges.

Through *Information Paper 91: Sharing the Costs of Parental Leave*, we have turned our attention to the topic of parental leave – a subject relevant to the ageing population, the need to promote the early development of children, and provide support for families in balancing work and family responsibilities.

Professor Bruce Chapman, Tim Higgins and Lynnette Lin propose an income contingent loan facility to supplement government- and employer- funded paid parental leave. The mechanism would operate in the same way as the Higher Education Contribution Scheme (HECS). Loan repayments would be made only when future incomes reach a specified level.

There is a strong case for parents to contribute to the costs of paid parental leave. Benefits accrue to them in the form of time to recover from childbirth, and the opportunity to be closely involved with the early development of their children. At the same time, employers benefit as they are more likely to retain skilled employees. The economy also benefits from a potentially larger and healthier workforce.

The paper examines the financial consequences under which the government is lender and parents are solely responsible for repayment. The analysis suggests that such a scheme would introduce choice and flexibility into parental leave, without requiring major contributions from taxpayers for the majority of parents. In essence, flexibility comes from the ability of parents to transfer the loan repayment obligation to a time in life when the family's household incomes are relatively higher.

The paper does not examine the extent to which the total costs of paid parental leave should be borne by a mix of taxpayers, employers and individual families. Nevertheless, it does touch on the possibility of employers being brought into the mix.

This approach may be a viable way of extending paid parental leave for a period that would be of considerable social benefit to the Australian community.

We thank Professor Bruce Chapman, Tim Higgins and Lynnette Lin for their contribution to the debate on one of the big issues on the nation's human capital agenda.

Theirs is a well-researched proposal that offers greater personal and financial flexibility for parents to balance work and home commitments. It also offers potential advantages to employers in maximising the prospects of employees returning after leave to their original jobs. Finally, there is the prospect of wider economic benefits to be captured from the added incentive it introduces for broad workforce participation.

David Byers
Chief Executive, CEDA

# summary

Recently the new federal government asked the Productivity Commission to enquire into the social and economic policy issue of paid maternity, paternity and parental leave. This follows enthusiastic debate in Australia over the last few years concerning the merits or otherwise of different government policy approaches to this issue. Public interest was sparked in December 2002 when the Human Rights and Equal Opportunity Commission (HREOC) released a proposal for a national system of paid maternity leave, in which scheme eligible women would be entitled to 14 weeks of paid leave funded by the government.

Australian governments have so far resisted the introduction of a broad grants-based system, and it is of interest that a significant number of submissions to the Productivity Commission Inquiry have called for a taxpayer funded parental leave scheme of up to 26 weeks duration. Whether or not such a scheme is adopted, the prospect of an even longer period of taxpayer assistance for parental or maternity leave is unlikely to be supported by either side of politics for the foreseeable future, and nor is it clear that the economics of the matter would justify relatively long periods of taxpayer funded paid parental leave (PPL).

This paper proposes a funding mechanism which could be used as an optional addition to a grants-based PPL system, allowing extensions beyond the leave periods that may eventually be available through a grant. In effect, income contingent loans allow parents to tax themselves in the future when their incomes are relatively high, and transfer these financial resources to themselves when household incomes are disrupted as a result of parental leave. The type of solution suggested and modeled is the use of income contingent loans similar to those employed in the provision of tuition assistance for Australian university students through the Higher Education Contribution Scheme (HECS). A glib characterisation of our paper would be "HECS for PPL".

Our main contribution is to explain and present simulations of revenue streams in different households in which income contingent loans are used to help finance PPL. This clarifies what such an approach might mean for government subsidies for particular groups and what the financial implications for households might be.

The analysis suggests that an income contingent loan approach has the potential to satisfy key policy objectives: as an optional supplement to a grants system it can introduce flexibility and choice without requiring major further contributions from taxpayers; it provides a solution to a financing impasse that would not be resolved by commercial banks; and, because repayments of the loan are only required when households are in a position to repay, it provides significant consumption-smoothing and lifetime income distribution advantages over possible alternatives.

Policy questions of some importance remain. There is a case for employer contributions in some form but so far this has not been included in our analysis (the issue is considered in Chapman, 2002); and overall budget costs for the scheme have not as yet been estimated. We are also acutely aware that there are critical issues of policy design with respect to the roles played by adverse selection and moral hazard, and what these behaviours might mean for the availability, collection parameters and taxpayer subsidies of income contingent loans. All of this promotes the case for a financially cautious initial approach in the application of income contingent loans for PPL.

# introduction

Over the last several years there has been enthusiastic debate in Australia concerning the merits or otherwise of different government policy approaches to paid parental leave (PPL). In December 2002 the Human Rights and Equal Opportunity Commission (HREOC) released a proposal for a national system of PPL in their report, *A Time to Value*. Under the HREOC-suggested scheme eligible women would be entitled to 14 continuous weeks of paid leave, funded by the federal government at a level that is the lesser of the federal minimum wage and the mother's average weekly earnings from all jobs. The previous government did not take up this proposal, although the introduction of the Baby Bonus in 2003[1] might be seen by some to have similar motivations as PPL.

It is often pointed out by proponents of approaches such as these that Australia is one of only two countries (the United States being the other) in which there is no legislative requirement or taxpayer subsidy for PPL. The advocates of such arrangements suggest that there are important benefits of a policy which encourages recent mothers not to resume paid employment too soon after the birth of their child, with the benefits of PPL to families being divisible into a range of physical, mental and psychic health issues as well as financial security and the reduction of discrimination. Firms are seen to benefit as well if employees with PPL are less likely to resign from their jobs and more likely to return to their employer, since training investments in the worker are then not lost. As a result, it is argued that society benefits from a potentially larger and healthier workforce and from a presumed higher productivity and increased tax revenue when parents return to paid work.

The case for PPL can be positioned in a fairly conventional economic theory framework, and this is explained in Section 2. The arguments imply two important things about PPL policy: one, that there seems to be a case for some government subsidy; and two, that there is an apparent failure in the provision of finance from the commercial banking sector to facilitate PPL, thus providing a justification for government intervention beyond subsidies. This motivates the type of intervention suggested and modeled in this paper: income contingent loans similar to those used in the provision of tuition assistance for Australian university students through the Higher Education Contribution Scheme (HECS).

Income contingent loans, we argue, have a role to play in financially assisting families when recent mothers temporarily leave paid employment for child-rearing purposes. In effect, income contingent loans allow parents to tax themselves in the future when their incomes are relatively high, and transfer these financial resources to themselves when household incomes are disrupted from parental leave. The main contribution of the paper is to explain and present simulations of revenue streams in a situation in which income contingent loans are used in this way. This allows insight into what such an approach might mean for government subsidies and for the financial benefits and costs for the families involved.

While the focus is on the use of an income contingent loan in the context of PPL, it is critical to note what this paper is *not* about with respect to policy reform. There are three important issues:

1. We have not examined the extent to which theory and data inform us as to how the total costs of PPL should be borne by taxpayers, employers and individual families. There might be a case for contributions from all parties[2] if all three benefit from

PPL, but our focus is simply *how families might be able to finance their own optional component of the assistance.*

2. Consistent with the above we consider the use of an income contingent loan for financing part of PPL as potentially being in addition to the provision of grants from taxpayers, which could perhaps take the form suggested in the HREOC proposal of 14 weeks. Our aim is thus to examine ways in which new parents might be able to take more than the amount of leave suggested in the HREOC proposal – in our example, up to six additional months – without this significantly adding to the contribution from taxpayers.

3. While the discussion and the empirical exercises focus on leave taken by new mothers, there is no reason why the ideas could not be applied to either parent, or to fathers only, and this is why we use the term "paid parental leave", rather than the term "paid maternity leave". Our modeling of the policy in terms of mothers only at this point allows us to keep the analysis straightforward, with extensions of income contingent loans into more flexible parental leave arrangements being a desirable area for future analysis.

# 1. The current Australian situation

Paid parental leave is "an income replacement to compensate for the leave from paid employment necessary around childbirth",[3] and is a public policy issue of both social and economic importance, and of recent public and scholarly debate.[4] Legislated as part of the former government's *WorkChoices*, statutory unpaid parental leave provisions are available universally in the Australian workforce, with families entitled to up to 52 weeks of unpaid leave, shared between parents.[5] In contrast, Australia has not legislated for a minimum PPL system across the workforce despite recommendations in 2002 by HREOC for a national, government-funded scheme of 14 weeks PPL (HREOC, 2002).

Even though there is not a universal PPL scheme in Australia, individual workers in certain areas of employment may have access to PPL through collective bargaining, public sector employment benefits, or by working for an employer who provides PPL as a key part of their human resources strategy (Baird and Litwin, 2005). However, deficiencies in the current system are apparent: under collective awards or agreements which cover two-thirds of the workforce, only 11 per cent of federal agreements and 5 per cent of state agreements include allowance for PPL (Baird, 2004); discrepancies exist within the states and between the State and Federal public sectors in the number of weeks of PPL available (Baird and Litwin (2005); Baird, Brennan and Cutcher (2002)) and coverage in the private sector varies across industry sectors and occupation, with estimates of 77 per cent coverage in the finance or insurance sectors, compared to only 1 and 2 per cent coverage respectively for the retail and hospitality industries (Pocock, quoted in O'Neill, 2004).

The arguments for and against PPL have been summarised elsewhere[6] and won't be elaborated here, except to say that benefits apparently arise for individuals, employers and the economy. There are arguments in favour of PPL based on equity grounds, parental bonding and establishing feeding, and the costs associated with having children, but government funding for a universal scheme is more likely if benefits to the broader economy rather than the individual, such as improved infant (and beyond) health outcomes,[7] can be demonstrated. Attractions for government will depend to an extent on a scheme's specifics; different proposals may involve different funding arrangements and levels of financial resources required and may have varied projected net economic returns. In studies to date, it is difficult to quantify the extent to which the government as provider would achieve a net return on such a scheme, and this may be partly responsible for the apparent policy stall in this area.

The importance of PPL as a social and economic issue has not been lost on the current government, which announced in February 2008 that the Productivity Commission will examine the issues and present a report by February 2009.[8] Included in the brief is identification and assessment of models for PPL. One such model, that of an income contingent loan, involves sharing the cost between the individual and the government, yet provides most benefit to those in most financial need over their lifetime.

# 2. Income contingent loans

## 2.1 What is an income contingent loan?

The conceptual basis of an income contingent loan involves the provision of loan finance for activities agreed by government and has the following critical characteristic: repayments depend on the future economic circumstances of the loan recipients. The key point is when those assisted experience an adverse financial situation in the future they have no repayment obligations in that period; thus the collection of the debt is based on capacity to pay. Compared to bank loans, it is this feature of income contingent loans which has the strong potential to deliver to borrowers the benefits of both default insurance and consumption-smoothing.[9]

In general, 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 in 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 concerning the commercial provision of loans for human capital investments), and in this case public sector intervention has the capacity to fill a significant void.

In other cases there might well be evolved market responses to particular private sector needs (such as in the provision of child care) but these might be handled more equitably or in administratively more efficient ways through the use of an income contingent loan mechanism. In many possible applications the issue of equity looms large, since some current government grant schemes are arguably regressive (for example, taxpayer grants to farmers for drought relief[10]). For each possible application it is important to be precise about the nature of a market failure, and/or the alleged advantages of an income contingent loan compared to current or alternative approaches, in order that the nature of the problem and its potential solutions are easy to understand.

One of the important motivations for income contingent loans organised through the public sector is that such interventions, compared with commercial bank loans, have the capacity to significantly reduce risks for borrowers in ways that might be both equitable and beneficial to society generally. In some cases these arrangements mean that finance can be made available for projects or the participation of some individuals that would otherwise not occur because of a lack of access to bank 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 reducing the extent of taxpayer subsidies. A major theme in the literature related to income contingent loans is that the provision of loans with such a feature has the two fundamental benefits of protecting borrowers from both default and repayment hardship.[11]

Perhaps the best-known income contingent loan is HECS, 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 their personal incomes exceeded a certain level (and beyond that as a proportion of income). Forms of this type of approach to higher education financing have also now been adopted in New Zealand (1991), Ethiopia (2002), South Africa (1994), Chile (1996), the UK (first in 1997, and modified significantly in 2006), Thailand (2006), Israel (planned for 2008), and a complicated variant of the scheme was introduced in the US in 1994 (which was modified in 2007 making it more similar to

the schemes of other countries). Income contingent loan reform debates are currently underway in Colombia and across South and East Asia.[12]

## 2.2 How does HECS work?

HECS provides an income contingent loan from the Australian government to students to pay for course fees for undergraduate education. The system was extended to other areas of tertiary education financing in 2002, 2005 and 2007, and an income contingent loan known as FEE-HELP is now available to assist students pay tuition in all post-graduate courses, all private sector higher education institutions (such as Bond and Notre Dame Universities and many religious colleges) and a subset of vocational education and training courses.

The loans are indexed to inflation in line with the consumer price index (CPI) and are repaid by graduates or former students through their taxable income according to specific repayment rates and income thresholds. For undergraduates there is a discount for an up-front payment of the university tuition charge, which is currently 20 per cent. With respect to FEE-HELP there is also a kind of a real rate of interest, which takes the form of a 20 per cent surcharge for the use of the income contingent loans system.[13] HECS partially replaced existing taxpayer funding of higher education, and therefore represented a move away from taxpayer-funded education towards a user-pays system.[14]

The income contingent nature of a loan such as HECS requires clear specifications for the calculation of the debtor's assessable income. Although there is no mandated requirement for a particular definition of assessable income, for the purpose of HECS, assessable income is equal to taxable income plus any amount that taxable income was reduced by a net rental loss, plus total reportable fringe benefits declared. This information is readily available from each individual's income tax return, and hence determination is easily conducted by the Australian Taxation Office (ATO).

The repayment required for a given period of time will be determined by the assessable income for this period. If the assessable income for the period is less than or equal to some minimum income level then the required repayment is nil, meaning that repayment is contingent on earning more than this amount. The involvement of the ATO as both the body which determines assessable income for repayment purposes, and which both calculates and collects each debtor's compulsory repayment, ensures an efficient system for debt collection.

An issue in the possible application of a HECS-type scheme to the financing of paid parental leave relates to whether or not the debt is a shared responsibility of two parents. An important administrative point is that if liability for an income contingent loan is taken jointly by more than one debtor, then the same formula can be applied to each debtor separately to determine the required repayment from each. This issue is addressed fully in the discussion and simulation exercises considered in later sections.

## 2.3 What have been the effects of HECS?[15]

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:

1. 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. 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.
2. The charge has delivered considerable revenue, in the order of $13 (2005) billion over the first 16 years. The system provided around $1.2 (2001) billion per year in 2005, about 30 per cent or more of annual recurrent costs.
3. HECS seems to be inexpensive to operate in administrative terms. That is, while around $1.2 (2005) billion is currently collected per annum, it apparently costs less than 4 per cent of this to administer.[16] This is because the collections are fairly straightforward given the mechanisms of the ATO.

There are some caveats and qualifications to these conclusions, most along the lines that aggregate demand and student access cannot be traced directly to HECS as an income contingent loan *per se*. Much of the 1989–2005 Australian higher education experience might well have been affected by 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 schemes like HECS to be implemented, and in many countries this will not be the case.

## 2.4 Potential problems for HECS

### 2.4.1 Adverse selection

There are two common major design challenges to income contingent loan policies. These arise from what economists call "adverse selection" and "moral hazard". Understanding what they mean and how they can be addressed is an essential aspect of our analysis of the potential for the use of income contingent loans in the funding of PPL.

Adverse selection is the term given to the notion that particular forms of economic instruments or policy will attract those 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 further non-involvement of the relatively healthy.

> … policy development should include a clear recognition of the economic and institutional characteristics of each specific prospective application of an income contingent loan.

As income contingent loans provide most benefit to those who expect to perform least well financially in the future, the possibility of adverse selection with respect to take-up is very real. Thus if HECS covered income support for example, and the amount of the loan being taken was discretionary, the government should anticipate relatively high borrowings – and thus relatively high taxpayer subsidies – from those who anticipate their future taxable income to be low.

This potential problem is addressed by the Australian, New Zealand and UK income contingent loans for higher education tuition costs through a simple rule: participation 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. The general issue is critical to the design of an income contingent loan for PPL.

### 2.4.2 Moral hazard

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 HECS, the financial basis for collection is an individual debtor's level of assessable income, and the first threshold for repayment (in 2007/08) is around $A40,000 per annum. Since after the debt is incurred there is a real rate of interest subsidy, debtors who are able to maintain measured assessable income below this level in effect 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 other form of moral hazard 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. 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.

The critical point concerning both adverse selection and moral hazard issues is that possible policy solutions involving income contingent loans are likely to take a variety of different forms, depending on the nature of the problem. 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. This is undertaken below with respect to the use of an income contingent loan for PPL.

## 2.5 The case for government intervention

A case for government subsidy of PPL can be made on the basis that the social benefits exceed the advantages accruing directly to families. However, it would seem to be incontestable that there are also private benefits to the families, and the question arises as to whether or not there should be institutional arrangements to allow those interested to be able to finance their parental leave; if not, we have what is referred to as market failure. This leaves the door open for government intervention of some form. First, though, it is critical to understand the nature of the market failure.

For many parents with existing mortgage obligations who may be on limited household income while they care

for their young children at home, borrowing to finance parental leave may be problematic or impossible. It is unlikely that banks would offer credit to poor prospective borrowers because of default risk and the absence of collateral. But even in the event that bank loans were available for the financing of paid maternity leave, they would have the following undesirable characteristics for the borrower:[17] the first is that mortgage-type loans do not offer insurance to the borrower against default, and in this event there are thus significant issues for the borrower's credit reputation; second, bank loans do not provide protection from the potential consumption hardship associated with repayment obligations that are insensitive to future capacity to pay.

Without government intervention, parents wishing to take leave for child-rearing purposes face unpalatable alternatives: a period of considerably reduced incomes and consumption; running down savings; and/or the prospect of accessing or extending a mortgage loan with undesirable properties. But government intervention in the use or part-use of an income contingent loan mechanism could help resolve the issue.

For most families interested in financing PPL, bank loans will not be available in the absence of collateral to provide insurance against default. Just as is the case with respect to the financing of higher education, an income contingent loan for parental leave provides a mechanism which has a both a form of consumption-smoothing, with a very clear life-cycle dimension. That is, an income contingent loan allows borrowers the opportunity to distribute income from future propitious periods of their economic lives to current periods of need. There is thus a fairly long life-cycle aspect to consumption-smoothing from an income contingent loan for PPL.

### 2.6 Adverse selection and moral hazard with PPL

A government offering an income contingent loan for PPL would need to give important weight to the potential of both adverse selection and moral hazard to undermine such a scheme. These issues are now considered.

Adverse selection arises if those seeking relatively high amounts of income contingent loan support expect to repay relatively low proportions of the loan in the future. This could happen, for example, if repayment obligations were defined to be the responsibility only of the person undertaking the leave, for example, a mother. If she believed it was unlikely that she would ever earn the first income threshold of repayment, or expected that it would take a long period of time to do so, there would be significant potential for relatively large taxpayer subsidies from the scheme. In some extreme cases, the entire loan would effectively turn into a grant.

The expected time period of repayment would be critical in calculations of the extent of taxpayer subsidies from a scheme in the event that the loan is designed with a real interest subsidy, such as the situation with HECS after the debt is incurred.[18] These subsidies can be very high and are influenced importantly by both the size of the debt and the length of time taken for repayment. For example, Chapman and Lounkaew (2008) show that the interest rate subsidies associated with FEE-HELP in the private sector are typically of the order of 25-30 per cent.

The circumstances associated with this form of adverse selection would include a debtor expecting: (i) not to work in the paid labour market again, or not for a long period of time; (ii) not to earn above the first threshold of repayment again, or for a long time, perhaps because of the expectation of further children and/or undertaking only part-time work; or (iii) to emigrate or spend considerable periods overseas.

Similar implications for taxpayer subsidies arise from moral hazard. In this area moral hazard takes the form of PPL debtors changing their behaviour in order to avoid repaying the debt, or in order to repay it very slowly. This could arise by debtors deciding: (i) not to return to paid work, or to return slowly; (ii) to take part-time instead of full-time work; or (iii) to emigrate or spend considerable periods overseas.

In Australia there is an additional issue of PPL borrowers having an existing HECS debt. Thus the prospect of a similar debt for PPL might encourage relatively high borrowings from former higher education students (a case of adverse selection) and/or disincentives to reach the first income threshold of repayment because the financial benefits of this type of avoidance are relatively high if the total income contingent loan debt is high (a case of moral hazard).

Explorations of the extent of the above potential problem by Dr Peng Yu (private correspondence) using the HILDA survey reveal, however, that the issue is not very important empirically. The matter can be approached by determining the proportion of young mothers (that is, prospective PPL borrowers) with a HECS debt. His analysis revealed that in Wave 6 (2006) of HILDA, there were 568 women with a child younger than two years. Of these 63 (11.09 per cent) had outstanding HECS debts or other student loans, and of these 59 revealed the size of their debts, with the average outstanding amount for this group being $8563. These data imply that only around one-tenth of the current population potentially eligible for an income contingent loan for PPL would also have a HECS debt.

Nevertheless, the number of HECS debts is rising, and multiple income contingent loan debt obligations could conceivably become a financial strain should a new variant of the scheme be introduced. A simple way forward would be to group all such debts together, and have one compulsory repayment based on income which would go towards reducing the combined debt. This would have the effect of extending the duration of the

loan(s), thus increasing the net subsidy, but not the magnitude of the annual repayment obligation. This scenario is explained further in Section 5.

The potential for adverse selection and moral hazard is not trivial, even in a scheme such as HECS in which they are relatively less likely to matter because of the compulsion involved in the arrangements.[19] Related to this is that the doubtful debt (debts unlikely to be collected) ratio under HECS was shown to have varied from 17.2 to 22.2 per cent in the five years between 1998–99 and 2002–03 as reported in the 2003–04 Additional Estimates Hearing of the Senate Legislation Committee. In addition to being conditional on the future income of debtors, the extent of doubtful debt is also highly dependent on income thresholds, repayment rates, the indexation rate applied to outstanding loans, and the loan amount itself. These are critical issues for the design of an income contingent loan for PPL.

## 2.7 The importance of policy design

The discussion of adverse selection and moral hazard raises the important issue of policy design. For example, these risks would seem to be a good reason for exploring the possibility of the debt being the obligation of both parents, rather than simply an obligation of the partner taking the leave, in the typical circumstance of the mother and the father both benefiting from the loan.

Further, if the collection issues loom large, as would appear to be the case, there might be reasons for exploring different interest rate regimes, income thresholds of repayment, and/or arrangements concerning repayment in the case of emigration or the separation of the parents after – or even during – the taking of parental leave.

The parameters and loan design characteristics of the simulation exercises have been chosen in large measure to reflect concerns associated with the potential for both adverse selection and moral hazard to affect considerably the costs to taxpayers.

# 3. Designing an income contingent loan for PPL

## 3.1 Motivation

In exercises of this type it is important to explore as simply as possible some of the likely implications for both recipients (families) and the provider (the government) of an income contingent loan for PPL. This requires two aspects of the modelling to be made explicit: the design parameters of a loan scheme and several hypothetical demographic and financial scenarios of loan recipients. To these ends we propose policy parameters for the model of a basic scheme, and we present scenarios of some common family types to show how such a scheme might work in practice.[20]

As suggested previously, the policy modelling of the loan scheme could be supplementary to a grants system, such as that proposed by the HREOC (2002), or a stand-alone system. Our analysis throws no light on the duration of paid leave provided through a grants-based system, and for the modelling here it has been assumed that the income contingent loan assistance would begin immediately after any period of grants-based assistance.[21]

The idea that there should be provisions for a form of paid maternity leave for periods beyond a short length of time is not unusual in an international context. For example, HREOC (2002) notes that some of the countries which offer paid leave at 100 per cent of wages for durations exceeding 14 weeks include Austria, Denmark, France, Hungary, Luxembourg and Spain. In addition the International Labour Organisation's Recommendation 191 (2000) encourages member states to extend leave beyond 14 weeks to offer 18 weeks for women. With respect to the Australian data it is instructive to note that only 9 per cent of mothers returned to paid employment within three months and 25 per cent returned within six months of birth (Whitehouse, Baird, Diamond and Hosking, 2006). Nevertheless, this particular issue is not part of our analysis.

## 3.2 Design parameters

### 3.2.1 Participation

An income contingent loan scheme applied to PPL could be structured broadly in two ways: one in which the government is lender and the parent(s) is (are) solely responsible for repayment; or one in which the government is lender, the parent(s) is (are) responsible for some repayment, but the employer, as a beneficiary of the scheme, also plays a role.

The chief area in which an employer could participate in such an income contingent loan scheme would be individually negotiated arrangements to repay all, or part thereof, of their employee's outstanding loan, sensibly on condition that they return to their original workplace. Among other things, this has benefits with respect to the returns to training investments specific to the firm (Chapman, 2002).

The simplest arrangement, however, would see parents applying for a loan, perhaps after an initial period of leave financed by taxpayers, with the loan provided by the government and to be repaid by the debtor and/or the family depending on the level of their future incomes. As the purpose of this paper is to introduce the concept of an income contingent loan scheme for PPL, it is the simple government-provided loan scheme, excluding employer involvement, which is examined in detail and is the subject of modelling in the remaining discussion. This should not be taken to mean that we are opposed to PPL policies which would allow for employers to contribute as well.

### 3.2.2 The duration of the loan

The proposal entails a borrower being provided with fortnightly payments of a fixed amount. Under the basic scheme considered here a parent could take out a loan from the government to extend leave for 26 weeks (after expiry of an entitlement paid for by taxpayers) for a first child (or twins). In our modelling we allow a further 26-week extension for a subsequent birth. The cap chosen is somewhat arbitrary, designed to strike a balance between the costs of the scheme to the taxpayer in the event of interest rate subsidies and the needs of the parent.

We have assumed that the size of the loan per fortnight is the hourly federal minimum wage[22] multiplied by 80 hours (40 hours per week), and with the 26-week cap this comes to a total of around $14,290. The maximum loan, capped for two children, would thus be around $28,500; however, for many of those eligible the leave taken and the debt incurred would be lower than this.

There could, of course, be subsidies different to those potentially arising from the interest rate arrangements, and these could have implications for the cap chosen. For example, the government could require only a portion of the loan, say, 60 per cent, to be repaid, and in such a case the initial outlays could be lower. This would clearly be a matter for policy decision influenced by an assessment of the division of the social benefits between families and society generally.

### 3.2.3 Loan eligibility

The discussion in Section 2 concerning adverse selection and moral hazard suggests that conditions on eligibility and restrictions on loan amounts should be imposed on any income contingent loan scheme. A poor example of how to design an income contingent loan for PPL would be to encourage borrowing from prospective parents with weak attachment to the paid labour force, since this is likely to result in relatively low repayment of the debt. Eligibility conditions relating to past work patterns are not required for the scenarios generated here, but would be critical in scheme design and for projecting aggregate take-up and costs.

### 3.2.4 Debt indexation and a surcharge

As with HECS, we assume the loans are indexed to inflation as reflected by changes in the CPI. Although this implies a zero real interest rate, a loan surcharge or fee of 20 per cent on the borrowed amounts is proposed, consistent with the FEE-HELP loan scheme referred to in Section 2 (DEST, 2007). The 20 per cent surcharge is in effect a blunt form of applying a real interest rate to the debt.

This arrangement helps explain the empirical exercises explored below. This is because the FEE-HELP parameters will be associated with idiosyncratic levels of interest rate subsidies since they will be determined by the (unique) future income circumstances of all PPL borrowers. Some repaying the loan very quickly will very likely provide negative subsidies, and those repaying slowly or incompletely will experience positive – and in some case, potentially large – taxpayer subsidies. A major goal is to determine the extent of these subsides for a range of different demographic and financial circumstances.

### 3.2.5 Repayment conditions

Repayments are made when assessable income exceeds a specified minimum threshold. As explained earlier, adverse selection with respect to income contingent loans can arise due to a parent taking out the loan with the intention of never returning to paid work, or working reduced hours so as to not repay the loan, or to repay it only very slowly. This could be mitigated in two possible ways.

The first way to reduce the time taken to repay a given level of income contingent debt would be to make repayments the obligation of both parents (in cases where the father is present at the time of the leave). In this situation total repayments made during each time period are the sum of the two repayment amounts, which are assessed based on each of the parent's individual incomes (that is, a compulsory repayment is calculated based on the mother's income, a compulsory repayment is calculated based on the father's income, and these two amounts are added). Basing repayments on both parents' incomes for couples is feasible logistically as the current tax collection mechanism in Australia allows for the collection of spouse details.[23] Moreover, if both parents are treated individually by the ATO in calculation of the compulsory repayment, this removes a possible complication in the event the parents separate. In this circumstance the outstanding balance would remain a liability of both parties irrespective of the status of their relationship.

A second way to mitigate the possible interest rate subsidies associated with low future incomes of mothers is likely to be particularly appropriate for the small minority of mothers living separately from the father of their child at the time of the maternity leave. A part response to this circumstance would be to have a lower first income threshold of repayment for the scheme generally[24] and in order to avoid hardships associated with repayment in this circumstance there would be a commensurate reduction in the proportion of income required (from the 4 per cent with HECS, to, say, 2 per cent).

To achieve the above we use the minimum threshold of $26,953, which is equivalent to the exempt income amount under the Australian Child Support System (CSS)[25] for a parent with a dependant child under the age of 13 in 2007. This threshold is chosen for the current exercise as it is considered by the authors as a suitable proxy for the lower limit of income affordability for individuals faced with child rearing responsibilities.[26]

Thus for our exercises we use the 2006–07 HECS repayment rules[27] adjusted by imposing the additional

**TABLE 1: REPAYMENT THRESHOLDS AND RATES**

| FORTNIGHTLY INCOME | REPAYMENT RATE (% OF INCOME) |
|---|---|
| Less than $1,037 | Nil |
| $1,037 – $1,249 | 2.0 |
| $1,250 – $1,466 | 3.0 |
| $1,467 – $1,633 | 4.0 |
| $1,634 – $1,800 | 4.5 |
| $1,801 – $1,895 | 5.0 |
| $1,896 – $2,037 | 5.5 |
| $2,038 – $2,206 | 6.0 |
| $2,207 – $2,323 | 6.5 |
| $2,324 – $2,556 | 7.0 |
| $2,557 – $2,724 | 7.5 |
| Above $2,725 | 8.0 |

SOURCE: AUSTRALIAN TAX OFFICE, 2007 & CHILD SUPPORT AGENCY, 2007

**TABLE 2: SUMMARY OF LOAN PARAMETERS AND CONDITIONS FOR INCOME CONTINGENT LOANS SCHEME MODELLING**

| | |
|---|---|
| Coverage | Available only to women in the labour force (illustrative only and could be applied also to fathers) |
| Duration of loan assistance | Specified by the individual, but capped at 26 weeks per loan |
| Payment amounts | A fortnightly amount equal to the hourly Federal Minimum Wage for 80 hours ($1099 per fortnight, or $14,290 for 26 weeks of loan assistance) |
| Repayment thresholds/rates | Applying HECS collection parameters, with an adjustment to allow for lower repayment thresholds (consistent with CSS). |
| Repayment conditions for couples | Outstanding balance is a liability of both parties. Total repayment is the sum of the two repayment amounts assessed on the basis of each of the parent's incomes individually. |

requirement taken from the CSS rules, resulting in the payment thresholds and rates given in Table 1.

### 3.2.6 Additional parameters

Because the scheme involves repayments over time with different kinds of indexation arrangements, some assumptions are required with respect to price and wage change: these are 2.5 per cent (the middle of the Reserve Bank of Australia's acceptable band for price inflation) and 4 per cent per annum respectively, which are the approximate rates over the last few years in Australia (RBA, 2008a). Consistent with the HECS-HELP and FEE-HELP arrangements, we adjust the income thresholds for this assumed rate of growth in average weekly earnings. As is the case with HECS-HELP and FEE-HELP, there is no liability for repayment of the debt from the debtor's estate upon the death of the borrower. Further, in the modelling undertaken for this exercise a 52-week waiting period has been applied from the final loan payment before repayments are required.

### 3.2.7 The parameters in summary

A summary of the main conditions in this section is given in Table 2.

## 3.3 Scenarios

### 3.3.1 Constructing a basic model

Four hypothetical scenarios have been chosen to reflect realistic family units which might be expected to utilise the income contingent loan scheme if it were introduced. The scenarios illustrate how such a scheme might work in practice by showing patterns of outstanding debt and repayments.[28] Results are displayed in the following section, along with estimates of the subsidy that arises due to the government as loan provider applying zero real indexation to the outstanding debt.

The four scenarios are summarised in Table 3.

Scenarios 1 and 2 are two-parent households with two children, while scenarios 3 and 4 are single-parent households with one child. For the two couple scenarios the father is assumed to be working full-time, and the mother works full-time under scenario 1 after returning from

**TABLE 3: THE HYPOTHETICAL SCENARIOS UNDER ANALYSIS**

| SCENARIO | |
|---|---|
| 1 | Couple with two children<br>Mother's employment:<br>NW – PT – NW – PT – FT<br>(PT for 1 year between the two NW phases,<br>PT for 2 years after the 2nd child is born before returning FT)<br>Father's employment: FT |
| 2 | Couple with two children<br>Mother's employment:<br>NW – PT – NW – PT<br>(PT for 1 year between the two NW phases,<br>PT continually after the 2nd child is born)<br>Father's employment: FT |
| 3 | Single with one child<br>Mother's employment: NW – PT – FT<br>(PT for two years before returning FT) |
| 4 | Single with one child<br>Mother's employment: NW – PT<br>(PT continually after maternity leave) |

FT = full-time paid work
NW = on maternity leave and not in paid work
PT = part-time paid work.

leave with the second child, whereas she works part-time under scenario 2 and doesn't return to full-time employment. We assume that the loan is taken out for the maximum of 26 weeks following the birth of each child and the expiration of a period of grants-based assistance.

Under scenarios 3 and 4 the mother is a single parent with one child. Under scenario 3 she takes PPL for 26 weeks under the income contingent loan, after which she returns to part-time paid work for two years before returning to full-time paid work, whereas under scenario 4 she remains in part-time paid work following expiration of the PPL.

Justification for selecting these family compositions comes from ABS statistics (for example, Australian Social Trends (ABS, 2007b); 2006 Census (ABS, 2006b)). Among other things, the data reveal that the majority (75 per cent) of partnered fathers with dependent children work full-time. According to census data (ABS, 2006b) only approximately 45 per cent of partnered mothers with dependent children aged 0 to 4 are in paid work either full-time or part-time. However, the above proportion grows rapidly as children age, with close to 70 per cent of partnered mothers engaging in full-time or part-time paid work by the time children have reached their teenage years. Similarly, for single parents census data shows that only 29 per cent of mothers are employed full-time or part-time when their children are young (between 0 and 4) but this proportion rises rapidly, reaching close to 70 per cent by late teenage years (ABS, 2006b).

The above statistics include parents both in and out of the labour force prior to having children. For mothers working in some capacity prior to taking maternity leave, the proportion returning to work following leave would be expected to exceed the proportions reported above. Indeed, analysis of mothers' employment patterns from a variety of other sources show the majority of mothers either return to paid work part-time or full-time after returning from leave to have children.[29]

### 3.3.2 Income assumptions for the scenarios

In addition to the assumptions pertaining to loan amount, duration, indexation, and repayment thresholds and rates, a critical assumption for the scenarios is the projected future income of the debtors. Incomes for debtors were obtained from the ABS 2005–06 Survey of Income and Housing Confidentialised Unit Record File (CURF) (ABS, 2006c). Individuals with dependent children were extracted from the file, along with the individual's age group, sex, employment status, relationship status (single or partnered), and income. Quantile regression was employed to extract fitted income profiles for the median and upper and lower quartiles.[30] The fitted incomes were inflated at 4 per cent per annum to 2007, reflecting the approximate growth in average weekly earnings over this period.

> …the income contingent loan provides terms that are more attractive to debtors than would be available for a commercial loan…

The cross-sectional age-earnings profiles are very familiar to students of Australian labour markets. They exhibit: concavity with respect to changes with age; higher incomes for males compared to females, with the differences increasing with age; higher incomes for women in full-time jobs; and higher incomes for single women compared to women in couples. They give us some confidence that the loan repayment exercises are based on data which is reliably representative of the various groups in the Australian labour force.

Projections of income in subsequent years allow for increases due to gains in productivity, wage inflation and returns to experience or promotion. As the CURF data is cross-sectional, the usual interpretation is that differences in income between age groups are attributed to promotion and experience. To allow for productivity and inflation we used the following approach. For an individual aged $g$ at time $t$, the projected quantile of income for this individual at time $t$+1 was assumed to be the income quantile corresponding to age $g$+1 at time $t$, which was then inflated by projected AWE to allow for productivity and wage inflation to time $t$+1. This was repeated for future years and for median-, lower- and upper- income quartiles.

### 3.3.3 Demographic assumptions

In all scenarios the father is assumed to be aged 33 and the mother aged 31 at the time of birth of the first child, which is consistent with the 2006 Australian median ages of 33.1 and 30.8 respectively (ABS, 2006a). We assume both parents retire at an age of 62 for men and 58 for women, which is again consistent with ABS data (ABS, 2007a).

### 3.3.4 The discount rate, present value and subsidy

Given that the income contingent loan provides terms that are more attractive to debtors than would be available for a commercial loan, the government effectively provides a subsidy to the borrower funded by taxpayers. The subsidy is the difference between the present value of the amount outlaid by government and the present value of the amounts received back (the repayments) using an appropriate discount rate. As with FEE-HELP, borrowers are liable for a 20 per cent surcharge, which must be met through the repayments, hence the present value of repayments can exceed the amount outlaid, and consequently

a profit, or negative subsidy, can result. The scenarios examined in our exercises reveal the circumstances under which positive or negative subsidies can arise.

For the scenarios explored herein, the discount rate chosen to calculate the present value of the repayments and new debt is 5.5 per cent, being the approximate average 10-year government bond rate during 2007 (RBA, 2008b).

In the following section we present the results of the scenario modelling.

### 3.4 An important caveat

In this exercise no account has been taken of the possible implications of an income contingent loan for PPL in terms of interactions with other social security parameters and rules. This is very likely to be of significance since the Federal government currently provides a range of family assistance and income support payments for parents, including the Baby Bonus, and Family Tax Benefit Parts A and B.

The introduction of both a statutory PPL scheme, such as that proposed by HREOC (2002), and an optional income contingent loan allowing extension of PPL would require a reassessment of how such policy reform would fit in with, or compromise, these other support mechanisms. Indeed there has been a recent suggestion to combine the Baby Bonus and Family Tax Benefit Part B payment and use the resources to fund a paid maternity leave scheme for 16 weeks at the minimum wage.[31] For the purpose of our discussion we have ignored any possible interactions with existing support payments, or the potential outlays or cost savings that could result from replacement to, or modification of, existing arrangements.

# 4. Results

## 4.1 The time streams of repayments of loans

Results for the four scenarios described above are now presented. Three income levels, low (25th percentile), medium (50th percentile), and high (75th percentile) are presented for each scenario.[32] For scenarios 1 and 2, the parents are assumed to have two children and hence the amount borrowed is twice the single amount, or $28,579. For scenarios 3 and 4 the amount borrowed is $14,290, which equates to $1,099.20 per fortnight for 26 weeks. The surcharge inflates the amount of debt owed in each of these cases by 20 per cent. Figure 1 illustrates the time stream of repayments of the debts.

The following points from Figure 1 are noteworthy:

1. The repayments follow a step shape, which is a consequence of the increments to income being calculated annually.
2. The time to repayment in the case of single mothers who return to work part time, is much longer than for single mothers who return full time, and in one (unusual) case, namely single mothers who never return to full-time work whose income lies in the bottom 25 per cent, none of the loan is repaid.
3. High-income two-parent families repay their loans in around six years, but for those in these groups with relatively low incomes the length of time to repay can be as high as 20 years.
4. The median expected time for members of the above group to repay is eight to ten years, which is roughly the length of time taken for a graduate to repay a typical HECS debt (Chapman, 2006b).
5. High-income single mothers repay their loan in full after about six years.

The clearest finding is that there are very large differences in the repayment streams with an income contingent loan for PPL, and in some cases the length of time would appear to be very high with implications for the potential taxpayer subsidies.

## 4.2 Time streams of outstanding debt

Figure 2 (on page 18) illustrates the time stream of outstanding debt. The pertinent points from Figure 2 are:

1. The accumulation of debt early in the life of the loan takes a stepped appearance in scenarios 1 and 2 due to leave being taken for two children.
2. For single mothers on median part-time incomes who never return to full-time work, considerable time is taken until total debt is repaid.
3. For single mothers who never return to full-time work and who earn at the lower 25th income percentile of part-time income, their income is below the lowest repayment threshold and as a consequence no debt is repaid at any stage.

## 4.3 Taxpayer subsidies

Table 4 (on page 18) illustrates the subsidy proportions for each income band within each scenario, along with the present value of both the amount outlaid by the government and the amount repaid by the borrower. The subsidy proportion is determined by the interest rate differential, the time until repayment of the loan, and the 20 per cent (FEE-HELP equivalent) loan surcharge. The interest rate differential is a subsidy to the borrower equal to the difference between the indexation

rate applied to the loan and the discount rate (under the assumptions here, this is the difference between the CPI and the assumed long-term government bond rate of 5.5 per cent per annum in nominal terms). This component is offset by the fact that repayments made are based on the amount owed by the borrower since this begins at 20 per cent above the amount actually outlaid by the government.

The results highlight two features of the scheme. First, median- and high-income earners who would otherwise benefit from a subsidy due to CPI indexation only of the loan, namely those at the 50th and 75th income percentile under scenarios 1, 2 and 3, experience a small negative subsidy (due to the role of the surcharge). This has the arguable equity advantage of deterring to some extent the participation in the scheme of those with moderate- to high-expected future incomes. On the other hand, choices made along these lines have an adverse selection dimension as well, since if some avoid participation because of a possible negative subsidy this has the effect of increasing the overall taxpayer subsidy for the policy.

Second, it is apparent from examination of the scenarios that the highest positive subsidies are received by those families most in financial need in their lifetimes. Single mothers and particularly those on low incomes take the longest time to repay or don't repay the loan, and consequently benefit most from the concessionary indexation rates. This feature of distributing most benefit to those with greater financial need is common to income contingent loans with interest rate arrangements that have been adopted for HECS-HELP and FEE-HELP. It is fairly clear also that the income contingent nature of the loan provides for default protection. As can be seen in Scenario 4, and shown in Figures 1 and 2, single mothers earning low part-time incomes in the future would never repay the debt.

It is apparent from the results that a large cost of the taxpayer could arise from single parents on low incomes. Although an income contingent loan scheme's viability would be questionable if this demographic was the primary group in the population, data analysis of the 2005-06 Income and Housing Confidential Unit Record File shows that lone parents with dependents aged 0 to

**FIGURE 1: TIME STREAM OF REPAYMENTS FOR THE FOUR SCENARIOS**

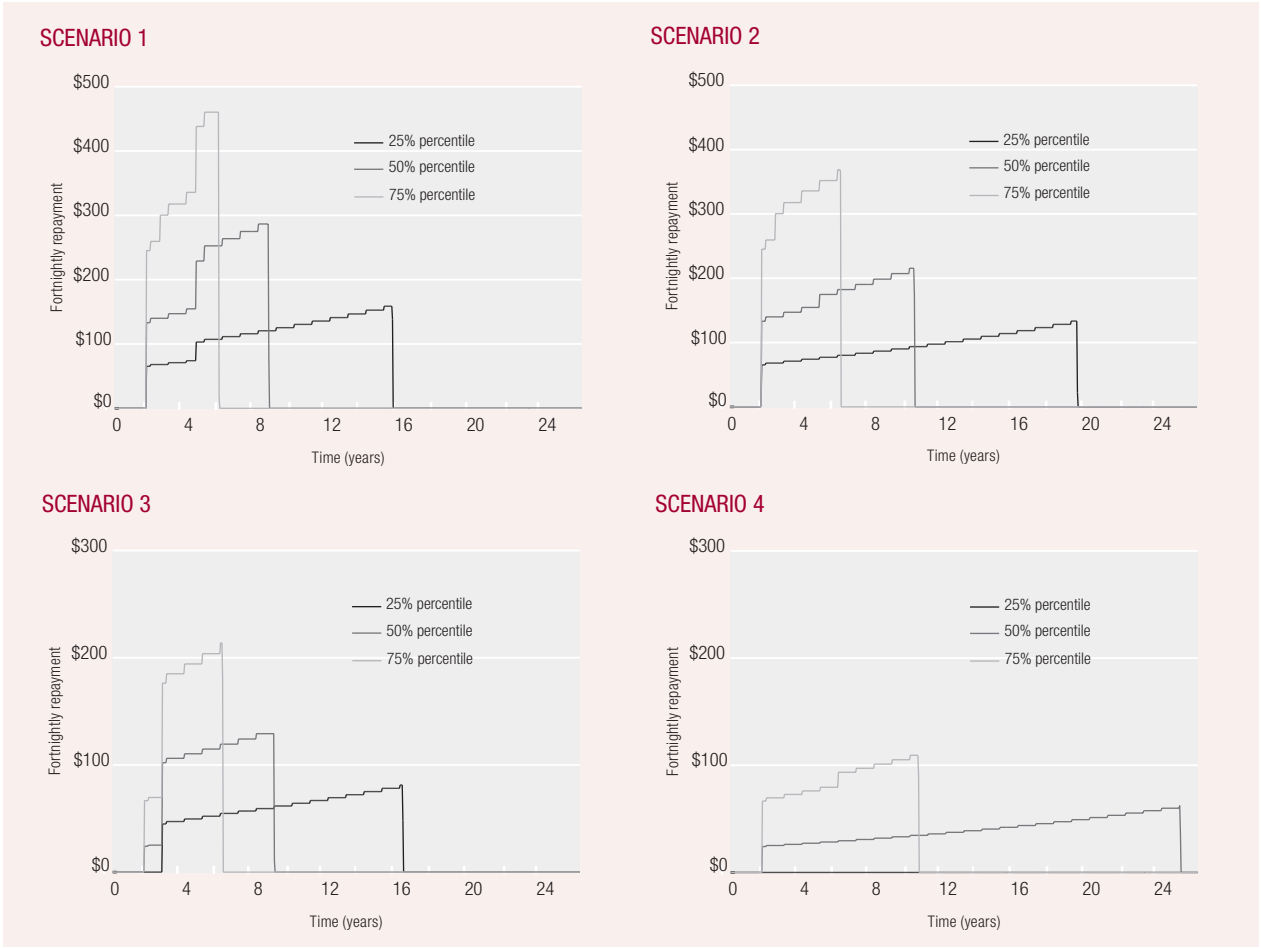

**FIGURE 2: OUTSTANDING DEBT OVER TIME FOR THE FOUR SCENARIOS**

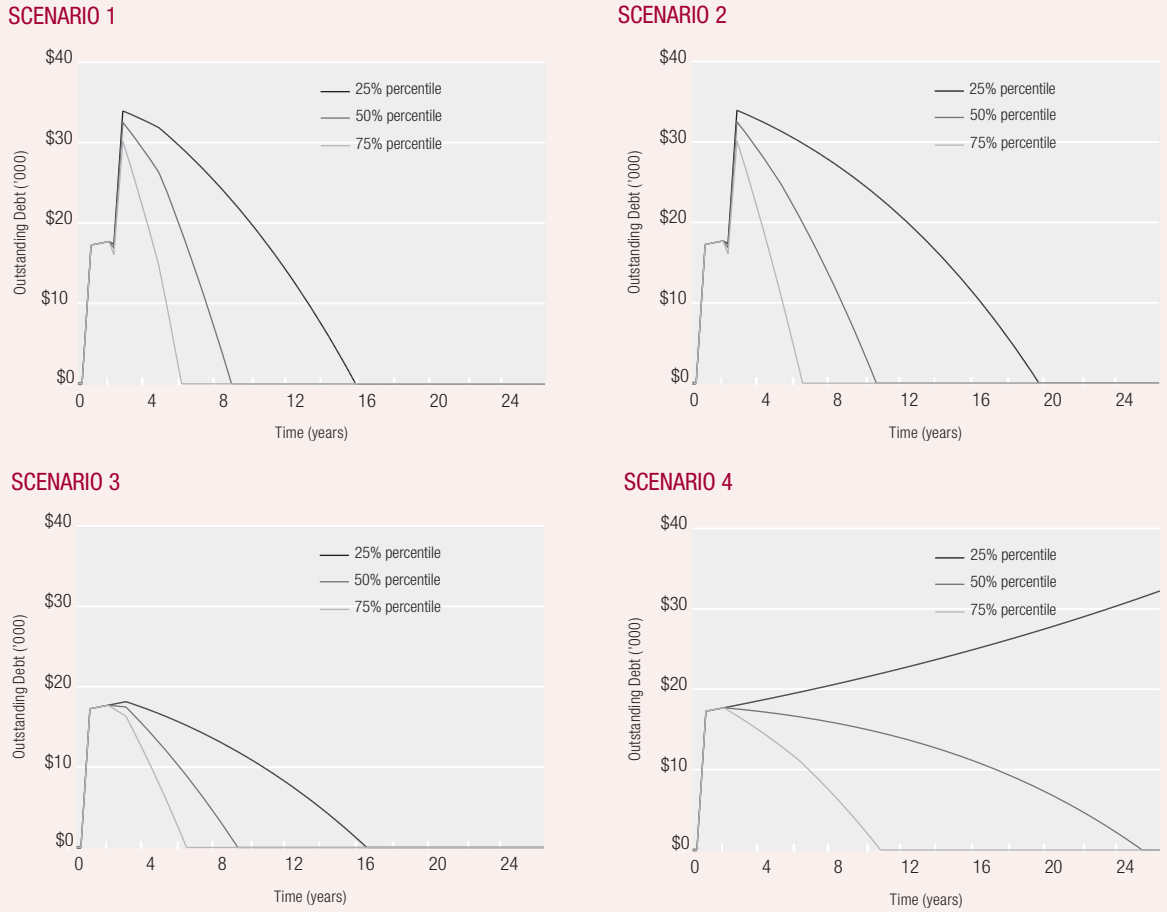


**TABLE 4: SCENARIOS – GOVERNMENT SUBSIDY FOR INCOME PERCENTILES**

| SCENARIO | PRESENT VALUE OF THE AMOUNT OUTLAID ($) | PRESENT VALUE OF THE REPAYMENTS ($) | | | SUBSIDY PROPORTION (%) | | |
|---|---|---|---|---|---|---|---|
| INCOME PERCENTILE | | 25% | 50% | 75% | 25% | 50% | 75% |
| 1 | 26,568 | 25,579 | 28,229 | 29,544 | 4% | -6% | -11% |
| 2 | 26,568 | 24,425 | 27,750 | 29,481 | 8% | -4% | -11% |
| 3 | 13,913 | 12,867 | 14,341 | 14,978 | 8% | -3% | -8% |
| 4 | 13,913 | – | 11,492 | 14,124 | 100% | 17% | -2% |

**TABLE 5: GOVERNMENT SUBSIDY UNDER ALTERNATIVE ASSUMPTIONS**

| SCENARIO | SUBSIDY PROPORTION (%) UNDER HECS BANDS (CSS BANDS EXCLUDED) | | | SCENARIO | SUBSIDY PROPORTION (%) 20% SURCHARGE REMOVED | | |
|---|---|---|---|---|---|---|---|
| INCOME PERCENTILE | 25% | 50% | 75% | | 25% | 50% | 75% |
| 1 | 8% | -6% | -11% | 1 | 17% | 10% | 7% |
| 2 | 8% | -4% | -10% | 2 | 20% | 11% | 7% |
| 3 | 100% | -2% | -8% | 3 | 21% | 13% | 9% |
| 4 | 100% | 100% | -2% | 4 | 100% | 28% | 14% |

two account for fewer than 15 per cent of all families with children of that age (ABS, 2006c). In fact, only a proportion of these parents would contribute solely to the costs of their loan, as in a number of cases both parents would have existed as a couple (whether married or *de facto*) (ABS, 2007b) at the time the loan was entered into. In these circumstances the father would be expected to contribute following divorce or separation under the scheme design parameters introduced here.

For illustration of the sensitivity of the costs to some of the key parameters, we have removed the CSS thresholds and repeated the modelling. As a separate exercise, we have repeated the modelling to quantify the burden to the borrower of the 20 per cent surcharge by setting it to zero. The results are given in Table 5.

The result under the HECS thresholds (that is, excluding the lower CSS bands) are quite mixed and depend critically on the parent's assumed income level. Results for couples change very little from those presented in Table 4. However, for single women on low- or median- incomes the difference is significant. Full-time working single mothers at the lower quartile of income fall below the lowest HECS threshold and thereby pay none of the loan unless the CSS bands at lower income levels are used.

Similarly, from our calculations even the median-income level women working part-time would not make any compulsory repayments under HECS rules. This highlights the importance of understanding the possible extent of taxpayer subsidies of low-income collection thresholds for such a loan policy.

For the exercise where the surcharge of 20 per cent is removed from the loan, the debt owed is reduced for the same level of income support, leading to increased government subsidies.

Of note is the sensitivity to the amount of debt accrued. Notably, all the scenarios considered assume 26 weeks of leave is taken per child, and reducing (or increasing) the amount of leave, and thereby the amount of debt accrued, will reduce (or conversely, increase) the subsidy in all cases with the exception of the lowest income position for scenario 4 where the mother's income is such that no debt is repaid.

As with all financial models involving discounting future financial cash flows over long durations, the choice of discount rate is particularly important for results. A comprehensive modelling of such schemes would need to consider the effect on estimated costs of discount rate differences, along with other parameter variations.

# 5. Discussion

## 5.1 Introduction

What follows is a consideration of some issues raised by the policy proposal and a summary of the major aspects of the research. The discussion highlights the fact that there remain matters of policy detail in need of further attention and analysis.

## 5.2 Additional income contingent loan debt

Worthy of consideration is the fact that should a loan scheme such as that hypothesised here be adopted for PPL, families will have another layer of debt to service on top of possible existing mortgage and credit card repayments. An attractive feature of income contingent loans is that repayment parameters can be selected to maximise the possibility that most families would service a PPL loan without suffering undue financial stress.

Of particular interest is how an income contingent loan for PPL would operate in the presence of HECS. As noted in Section 2.6, this would appear to be a minor concern in current PPL scheme design since the 2006 HILDA survey reveals that only around 10 per cent of mothers with very young children (the population of interest for PPL) have an outstanding HECS debt. Even so, given the possibility of increases to both HECS debt incidence and levels, there is a case for examining how interactions between the two loan obligations could be handled in terms of policy design.

One way would be to group an individual's income contingent debts and have the debtor make continuous repayments, an arrangement clarified in the following example. Consider the case of a mother with an outstanding HECS debt of $8,000 who takes out an income contingent loan for paid maternity leave. For a single mother with a PPL debt of $10,000 the total outstanding income contingent loan debt would be $18,000, and repayment would proceed based on this total amount. In a future year suppose the mother's income is $50,000, which would result in 5.5 per cent of this amount, or $2,750, being paid towards the debt of $18,000. The mother would not be faced with an additional annual payment under this system. The adjustment process for the extra debt on top of HECS is simply that it would take her longer to repay the total debt, with a consequent increase in resulting interest rate subsidies.

Using identical thresholds and rates for the repayment schedule for both loans would make such a system of repayment administratively straightforward. In the event that HECS thresholds differed from PPL thresholds at the lower incomes, as presented in the example in this paper, one possible way to proceed would be to separately account for the different components of debt. Indeed, separately accounting for the different components of debt would be required in the event that a couple both had outstanding HECS debts and the mother took out a PPL loan.

## 5.3 Aggregate costings

Our concern in this paper has been to model two aspects of an income contingent loan supplemented scheme for PPL: the consequences for families with respect to repayment burdens; and the implicit taxpayer subsidies that arise from the nature of the real interest rate regime of the PPL loan. Importantly, we have examined the latter only with respect to the proportions of loans for various demographic and assumed income scenarios. This means that our exercises have little to offer at this stage with

respect to the potential overall budgetary costs of such a scheme.

Aggregate costing of an income contingent loan for PPL is a critical aspect of a full cost/benefit analysis and could be approached through a variety of techniques.[33] The most important data with respect to the initial and on-going costs to the government include: the take-up of the policy by different household types (which in turn is influenced in part by expected fertility rates); indications of average loan levels by household types; the expected future income streams of young parents and parents to be; and the assumed policy parameters with respect to rates of interest and repayments. Take up will in turn be influenced by the potential role of both adverse selection and moral hazard and these issues need to be considered carefully and addressed in policy design.

adverse selection and moral hazard … need to be considered carefully and addressed in policy design.

### 5.4 The importance of adverse selection and moral hazard

We have approached the income contingent loan for PPL policy design question with adverse selection and moral hazard firmly in mind. These issues help explain in part two aspects of the suggested collection arrangements: the use of the CSS payment rules for incomes lower than those used for HECS,[34] and having the debt repayment obligations being shared with fathers who are present at the time the PPL is taken. While these innovations would diminish the likelihood of the scheme resulting in substantial taxpayer subsidies, the prospect remains.

One way of decreasing further the potential taxpayer subsidies would be to impose a high real rate of interest on outstanding debt, rather than using the 20 per cent surcharge approach associated with FEE-HELP. However, imposing a real interest rate in place of a flat surcharge has a varying effect on families with different incomes and expected times to repayment.

For example, using an indexation rate of 5 per cent nominal, reflecting a real rate of interest of around 2.5 per cent per annum, and dropping the 20 per cent surcharge would achieve lower subsidies for low-income families but would conversely be advantageous (relative to the 20 per cent surcharge) to median and higher income earners who pay off the loan more quickly than lower income families, and thus suffer least from compounding of debt.[35] Indeed, this example lends support to the inclusion of a flat surcharge as arguably a more appropriate mechanism than a real interest rate, as a flat surcharge can generate positive subsidies for low-income families yet negative subsidies for high-income earners, thus targeting those most in need while discouraging loan take-up from those in more financially secure positions.

### 5.5 Implications for income distribution

An issue not considered in detail thus far concerns the implications of an income contingent loan for PPL for the lifetime distribution of income. In general it would appear that the choice of repayment and interest rate arrangements are such as to suggest that the scheme would be progressive within the group of borrowers. This is due to three factors:

1. Debtors with low future incomes would repay the loan relatively slowly, and this necessarily means higher taxpayer subsidies.
2. Single mothers do not have the benefit of sharing a partner's income which means that they experience relatively low household incomes, even in an equivalent scale sense.[36]
3. Take-up rates are likely to be higher for members of groups who expect to be relatively poor, for two reasons. First, these mothers are more likely to be unable to finance a period of extended maternity leave by other means. Second, those expecting to have relatively low incomes in the future are more likely to be interested in taking the loan because for members of this group the expected interest rate subsidy is relatively high.

The final possibility, while implying additional potential progressivity of the scheme, is of course not necessarily an advantage. As stressed above, adverse selection of this type imposes higher costs in terms of taxpayer subsidies.

### 5.6 Contributions from employers

The proposed approach to the payment of income contingent loans for PPL has been modeled as if the entire debt is borne only by families and taxpayers. But this is not the only form such assistance could take and several commentators have raised the prospect of there being contributions to PPL from employers (for example, Perry, 2006). There are reasons in labour market theory for promoting such a possibility (Becker, 1962).

In the Becker model of the financing of training, an important distinction is made between skill investments that are general (transferable between employers) and firm-specific (those that are of relevance only in the place in which the skills are acquired). In order to minimise the possibility of separation between the firm and the worker, and thus the loss of future returns to training investments, it is argued that the firm and the worker should jointly finance such investments (Chapman, 1981).

There are then clear implications for the repayment of an income contingent loan for PPL which involve the parent's employer.

The essential point is that in the event that the parent does not return to the original employer there are costs incurred which take the form of foregone returns to the firm's specific training investments in the worker. There is a benefit to be gained through re-employment at the original place of work, which constitutes a case for contributions being made to loan repayments from the employer. Chapman (2002) suggests that these contributions should be made conditional on the parent returning to their original job since in this situation the employer gains. One form this might take would be for the employer and the employee to share loan repayments for the period in which the employee remains with the firm, or until the debt is repaid. In administrative terms this would appear to be straightforward, but we have not undertaken modeling of such an arrangement.

A positive implication of having shared loan repayment contributions by both the employer and the employee is that it would increase the probability of the parent returning to their original job and thus diminish the social loss involved in foregone returns to firm-specific training investments. It would also mean that the relative contribution to loan payments would be higher for parents choosing not to return to the original job. Significantly, and in addition, having employers contribute to loan repayments would increase the proportion of debt recovered by government and decrease the implicit subsidies.[37]

# 6. Conclusion

The income contingent loan scheme as applied to PPL described and analysed here satisfies key policy objectives.

**First**, an income contingent loan for PPL can introduce flexibility and choice for parents by being promoted not as an alternative to a government-funded leave scheme, but rather as an optional supplement.

**Second**, in terms of economic theory, intervention of this type by the government would seem to be justified in much the same way that there is a justification for government intervention in student loan schemes. There is a market failure of potential significance if there are social spillovers from PPL that are not being delivered. Commercial banks are unlikely to be interested in resolving the issue since, as is the case with education investments, there is no saleable collateral and therefore there are high risks associated with normal loans being supplied by financial institutions.

**Third**, income contingent loans are associated with the important benefit to borrowers of consumption smoothing, in two senses. On the one hand, significant repayments are only required when the debtor or their family have relatively propitious economic circumstances. Having repayments depend on capacity to pay is the unique and critical feature of loan schemes of this type.

On the other hand, consumption-smoothing relevant to income contingent loans for PPL has a lifecycle dimension. It is that the policy allows parents to transfer income from future higher income times to the current period of parental leave when household incomes have fallen as a result of the parent's non-participation in paid work.

The suggested parameters have the potential to be progressive within the group of likely borrowers. This is because after the debt is incurred, with the addition of a surcharge, there is an on-going real interest rate subsidy. Our calculations suggest that the extent of the implicit rate subsidy may be as high as 100 per cent for single mothers with low lifetime incomes, but this would be a rare circumstance. For single mothers working full-time but in the lowest 25th percentile of the income distribution for members of this group, the extent of the subsidy is around 8 per cent. For the majority of potential PPL borrowers the subsidies are quite small and may be negative in cases of families receiving full-time median incomes.

Finally, we hope this paper might promote policy discussion on the benefits of a pilot scheme or at least a financially cautious initial approach to the adoption of income contingent loans for PPL.

## ENDNOTES

1 Family Assistance Office (2007).

2 For a discussion of the possible involvement of employers, see Chapman (2002).

3 HREOC (2002), p13.

4 For example see Baird (2004). Also see Baird and Whitehouse (2007) and others in a special issue in the Australian Bulletin of Labour on work and family policy issues for Australia.

5 Workplace.gov.au (2007). Employees taking parental leave have the right to return to their original position, to request other leave (such as annual leave), extend parental leave once during the 52 week period and vary or shorten the leave. These provisions apply to permanent full time, part time and eligible casual employees who have been in continuous service with their current employer for at least twelve months.

6 See for example HREOC (2002), and O'Neill (2004)

7 The externality then takes the form of lower contributions from taxpayers for government subsidised health activities, such as those arising from universal health care.

8 Swan (2008)

9 See Chapman (2006a).

10 See Botterill and Chapman (2004).

11 See Chapman (2006a).

12 A major conference financed by DP University (Thailand) and the Australian National University is currently being planned for July 2008, which will involve comparative analysis of student loans schemes in, among other countries, Japan, Australia, China, Malaysia, Thailand and Indonesia.

13 An exception is with respect to FEE-HELP for post-graduate tuition in which there is no surcharge.

14 For a discussion of the development of HECS, see Edwards (2001) and Chapman (2006a).

15 The discussion in this section follows that of Chapman (2006b).

16 See Chapman (2006a).

17 For extended discussion issues to do with student financing, see Barr (2001) and Chapman (2006a).

18 HECS does in fact have a blunt form of an real interest rate given that there is a discount offered for up-front payment of the charge. This means that those students opting for the loan incur a debt which initially is a higher dollar amount in real terms than is the case for those paying up-front. Over time this financial advantage for those who have paid up-front diminishes due to the on-going real interest rate subsidy.

19 That is, there is unlikely to be much adverse selection with respect to HECS because all undergraduate students must pay the charge.

20 While the assumptions imposed in the modelling seem to be appropriate for our purposes, it is recognised that if an income contingent loan were to be seriously considered then close scrutiny of all scheme design parameters would be required beyond the coverage provided here.

21 The period of 14 weeks was supported by a wide range of groups including employers, unions and women's societies when HREOC canvassed for submissions for its A Time to Value report. It is also the minimum amount that member states of the International Labour Organisation are required to provide under the Maternity Protection Convention (2000).

22 This approach is consistent with the extent of grant support per week recommended in the HREOC proposal (2002). As at October 2007 the Federal Minimum Wage stood at $13.74 per hour. Source: Department of Employment and Workplace Relations (2007).

23 For example, spouse income details are required in the estimation of Family Tax Benefits.

24 This approach is adopted by Chapman, Freiberg, Quiggin and Tait (2004) with respect to the modeling of an income contingent fine payment system for low level criminal offences. They use the CSS payment parameters as well.

25 http://www.csa.gov.au/guide/2_4_1.htm#stepchild. This amount is higher than the exempt income level available for parents with no dependents due to the costs associated with raising a child.

26 Under the CSS the income used in the determination of support differs with the number of dependent children, but for the sake of simplicity this has been ignored here. The income threshold of $32,500 per annum was selected because it is approximately mid-way between the new (2008) minimum threshold and the HECS minimum. Determination of rules for calculating repayments in practice can be particularly complex and so will not be explored further here. An appreciation of the complexity in such schemes can be gleaned from examination of the rules for the CSS.

27 See Appendix 1 (separate document) for the 2006/07 HECS rates and thresholds expressed in annual dollar amounts.

28 The repayment processes and the associated outstanding loan balances are described technically in Appendix 2 (separate document).

29 For example, see Australian Institute of Family Studies (2007); Whitehouse, Baird, Diamond and Hosking (2006); and Social Policy Research Centre (2006).

30 Introduced by Koenker and Basset (1978) quantile regression models the relationship between the conditional quantiles of a response variable and a set of covariates. In this case income is the response variable, whilst the covariates comprise relationship status, employment status, gender, age, and interaction terms. Splines were incorporated into the model to deal with nonlinearities in age.

31 Peter McDonald, quoted in Lunn (2008).

32 For the couple scenarios, 1 and 2, the 25th and 75th percentile cases mean that both male and female income profiles are the 25th and 75th percentile levels respectively.

33 Related to this is a dynamic microsimulation model of an income contingent loan to PPL which was developed as part of an honours thesis submitted by one of the authors (Lin, 2007).

34 A second reason to collect the debt at incomes lower than the first HECS threshold is that the majority of the population for which the PPL scheme is available would earn considerably lower incomes than typical HECS debtors.

35 A 5% nominal indexation rate and removing the 20% surcharge results in the following: scenario 1 subsidies of 3%, 2% and 1% under the 1st, 2nd and 3rd income quartiles respectively. For scenario 4 the subsidies are 100%, 12% and 3% respectively. Note that with a 5.5% nominal indexation rate, which exactly matches the assumed discount rate, the subsidies for all scenarios would be 0% except scenario 4 at the 1st quartile and median income. Subsidies are non-zero for these two cases because outstanding debt remains unpaid at the time of the mother's retirement.

36 This supposition requires only the assumption that single women on average earn less than partnered males.

37 This is because, *ceteris paribus* (all else being equal), the debt would be paid off more quickly.

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