The Australian National University
Centre for Economic Policy Research
DISCUSSION PAPER

Income Contingent Loans for Paid Parental Leave

Bruce Chapman[*] and Tim Higgins[**]

DISCUSSION PAPER NO. 596
January 2009

Abstract

In early 2008 the federal government instructed the Productivity Commission (PC) to enquire into the social and economic policy issue of paid parental leave (PPL). In their draft report, the PC (2008) has called for a taxpayer funded scheme of 18 weeks duration, despite Australian governments having so far resisted the introduction of a broad grants-based system. 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, as there are also indisputable private benefits accruing to the parents taking leave, there is a case for private contributions. We identify a market failure in that commercial banks will not provide funds in the absence of collateral due to repayment uncertainty during parental leave, a situation quite similar to the market failure inherent with respect to the financing of tuition for higher education (Gans, 2008). To address this financing impasse, we consider how an income contingent loan (ICL) could be used as an optional supplement to a taxpayer funded PPL scheme. Moral hazard and adverse selection are critical policy issues and these are addressed in the scheme design by: restricting loan duration and size; restricting eligibility to parents with workforce attachment; reducing minimum repayment thresholds to below those of HECS; imposing a loan surcharge, and; making the debt an obligation of both parents. We explain and present simulations of debt, repayment and subsidies for different households. The results show that an optional top-up ICL would not require major contributions from taxpayers, yet would introduce flexibility and choice, and provide consumption-smoothing and lifetime income distribution advantages over possible alternatives.

1   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). 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 (PC) will examine the issues and present a report by February 2009.[1]

The case for PPL can be positioned in a fairly conventional economic theory framework, and this is summarised 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 consideration of ICL in this policy setting.

Included in the PC brief, and in their draft report released in September 2008, is identification and assessment of models for financing PPL. The PC was made aware of ICL as a potential funding instrument by the authors, but in their draft report (PC, 2008)[2] chose instead to recommend only a taxpayer funded scheme. We believe there remain strong economic and financial arguments for consideration of an ICL of the form we explore below.

In Section 3 we outline the proposed ICL scheme as it could be applied to PPL, and present pertinent empirical simulations. Much of the basic content of this paper follows a recent CEDA report (Chapman, Higgins and Lin, 2008); however the data used in the empirical exercises herein, and the results of those exercises, differ. In addition, the content has been expanded to include subsidy measures under different discount rate assumptions and some basic aggregate costings.

ICL, we argue, have a role to play in financially assisting families when recent mothers temporarily leave paid employment for child-rearing purposes. In effect, loans of this type 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 the explanation and presentation of simulations of revenue streams from a top-up ICL. This allows insight into what such an approach might mean both for government subsidies and for the financial benefits and costs for the families involved.

While the focus is on the use of an ICL in the context of PPL, it is critical to note what this paper is *not* about with respect to policy reform. First, 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

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[1] Swan (2008).
[2] In their draft report the Productivity Commission proposed the introduction of a taxpayer-funded PPL scheme that will provide the minimum wage for 18 weeks for eligible employees, where eligibility is to be extended to employees with labour force attachment.

a case for contributions from all parties if all three benefit from PPL, but our focus is instead on how families might be able to finance their own optional component of assistance.[3] Second, consistent with the above we consider the use of an ICL income contingent loan for financing part of PPL as an *addition* to the provision of grants from taxpayers, whether or not the taxpayer funded component is 18 weeks as recommended by the PC. Our aim is to examine how an ICL could assist parents in taking additional leave without this significantly adding to the cost for taxpayers.

2   The current situation and the case for intervention

PPL is 'an income replacement to compensate for the leave from paid employment necessary around childbirth' (HREOC, 2002, p. 13) and is a contemporary public policy issue with both social and economic importance, of significance for both scholarly debate[4], and government, as evidenced by the current PC Inquiry.

The current state of affairs with PPL provisions in Australia is summarised in the PC's draft report (PC, 2008, Chapter 3). Essentially there exists statutory unpaid parental leave provisions with families entitled to up to 52 weeks of unpaid leave[5]. However, 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). It is often pointed out by proponents of approaches such as these that Australia is one of only two countries in the OECD (the United States being the other) in which there is no legislative requirement or taxpayer subsidies for PPL. Despite the absence of a universal PPL scheme, 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). Although close to 50 per cent of employees had some form of PPL available in 2007 (PC, 2008, page 3.1), deficiencies in the current system are apparent (see for example, Baird, Brennan, and Cutcher, 2002), with PPL being '…relatively concentrated among groups who usually have better labour force outcomes, such as highly paid workers, professional and permanent full-time workers' (PC, 2008, p. 3.26).

Advocates of PPL arrangements argue that current leave arrangements are not adequate, and that there are important benefits of a policy which encourages recent mothers not to resume paid employment soon after the birth of their child (see, for example, HREOC, 2002; O'Neill, 2004). Although the average duration of maternal leave among those who take leave is 37 weeks (the majority of which is unpaid maternity leave), according to the PC, 'Many parents return to work earlier than six months – often against their own preferences...' (2008, page xx). Indeed, only 72 per cent of employed mothers take leave around childbirth, with the vast majority of those who don't take leave resigning from paid work (PC, 2008, page 3.1). Research summarised in the PC draft report suggests that employer retention rates and women's

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[3] For a discussion of the possible involvement of employers, see Chapman (2002).

[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 (2008). 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.

workforce attachment could be improved in the presence of a universal PPL scheme. Benefits of appropriately designed PPL may also include improved child and maternal health and welfare, and social benefits such as reduction of caring and working pressures on parents of young children and the financial independence associated with greater employment (see, PC, 2008, for a summary of these and other potential benefits).

It is intended by the PC that their draft recommendation of 18 weeks provide sufficient postnatal leave so '…that when supplemented by people's private efforts, would achieve an appropriate length of absence from work for most families'. At the same time they acknowledge that '...there is no exact science about choosing the precise duration' (PC, 2008, page xxi), and there are important financial considerations. Notably, '…the benefits to children and parents from incrementally longer periods of leave have to be weighed against their (appreciable) budgetary costs…' (PC, 2008, page xxi).

While a compelling argument for government subsidisation arises from a recognition 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, there are also immediate benefits to parents from a PPL scheme (for example, in the form of recovery from child birth, or long term positive emotional consequences for children). Given the benefits, the question arises as to whether or not there should be institutional arrangements to allow those interested to be able to at least partially finance their own parental leave if they do not have the private facilities to do so; if not, we have a market failure. This leaves the door open for government intervention of some form.

First, it is critical to understand the nature of the market failure in this setting. During periods of parental leave families experience a significant decline in household incomes and this, coupled with asymmetric information concerning future paid labour force intentions, restricts the availability of commercial credit. It is unlikely that banks would offer loans to poor prospective borrowers because of default risk and the absence of collateral. 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: 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; and, bank loans do not provide protection from the potential consumption hardship associated with repayment obligations that are insensitive to future capacity to pay.[6]

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. Government intervention in the use or part-use of an income contingent loan mechanism could help resolve the issue.

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[6] For extended discussion of issues associated with student financing, see Barr (2001) and Chapman (2006).

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 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.

3   Designing an ICL

In this section we present the design parameters for an ICL for PPL and explore, using a simple model at the individual family level, the likely implications for both recipients (families) and the provider (the government) of the scheme. The exploration of patterns of hypothetical repayments and costs requires two aspects of the modelling to be made explicit: the design parameters of a loan scheme, and the demographic and financial scenarios of loan recipients. To these ends, and for illustrative purposes, we propose policy parameters for the model of a basic scheme, and present scenarios of some common family types to show how such a scheme might work. For the modelling it has been assumed that the ICL assistance would begin immediately after any period of grants-based assistance.

An ICL for PPL needs to give important weight to the potential of both adverse selection and moral hazard to undermine such a scheme. Adverse selection could arise if those seeking relatively high amounts of support expect to repay relatively low proportions of the loan. This could happen, for example, if repayment obligations were defined to be the responsibility only of the person undertaking the leave, for example, the 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 potential for relatively large taxpayer subsidies. In some extreme cases, the loan would effectively turn into a grant. The expected time period of repayment is critical in calculations of the extent of taxpayer contributions from a scheme. These subsidies can potentially be high, as seen in Chapman and Lounkaew (2008), who show that the interest rate subsidies associated with FEE-HELP are typically of the order of 25-30 per cent for high debts.

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 significant time 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 only after a long period; (ii) to take part-time instead of full-time work; or (iii) to emigrate or spend significant time overseas.

The scheme is designed in such a way to take account for these potentially undermining factors.

Employer participation

An ICL applied to PPL could be structured broadly in two ways: one in which the parent(s) is (are) solely responsible for repayment; or one in which 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 would be individually negotiated arrangements to repay some part of their employee's outstanding loan, on condition that they return to their original workplace for a specified period. There are reasons in labour market theory for promoting such a possibility (see, 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 specific to the firm, it is argued that the firm and the worker should jointly finance such investments.

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 loan repayment contributions 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 addition, as raised by Gans (2008), by increasing the probability of the parent returning to their original job, shared loan arrangements reduce the risk of discrimination against PPL recipients. Shared loan arrangements 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.

The simplest arrangement, however, would see parents applying for a loan 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. It is this simple government-provided optional loan scheme, excluding employer involvement, which is examined in detail and is the subject of modelling in the remainder of this paper.

Loan eligibility

Conditions on eligibility are essential in order to discourage adverse selection. A poor example of how to design an ICL 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 to participate in the loan scheme should ideally be restricted to parents in employment prior to the planned leave.

This is consistent with the PC draft that recommends their proposed statutory scheme only be available to parents with '…an average of at least ten hours employment a week (with one or more employers) on a continuous basis for the year prior to the expected birth date of the child.' (PC, 2008, page 2.1). Although not making the loan facility available to non-working mothers may be seen as inequitable, the purpose of the proposed ICL is as a temporary income replacement while the parent is on leave from work, and not as a reward for unpaid care[7]. The specific details of what constitutes prior employment can be complicated and are the subject of considerable discussion in the PC draft report (see, in particular, PC, 2008, page 2.5).

Eligibility conditions relating to past work patterns are not required for the scenarios generated here, but would be critical in scheme design and for accurate projections of aggregate take-up and costs. Importantly, eligibility criteria based on previous employment is not neutral, but will affect choices prospective parents make regarding labour force participation. Both couples and single parents who satisfied the previous employment condition would be eligible for the ICL under the proposed scheme.

Loan duration and amount

Under the basic scheme 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 initial modelling we allow a further 26 week extension for a subsequent birth. 26 weeks, or 6 months, is supported by the PC as a minimum recommended duration for leave (PC, 2008, page xx).

If the policy currently recommended by the PC is implemented, there may be less demand for a repayable loan scheme with a 26 week duration. However, the PC's proposal is for 18 weeks of leave, or around eight weeks short of six months. Although the PC argues that the majority of parents may have access to private sources of PPL to supplement the 18 weeks proposed in the statutory scheme (e.g. accumulated recreation leave and employer provided paid maternity schemes), there will be parents who aren't in a position to make up the shortfall to six months or somewhat longer if so desired. In this event a shorter ICL may be worth contemplating, and to ascertain what a shorter period would mean for the government and for families we also present calculations for a ten week loan period.

We have assumed that the size of the loan per fortnight is the hourly federal minimum wage[8] multiplied by 76 hours (38 hours per week). With the 26-week cap this comes to $14,138. The maximum loan, capped for two children, is twice this amount at $28,277; however, for many of those eligible the leave taken and the debt incurred would be lower. For comparison, for ten weeks of leave, the loan for one child would be $5,438, or $10,876 for two children.

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[7] Additionally, costs including doubtful debt would be considerable if the ICL was offered to all parents.
[8] As at October 2008 the Federal Minimum Wage stood at $543.78 per week ($14.31 per hour). (Australian Fair Pay Commission, 2008).

Debt indexation and surcharge

As with HECS, we assume the loans are indexed to the CPI. Although this implies a zero real interest rate, a surcharge of 20 per cent on the borrowed amounts is proposed so the outstanding debt, or amount to be repaid, is 20 per cent more in nominal terms than the amount borrowed (for example, if a person borrowed $100 they would have to repay $120.) This is consistent with the FEE-HELP loan scheme (DEST, 2007) which is available to assist students pay undergraduate tuition for those not covered by HECS-HELP. The 20 per cent surcharge is in effect a blunt form of real interest rate.

Repayment conditions

Repayments are made when assessable income exceeds a specified minimum threshold. The choice of minimum threshold, and the decision who repays, are important considerations in policy design as both can be critical in mitigating the risk of adverse selection. In this context there are two major design features of the scheme.

First, the repayments of the ICL should be made the obligation of both parents (provided they are a couple at the time of the loan contract). Importantly, this would reduce the risk that a mother takes out the loan with the intention of never returning to work or intentionally keeping their income below the minimum threshold. In this situation total repayments during each time period are the sum of the two repayment amounts, which are assessed based on each of the parent's individual incomes. This is feasible logistically as the current tax collection mechanism in Australia allows for the collection of spouse details. Moreover, if both parents are treated individually by the Australian Taxation Office in the 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 complication that could potentially arise is moral hazard manifesting from parents intentionally not declaring themselves as a couple in order to avoid the father's liability. To guard against this risk, discounts on the loan or freezing of interest on the debt could be considered for those declaring two persons as liable on the loan document. Similarly, to further reduce taxpayer subsidies by increasing the chance of repayments, for single parents who wish to take advantage of discounts for multiple signatories, the loan rules could be expanded to allow other individuals (for example, a direct family member) to take liability by signing the loan document, though these considerations are not modelled here.

Second, to mitigate the possible costs due to non-retrieval of debt due to low future incomes a lower first income threshold of repayment for the scheme is proposed[9]. This 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 parental leave. 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 four per cent with HECS, to, say, two per cent).

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[9] This approach is adopted by Chapman, Freiberg, Quiggin and Tait (2004) with respect to the modelling of an income contingent fine payment system for low level criminal offences.

To achieve the above we use the minimum income repayment threshold of $28,259, which is equivalent to the exempt income amount under the Australian Child Support System (CSS)[10] for a parent with a dependant child under the age of 13 in 2008. This threshold is chosen for the current exercise as it is considered to be a suitable proxy for the lower limit of income affordability for individuals faced with child rearing responsibilities.[11]

Thus for our exercises we use the 2008–09 HECS repayment rules[12] adjusted by imposing the additional requirement taken from the CSS rules, resulting in the annual payment thresholds and rates shown in Table 1.

[Table 1 inserted here]

Additional parameters

Because the scheme involves repayments over time with differing 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 now the case with current ICLs, 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.

Dealing with adverse selection and moral hazard: summary

The scheme design has both adverse selection and moral hazard firmly in mind. Summarising the design features that aid in control, first, eligibility is restricted to a parent or parents in employment prior to paid maternity leave. Second, both parents are responsible for the debt obligation provided both are present at the time of the leave. Third, a 20 per cent surcharge is imposed on the loan, which may deter participation from borrowers who are tempted to take out the loan due to the low debt indexation rates. Fourth, a low first income threshold below that applying to HECS is applied to the loan.

Despite these features the PC raises the possible disincentive to exceed the income threshold as a criticism of ICL applied to PPL, thus '…reducing their incentives to work at the margin…' (2008, page 8.14). So as to not burden debtors on low incomes, the first rate of repayment for a parent was intentionally set at the low level in which

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[10] see http://www.csa.gov.au/guide/2_4_2.htm. This amount is higher than the exempt income level available for parents with no dependents due to the costs associated with raising a child.

[11] 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 $34,926 per annum was selected because it is approximately mid-way between the new 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.

[12] See http://www.goingtouni.gov.au

only two per cent of income ($539.06 per annum, or less than $11 per week for an income of $28,260) would be required to pay off the debt. It seems unlikely to us that parents would intentionally reorganise their work circumstances in order to avoid such an obligation[13].

In Australia there is an additional issue of PPL borrowers potentially having an existing HECS debt. 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 Wave Six (2006) of the HILDA survey reveal, however, that the issue is not very important empirically. The data imply that only around one-tenth of young mothers who would have been potentially eligible for an ICL for PPL also have a HECS debt. Nevertheless, the number and magnitude of HECS debts is rising, and multiple ICL 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 on-going compulsory repayment based on income. This would have the effect of extending the duration of the loan(s), thus increasing the net subsidy, but not the amount of the annual repayment obligation.

Scenarios - constructing a basic model

Four scenarios have been chosen to reflect family units which might be expected to utilise the ICL. The scenarios illustrate how the policy might work in practice by showing patterns of outstanding debt, repayments, and government subsidy (due to the zero real indexation on the outstanding debt). The four scenarios are summarised in Table 2, and the results are provided in the section following.

[Table 2 inserted here]

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 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 (or ten weeks for the additional example) 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, and for the former she takes PPL, after which she returns to part-time paid work for two years before full-time paid work, whereas under scenario 4 she remains in part-time paid work following expiration of the leave.

While the empirical exercises include single mothers, rather than single fathers, this allows us to keep the analysis straightforward, with extensions of ICL into more flexible parental leave arrangements being a desirable area for future analysis.

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[13] This is supported by Chapman and Leigh (forthcoming, 2009) who show that for HECS, while there is a statistically significant amount of bunching below the first threshold, in empirical and economic terms the effect is trivial.

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 75 per cent of partnered fathers with dependent children work full-time, and close to 70 per cent of both single and partnered mothers engage in full-time or part-time paid work by the time their children have reached their teenage years[14]. These statistics would no doubt be greater if we only include parents who engaged in paid work prior to having children.

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, ages consistent with the 2006 Australian median ages of 33.1 and 30.8 respectively (ABS, 2006a). We assume assessable income is below the minimum threshold once parents retire, and retirement is assumed to occur at ages 62 for men and 58 for women (ABS, 2007a).

Income assumptions

As loan repayments are contingent on income, projected future debtor income is a critical assumption for the scenarios. Specifically, the measure of income that we assume for calculation of loan repayment obligations, known henceforth as assessable income, is equal to taxable income, plus any reduction in taxable income due to rental loss, plus fringe benefits and exempt foreign employment income. This is the same definition as applies under the HECS-HELP scheme[15].

Assessable incomes were approximated by extracting relevant components of income from the ABS 2003-04 and 2005–06 surveys of Income and Housing Confidentialised Unit Record File (CURF) (ABS, 2004; ABS, 2006c). In addition to the specific components of income, age group, sex, employment status (full-time and part-time), and relationship status (single or partnered) were extracted for all individuals in the surveys. The data from both surveys were adjusted with AWOTE growth to the present (ABS, 2008) and average 25th, 50th and 75th percentiles (lower, median and upper quartiles) were calculated from the adjusted data across the two surveys.

As the CURF data is cross-sectional rather than longitudinal, adjustments are made to the data for projection purposes. Projections of assessable income in subsequent years allow for increases due to gains in productivity, inflation and returns to experience or promotion. For an individual aged g at time t, the projected quartile of income for the same individual aged g+1 at time t+1 was approximated by taking the income quartile at age g+1 and time t, and inflating this by projected growth in average weekly earnings to time t+1. This was repeated for future years and for median-, lower- and upper- income quartiles.

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[14] That the majority of mothers either return to paid work part-time or full-time following leave to have children is supported by research from other sources including: Australian Institute of Family Studies (2007); Whitehouse, Baird, Diamond and Hosking (2006); and Social Policy Research Centre (2006).
[15] See http://www.goingtouni.gov.au

Subsidy calculations

An ICL for PML does not strictly imply a user-pays scheme, since there is a cost to the government and taxpayer if debtors fail to reach the repayment thresholds and never repay the debt. There is also a potential cost to government even if the loan is repaid, due to the zero real interest rate. These subsidies can be expressed as the present value of the difference between how much is provided by the government and how much is repaid by the borrower, as a proportion of the amount provided, using an appropriate discount rate. If a borrower repays none of the debt, this is equivalent to a 100 per cent subsidy to the borrower. But because of the 20 per cent surcharge, the present value of repayments can exceed the amount outlaid, and consequently a 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 (nominal) 5.5 per cent, being the approximate average 10-year government bond rate over the last five years (RBA, 2008b).

4   Results

Results for the four scenarios are now presented under the assumption of loan amounts based on a leave period of 26 weeks. Three income levels, low (25th percentile), medium (50th percentile), and high (75th percentile) are given for each scenario[16]. For scenarios one and two, the parents are assumed to have two children and hence the amount borrowed ($28,277) is twice the single amount ($14,138).

Figure 1 illustrates the time stream of repayments of the debts, and Figure 2 illustrates the time stream of outstanding debt. The following points are noteworthy from the two figures:

1. The repayments follow a step shape, which is a consequence of the increments to income being calculated annually.
2. The accumulation of debt early in the life of the loan takes a stepped appearance in scenarios one and two due to the loan amount increasing when leave is taken for the second child.
3. There are large differences in time to repayment in all scenarios depending on income, ranging from about five years to 17 years for two-parent families with two children.
4. For single mothers on median part-time incomes who never return to full-time work, considerable time is taken until total debt is repaid, and for single mothers 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.

[Figure 1 inserted here]

[Figure 2 inserted here]

Table 3 presents 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

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[16] 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.

amount repaid by the borrower, both for loans based on leave duration of 26 weeks and ten weeks. The subsidies are determined by the interest rate differential (being the difference between the indexation rate of CPI applied to the loan and the discount rate of 5.5 per cent per annum), the 20 per cent surcharge, and the unique future income circumstances of the specific borrowers (which affects the time until repayment of the loan).

[Table 3 inserted here]

Of note in Table 3 is the sensitivity of results to the amount of debt accrued. Reducing the amount of leave from 26 to ten weeks, and thereby the amount of debt accrued, significantly reduces the subsidy in all cases with the exception of the lowest income quartile for scenario 4 where the mother's income is such that no debt is repaid.

Table 3 illustrates that repaying the loan quickly provides negative taxpayer subsidies (as the benefits to the government from the loan surcharge more than offset the opportunity cost of the low loan indexation rate), and those repaying slowly or incompletely will generate positive – and in some cases, potentially large – subsidies (as the costs of low loan indexation rates outweigh the benefits to the government of the surcharge.)

It is apparent from examination of the scenarios that the highest positive subsidies are received by those families most in financial need over their lifetimes. Single mothers, particularly those on low incomes, take the longest time to repay or don't repay the loan, and consequently benefit most from the low loan indexation. This feature of distributing most benefit to those with greater financial need is common to ICL with interest rate arrangements that have been adopted for HECS-HELP and FEE-HELP. It is clear also that the income contingent nature of the loan provides for default protection, as highlighted for single mothers earning low part-time incomes.

Median- and high-income earners, namely those at the 50th and 75th income percentile under scenarios 1, 2 and 3, experience negative subsidies due to the role of the surcharge. The subsidies in Table 3 indicate the net position for the government, and do not reflect whether or not a parent, who may have a different, and higher, cost of capital, would benefit financially from participation. One way of exploring this issue is to find the discount rate that would set the subsidy to zero per cent for each income quartile within each scenario. These are presented in Table 4 for the 26 week loan. If a parent could borrow funds privately below these equivalent discount rates, then their costs of servicing the private loan would be less than the costs they would otherwise face through an ICL. For example, for a single parent on the lowest quartile of full-time income, they would have to borrow at a rate below 4.6 per cent per annum for the repayments to be less onerous than those available through the ICL. This comparison between an ICL and private loans is not as simple as it appears however, as the default protection implicit in the contingent nature of the ICL is an added attraction that is not replicated in the credit markets.

[Table 4 inserted here]

Although negative subsidies do not imply that the loan may be financially unattractive to parents, there will remain circumstances of non-participation from some parents

with the financial means to provide for their own leave. Although one may see this as an equitable outcome as the policy then targets those groups most in need, choices made along these lines have an adverse selection dimension as well, since if those who avoid participation would have otherwise generated a negative subsidy, this has the effect of increasing the overall taxpayer subsidy from the policy.

What are the implications of these scenarios for aggregate costings ? It is apparent from the results that a large taxpayer cost could arise from single parents on low incomes. Although an ICL scheme's viability would be questionable if this demographic was the primary group in the population, nationally lone parents make up fewer than 15 per cent of families with young dependents[17]. In fact, only a proportion of these parents would contribute solely to the costs of their loan, since in some cases both parents would have existed as a couple (ABS, 2007b) at the time the loan was agreed. In these circumstances the father would be expected to contribute following divorce or separation under the scheme design parameters introduced here.

Even given substantial adverse selection, manifesting by the dominance of single parent families in the scheme, a simple simulation shows that aggregate costs would be small. We assume that 50 per cent of take-up is by single parents, compared with an actual population proportion of 15 per cent corresponding to single parents, and that of the single parents (and also the couples), 50 per cent of those participating are in the lowest income quartile[18]. The aggregate government subsidy under these quite extreme circumstances is just 12 per cent assuming 26 weeks of leave, or just four per cent when based on ten weeks of leave. Under assumptions of no adverse selection, the aggregate subsidy would be close to minus two per cent for 26 weeks of leave, or minus ten per cent for ten weeks of leave. These calculations suggest that, even in conditions of pervasive adverse selection, the policy would not be costly.

5 Discussion and conclusion

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. In terms of economic theory, government intervention of this type can be justified due to the presence of social spillovers from PPL that are not being delivered due to a market failure. The market failure in this setting is the unavailability of loans from commercial institutions for parental leave purposes in the circumstances of no saleable collateral and associated high risks of default.

An ICL for PPL, as for similar applications, delivers to borrowers consumption smoothing. By only requiring repayments when the family is in a suitable financial position, the policy effectively allows parents to transfer income from future propitious times to a preceding period when household incomes have fallen as a result of a parent's non-participation in paid work.

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[17] This statistic was obtained from the ABS 2005-06 Income and Housing Confidential Unit Record File based on families with dependents aged zero to two (ABS, 2006c).

[18] We assume that 25 per cent have the median income and 25 per cent have the upper quartile of income. Further we assume that 50 per cent of single families are full-time and 50 per cent are part-time.

As illustrated in the empirical exercises, the scheme is progressive within the group of borrowers considered. Debtors with low future incomes and in particular single mothers, would repay the loan relatively slowly, meaning higher taxpayer subsidies, whereas those with higher incomes repay more quickly. The exercises suggest that the extent of the implicit rate subsidy may be as high as 100 per cent for single mothers with very low lifetime incomes, but this would be a rare circumstance. For single mothers working full-time but in the lowest 25th income percentile, the extent of the subsidy is around seven per cent. For the majority of potential PPL borrowers, however, the subsidies are very small and may be negative in cases of families receiving full-time median incomes. As suggested, an ICL would be financially attractive, despite negative government subsidies, to parents who may either have no alternative means or who face costly alternatives.

Take-up rates would be 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 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 of higher expected interest rate subsidies. This possibility, while implying additional potential progressivity of the scheme, is of course not necessarily an advantage. Adverse selection of this type imposes higher costs in terms of taxpayer subsidies. As shown in Section 3, the scheme has been designed with focussed consideration of adverse selection and moral hazard. While the innovations suggested would diminish the likelihood of the scheme resulting in substantial taxpayer subsidies, the prospect remains. However, even under significant adverse selection, some rough estimates suggest that aggregate taxpayer costs (excluding administrative expenses), would very likely be negligible.

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Table 1. Repayment Thresholds and Rates for PPL scheme

Repayment threshold	Repayment rate (per cent)
Below $28,259	Nil
$28,260-$34,926	2.0
$34,927-$41,594	3.0
$41,595-$46,333	4.0
$46,334-$51,070	4.5
$51,071-$53,754	5.0
$53,755-$57,782	5.5
$57,783-$62,579	6.0
$62,580-$65,873	6.5
$65,874-$72,492	7.0
$72,493-$77,247	7.5
$77,248 and above	8.0

Table 2: The Scenarios under Analysis

1 Couple with two children Mother's employment: NW-PT-NW-PT-FT (PT for 1 year between the two NW phases, PT for 2 years following birth of 2nd child before returning FT) Father's employment: FT	2 Couple with two children Mother's employment: NW-PT-NW-PT (PT for 1 year between the two NW phases, PT following birth of 2nd child) Father's employment: FT
3 Single with one child Mother's employment: NW-PT-FT (PT for two years before returning FT)	4 Single with one child Mother's employment: NW-PT (PT continually after maternity leave)

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

Table 3: Government Subsidies for Different Scenarios

Scenario	Present value of the amount outlaid ($)	Present value of the repayments ($)			Subsidy proportion (per cent)		
Income percentile		25%	50%	75%	25%	50%	75%
26 week loan							
1	26,286	26,159	28,382	29,410	0	-8	-12
2	26,286	24,707	27,995	29,368	6	-6	-12
3	13,765	12,742	13,990	14,838	7	-2	-8
4	13,765	-	11,052	13,135	100	20	5
10 week loan							
1	10,274	11,229	11,666	11,886	-9	-14	-16
2	10,274	11,076	11,660	11,886	-8	-13	-16
3	5,338	5,558	5,788	5,958	-4	-8	-12
4	5,338	-	5,151	5,720	100	3	-7

Table 4: Equivalent Discount rates Corresponding to zero per cent subsidy for 26 week loan.

Income percentile/ Scenario	25%	50%	75%
1	5.5	7.8	10.5
2	4.7	7.2	10.4
3	4.6	5.8	7.7
4	NA	3.8	4.9

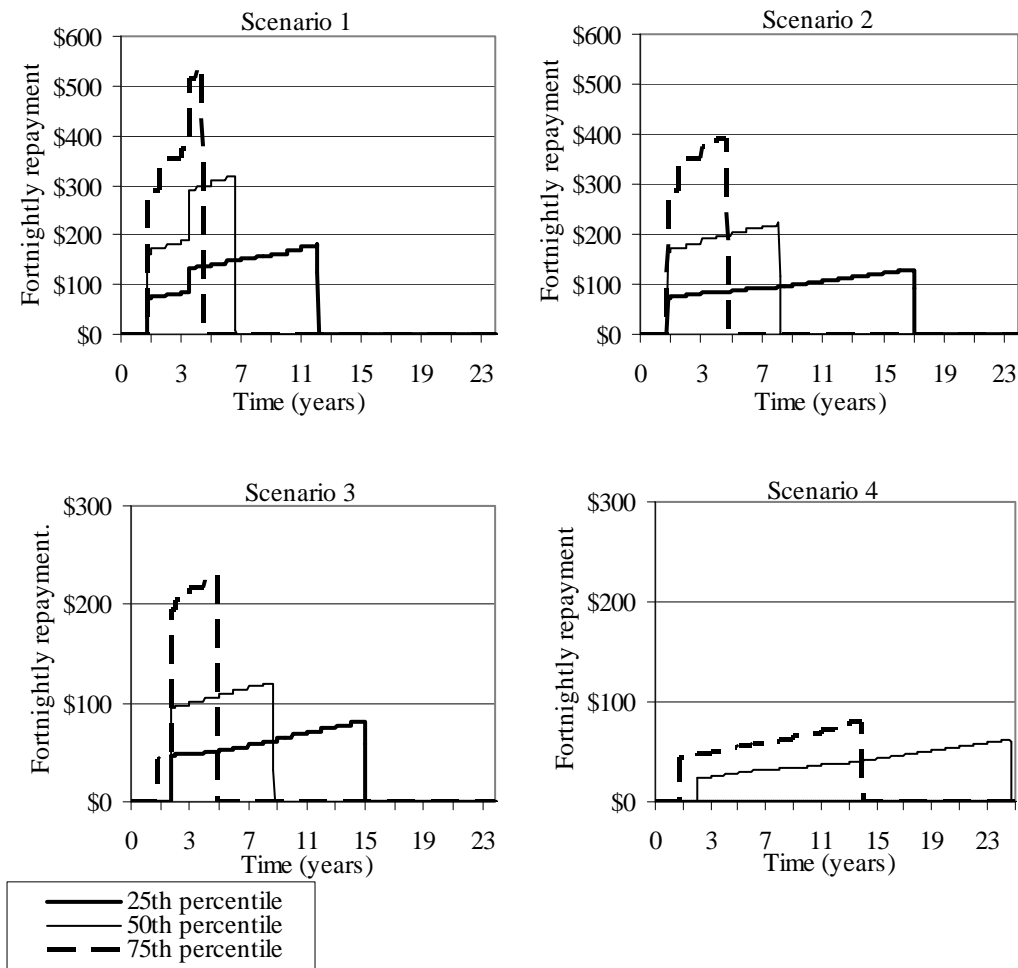Figure 1: Time stream of repayments for 26 week loan.

Figure 2: Time stream of outstanding debt for 26 week loan.