ESSAYS IN THE DEVELOPMENT AND COSTING OF INCOME CONTINGENT LOANS

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Declaration of Originality

I declare that this thesis is an original work and is an account of research carried out by myself while enrolled as a PhD candidate at The Australian National University. This thesis does not contain material that has been accepted for the award of any other degree or diploma in any University, nor material published or written by another person, except where due reference is made.

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Abstract

Income contingent loans (ICL) are policy instruments that can enable participation in activities that yield both public and private benefits, with repayment conditions that promote equity, remove the risk of loan default, smooth consumption, and thus increase utility for loan recipients. This thesis presents three essays on the development and costing of ICLs. The first two essays consider application of ICLs to paid parental leave and to student income support, and they are approached from the perspective of financial product design: context and motivation are described; product features are chosen to balance consumer needs and affordability with provider costs; models are developed and populated with assumptions and parameters; and the models are used to undertake risk assessment and costing. There are a variety of new ICL designs proposed and innovative scheme features considered in the first two essays. In the third essay, original dynamic stochastic models are developed which are shown to have important implications to ICL cost estimates.

In Chapter 2, an ICL is motivated and developed as an extension to the recently introduced Australian statutory paid parental leave (PPL) scheme. It is argued that the statutory scheme does not maximise the social and private benefits of parental leave, yet a lack of liquidity and market failure prevents families from financing an extension of leave. An ICL is proposed to provide a source of funds, enabling consumption smoothing, and encouraging participation through the provision of default insurance and contingent payments. Design features for the ICL are proposed to mitigate adverse selection and moral hazard: eligibility is confined to persons with previous workforce attachment; the minimum repayment threshold is set lower than that of HECS; and, repayments are made the obligation of both parents. Modelling of debt, repayments and taxpayer subsidies is performed for various loan durations, loan amounts, indexation arrangements, and discount rates. It is shown that a carefully designed scheme can be a cost effective and equitable means of providing parents with the necessary leave so as to optimise both private and public returns.

In Chapter 3, an ICL is motivated and developed for the shortfall in student income support for higher education. It is shown that, despite recent improvements to

policy, there remains a deficiency in existing income support arrangements, which may result in sub-optimal educational achievement and reduced participation. It is suggested that after allowing for existing income support and practical levels of student employment, as little as an additional $2,000 per annum could make up the shortfall for many students. As with HECS, a market failure exists, and an argument is made for an ICL to address this shortfall. Modelling is undertaken with emphasis on the implications to taxpayer costs under different indexation arrangements in the presence of HECS debts. While it is shown that plausible parameter choices can produce results that differ with respect to expected taxpayer costs and loan recipient outlays, it is speculated that a loan surcharge with nil real indexation could encourage greater participation and face less opposition than a real interest rate, while maintaining equity through cross-subsidisation. The case of mature aged students is separately considered, and an ICL sourced from superannuation is proposed for income support that could be structured to almost eliminate moral hazard and default risk, yet would increase individual utility and help address the skills shortage crisis.

The viability of the ICLs developed in Chapters 2 and 3 will depend on aggregate taxpayer costs. In Chapter 4, a range of labour force and earnings models is developed with the view of exploring how ICL cost estimates are affected by model structures and assumptions. Nested bivariate logistic models for labour force transitions are developed that incorporate lagged labour states. Hourly wage is modelled, and residuals from the mean fit are partitioned into permanent and transitory components, incorporating serial dependency and non-normal shocks. A non-parametric model for weekly hours worked is developed that incorporates conditional transition probabilities. Monte Carlo simulation is used to estimate ICL debt, repayments and subsidies under the fitted models. It is found that under a wide range of conditions, dynamic stochastic earnings models lead to greater repayments, lower projected debt, and significantly lower aggregate taxpayer subsidies when compared with models that ignore earnings mobility.

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