Introduction and Summary

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In 1989 the Australian government introduced the first university tuition-loan program in which debts would be collected through the income tax system depending on the participant's income.[1] The policy, known as the Higher Education Contribution Scheme (HECS) is an arrangement known as an income contingent loan (ICL), a debt that differs critically from 'normal' loans in that repayments occur if and only when debtors' incomes reach a given level. Eight other countries have since adopted similar student loan schemes and, at the time of writing, there is a Bill (the Earnings Contingent Education Loans (ExCEL) Act) under bi-partisan consideration in the US Congress which, if passed, would have the effect of introducing a broadly-based ICL. It is generally agreed that ICL policies for higher education financing have worked effectively from the perspective of equity and efficiency, and from a transactional perspective.

While HECS was considered to be a creative innovation, applauded in the main for its political sophistication, no-one at the time foresaw the potential of ICL to transform the debate concerning the economic and social policy landscape. There was no appreciation of the possibility that contingent loan financing could provide a model for far-reaching renovations to the nature and form of public policy; yet in the eyes of some contemporary social scientists such a possibility is close to being realised. The ICL potential, and the intellectual, conceptual and empirical bases of contingent financing, are the subjects of our book.

Over about the last 25 years economists and other social scientists have taken the basic template of Australia's education ICL and applied it to a plethora of different social and economic arenas. It is this policy and research experience that provided the idea of holding an International Economics Association workshop on the broad topic of ICL, and this came to fruition at

Dhurakij Pundit University (DPU) in Bangkok in April 2013. The convenors were Professors Joseph E. Stiglitz and Bruce Chapman, with critical funding support provided by DPU, the Australian Research Council and Ausaid, the Australian government aid agency at the time.

The two-day workshop covered: the conceptual and theoretical underpinnings of ICL; the costs and benefits of different types of higher education student loans; and potential contingent loan policy applications beyond higher education. A number of participants presented commentary during and after the workshop, summarising their thoughts on the discussion, and examining, among other things, advantages and disadvantages of particular features of different ICL programs, lessons learned, unresolved questions, and future prospects and challenges.

This volume contains revised versions of the presentations and commentaries presented at the workshop.

In the first chapter following this introduction, Chapman sets the scene by traversing the major theoretical and policy issues in historical, conceptual and empirical contexts. The chapter is intended to introduce ICL to readers unfamiliar both with loans of this form and with the literature analysing these programs.

The remainder of the book consists of four sections. Section 1 examines the theoretical underpinnings of ICL. Section 2 describes and considers critically the application of ICL in higher education, and includes an overview of the motivation, design, and lessons learned from the implementation of ICL schemes for higher education. Various case studies (Chile, Colombia, Malaysia, Thailand and Germany) illustrate a variety of issues that higher education financing programs face, and the possibility for solutions through ICL.

Section 3 provides an examination of several disparate potential applications of ICL in financing areas well beyond student loans, including: paid parental leave; legal aid; business innovation; health care; sustaining consumption during a period of unemployment; and providing for aged care. It also contains a discussion of the internationalisation of ICL debt payments for human capital trade imbalances. Section 4 concludes with commentaries on aspects of ICL theory, design and application, ranging from a reassessment of the costs and benefits of ICL in higher education, to reflections on contingent loans as a new paradigm for the welfare state and as a lower cost alternative to private financial markets in certain critical realms.

Following are brief summaries of the chapters, and what we consider to be the key findings from the workshop.

In Chapter 1, Chapman highlights the critical advantages of ICL over conventional loans: it provides for better consumption smoothing, since with ICL repayment obligations are a fixed proportion of income; the administrative and compliance costs with ICL have been low; government has

the legal power to collect from income; and, in countries with universal and transparent internal revenue services (or taxation offices), the transactional efficiency of these systems can lead to significant cost advantages of ICL over other financing instruments. This last point is raised by Stiglitz in Chapter 2, and by Denniss in the volume's final chapter. While focusing on the Australian experience, Chapman goes on to briefly summarize the international experience with ICL. Chapman stresses that the viability of ICL requires a strong legal framework, a universal and transparent regime of income taxation and/or social security collection, and an efficient repayment mechanism. This point is also emphasized by Salmi (Chapter 6) in discussions of student loans in Chile and Colombia, and by Hock-Eam, Ismail and Ibrahim (Chapter 7) with respect to Malaysia.

In the second part of Chapter 1, Chapman examines some major conceptual issues related to the application of ICL to disparate policy areas beyond higher education. The policy benefits essentially take the form of insurance against consumption hardship (and concomitantly, loan default), but there is a major and pervasive issue inherent in the design of all ICL, which concerns the possibilities of non-repayment of the loan. Related problems are adverse selection – the risk that only individuals who anticipate having a low income will sign up for the program – and moral hazard – the risk that income contingent loans will attenuate incentives. These concepts and their relevance to the use of ICL as a government risk-management instrument are examined in detail.

In the first chapter in Section 1, the broad theoretical consideration of ICL, Stiglitz compares and contrasts the economic consequences of debt and equity. In financing human capital, ICL has distinct advantages in risk sharing, analogous to that of equity in financing conventional investments. He also highlights the issue of 'transactional efficiencies' and makes a strong case that governments are particularly well-placed to be engaged in financial intervention in many areas of economic behavior because the use of the internal revenue service as a loan collection agency is an extremely efficient, as well as equitable, way to collect debt. The point is taken up enthusiastically and expanded in the final volume chapter by Denniss.

In Chapter 3, Quiggin presents a simple model of income contingent loans. His model illustrates how ICLs allow for insurance against wage (and more generally, income) uncertainty and shows that under reasonable conditions, an ICL is superior to market loans or tax-financed public subsidies in terms of both labor market efficiency and equity. Quiggin argues that if individuals expect to repay the full ICL with certainty, then there will not be distortions to labor supply. Rather, he points out that distortions will only occur in the wage interval where optimal effort leads to partial loan repayment. This raises the important question as to the size of the wage interval for which adverse effects on labor supply arise, a question Racionero poses in Chapter 19.

Long adds to the debate in Chapter 4, providing a conceptual model for measuring social welfare gains for an ICL utilizing a flexible piecewise linear repayment scheme. Under the proposed model, ICL scheme parameters could, in theory, be selected by optimizing the social welfare function subject to known distributions of labor productivities and elasticities of labor supply, and appropriate equity constraints. Starting with the modeling of simple systems and interactions is a practical and sensible approach, and a marked improvement over a simple linear repayment scheme. Long, like Stiglitz and Yun (Chapter 16), suggest that a general theory for ICLs has to be embedded in the broader context of taxation, welfare and social security, and his paper can be viewed as a necessary step along the path to developing such a theory. Long shows that an ICL contributes toward consumption smoothing across states of nature (or individual types) within any period, as well as across periods. He argues in favour of a scheme of piecewise linear income-dependent repayment rates, which is a dynamic generalization of the scheme of piecewise linear income taxation that Apps, Long and Rees (2012) investigated in a static setting.

Section 2 focuses on ICL developments in higher education, where they have had their widest application. Chapter 5 begins with Barr's comprehensive coverage of the debate on higher education funding, and is an important complement to Chapman's background paper. Barr first provides the context, namely that higher education has changed and that the expansion of the sector requires new approaches to financing. He summarises the arguments for cost-sharing based on fiscal constraints, equity, and efficiency, and concludes that the only 'large-scale equitable source of private finance' is through graduate future earnings (p.65), that is, through a contingent system of loans.

Barr highlights the issue of interest rates, arguing strongly against blanket interest subsidies in ICL programs, on the grounds that they are expensive and poorly targeted, particularly if debt forgiveness already protects graduates with low lifetime earnings. A consequence of high real interest rates is the possibility of spiralling nominal debt, and Barr presents some solutions, such as applying zero real rates when repayments fall short of accrued interest. Barr then shares lessons about loan design and implementation in the UK, New Zealand, and Hungary. Of particular interest is the case of Hungary, where loans are financed by the private sector with repayments based on past earnings, and an interest rate is charged that is the sum of the cost of finance, a cohort risk premium (to cover the risk of non-repayment), and administrative charges. The essential point is that with careful design, ICL loans can be privately financed. The Hungarian approach essentially moves the risk from the taxpayer to the cohort of graduates (see Racionero, Chapter 19, for further discussion of this point).

Barr's point that there is no single income contingent scheme – 'income contingency is a mechanism for collecting repayments' (p.69) – highlights what sets income contingent loans and graduate taxes apart from other policies. In this context two features of ICL are special: the built-in insurance of the mechanism, and its transactional efficiency when collection is through the tax authorities. The transactional efficiency of ICL was a recurring theme in the Workshop, and one that is argued in depth by both Stiglitz (Chapter 2) and Denniss (see Chapter 22).

In Chapter 6 Salmi recounts lessons from the recent student loan policy experience in Chile and Colombia. His key lesson is that in times of economic hardship, if loans are not income contingent graduates will face considerable repayment burdens and very high loan default rates. This led to the collapse of the Chilean loan system following recent student protests. Despite government announcements to move to an ICL arrangement for all students, the new administration has since promised to abolish fees and introduce free higher education. Salmi stresses that if implemented, so-called 'free' higher education could be a backward step and potentially jeopardize the quality and equity of higher education in Chile: budget constraints limit the availability of funds to higher education, and a disproportionate share of the beneficiaries come from higher income families and/or end up as higher income individuals. His chapter explains that Colombia, the first country to introduce student loans, has also faced pressure from student protests for the abolition of fees and increased public funding, and has resisted moves to adopt an ICL approach, partly due to difficulties in repayment collections through the tax system in the presence of a large informal sector and fiscal fraud. Reiterating a key lesson raised by Chapman in Chapter 1, Salmi stresses that the challenge is having a reasonably fool-proof collection mechanism.

While Malaysia has considered implementation of an ICL in the past, higher education is currently financed through highly subsidised mortgage-type loans. In Chapter 7, Hock-Eam, Ismail, and Ibrahim critically examine the existing financing arrangements. They focus on empirical evidence related to repayment burdens of mortgage-type loans, which is the proportion of a debtor's income that is required to repay typical student debts. It is clear that for a significant minority of Malaysian graduates there are worryingly high repayment burdens, even though the current scheme does not cover the full costs of the course and has subsidies of over 50 per cent for some higher education qualifications (such as for sciences and medicine). The chapter demonstrates that an ICL could yield subsidies that are considerably lower than under existing arrangements, and be associated with manageable repayment burdens. Despite the equity and affordability of ICLs (both for students and government), the authors are careful to stress the unresolved challenge of collection in the Malaysian institutional and political context.

In Chapter 8, Lounkaew contributes to the student loan literature by providing empirical evidence of the trade-off between interest rate subsidies and expected aggregate loan recovery. In particular, the paper explores the potential impact of eliminating the interest rate subsidies of Thailand's Student Loans Fund (SLF). Three important policy conclusions can be drawn. First, in the absence of interest rate subsidies, which are currently of the order of around 60 per cent, the repayment burdens for a large number of debtors would be extremely high. Second, it is shown that attempting to solve the high interest rate costs problem by setting the real rate of interest to 3 per cent would result in default rates of close to 50 per cent, implying very large subsidies of this kind for taxpayers. Third, the current design of the SLF – which is a mortgage-based loan system – does not allow for consumption smoothing, an important issue given the significant variations in graduate incomes over the life-cycle.

The final paper (Chapter 9) in this section, by Grave and Sinning, describes the loan scheme used in Germany for financing student living expenses, known as the BAföG scheme. Subsidies in the scheme can be as high as 80 per cent. Consequently they suggest that the scheme could arguably be replaced by grants, which could be more cost-effective for the government when administrative savings are taken into consideration. Grave and Sinning go on to show that under the current loan arrangements, high subsidies are required to offset the high repayment burdens or long repayment durations that students would otherwise face in the absence of subsidization. There is an alternative, however, to grants or high subsidies; they show how a properly designed ICL can provide an attractive and much less expensive alternative.

Part 3 of the volume explores the prospects for ICL beyond financing higher education. Many examples are motivated by capital market failures – individuals typically can't get loans, let alone income contingent loans, to finance the items in question. The applications that have received most focus are those in which it is considered that there are clear externalities; there are broader social concerns surrounding the individuals being able to obtain the good or service in question. In all possible extensions of ICL it is acknowledged that poorly designed arrangements can be associated with substantial costs as a result of adverse selection and moral hazard, a prospect writ large when there is not universal compulsion to participate in the scheme (which is true of all the schemes discussed in this section).

In the first contribution (Chapter 10) Higgins discusses the application of an ICL to help finance parental leave. He argues that paid parental leave is an investment in human capital as it fosters workforce retention, and a lack of collateral for young parents leads to liquidity constraints. As with higher education there is a market failure due to asymmetric information concerning future work intentions and prospects. Adverse incentive and selection effects can be mitigated through scheme design, which could include limiting the

duration of the leave, making the debt an obligation of both parents, and restricting eligibility to the paid labor force.

Clarke and Chapman, in Chapter 11, examine the issue of the international emigration of skilled workers from less developed countries to economically advantaged nations, a process that can be described as highly regressive. The chapter examines the viability of a proposal to make operational Bhagwati's 'brain drain tax'. The basic idea is that emigrating graduates would be required to repay to their original country debts for higher education and these would be collected in the same way as ICL debts are for domestic students.

Chapter 12, by Denniss, considers the development of an ICL scheme for legal aid for civil disputes in Australia. Denniss presents evidence that cost is the main reason for the unmet demand for legal services, and he outlines a Legal Expenses Contribution Scheme as a financing instrument. Importantly, to mitigate the risk of adverse selection, cases would be subject to a merit test prior to consideration for funding. Denniss argues that an appropriately designed scheme could help to meet the demand for legal services, while encouraging equity by striking a balance between the retention of personal risk in order to limit unnecessary legal action, and protection against poverty through imposition of a minimum income threshold.

Gupta and Withers follow in Chapter 13 with an ICL arrangement for the financing of business innovation. Small and medium-sized enterprises are often precluded from funding sources available to larger enterprises due to lack of expertise, size constraints, and generally limited capacity for risk. The lack of access to finance represents a market failure, and the authors suggest a scheme that would include a default-protected contingent loan mechanism with repayments from net earnings. Because repayments would be required only when the firms' circumstances are financially propitious, this would ensure that the scheme provides revenue or profit smoothing. As with other examples in Section 3, the authors note the importance of limiting adverse selection and moral hazard, and propose a training requirement and commercial assessment in partnership with government and financial institutions. A (partial) risk-pooling arrangement is proposed, such that successful firms repay, in present value terms, more than they borrow (which is, of course, always a feature of non-subsidized income contingent loan programs), thus adding an 'important mutual responsibility dimension' (p.162), but also partial taxpayer subsidization is argued for on the grounds of social pay-off from the opportunities generated from innovation activities.

In Chapter 14, Vaithianathan considers how ICLs could be used in health care, in particular for the funding of out-of-pocket health care expenditure in specific areas where there seem to be substantial needs and benefits from the increased access to health care that such a scheme would provide. She notes the potential for significant efficiency gains from such a program. Her analysis begins by pointing out that in high income countries, despite

widespread health insurance, some services such as psychological therapies for depression are not funded despite depression being a major cause of disability and exit from work. It is suggested that ICLs may offer an opportunity for those who face potentially high returns from investing in health but are cash-constrained form doing so, and where conventional health insurance systems cannot fully overcome the adverse and moral hazard problems.

In Chapter 15, Chomik and Piggott expand on the concept of 'contingency' beyond income to resources more broadly in the context of support policies for the elderly. They demonstrate the similarities between ICLs and existing public age pensions and reverse mortgage products, which one might broadly classify as resource contingent instruments, and they stress the importance of such policies in light of the fiscal pressures on the state associated with an ageing population.

The final paper in Section 3 (Chapter 16), by Stiglitz and Yun, explores the potential use of ICLs in the context of unemployment insurance. Episodes of unemployment can cause serious hardship, even if the loss of lifetime income is limited, because of imperfections of capital markets. Loans enable individuals to smooth consumption over time, without some of the adverse incentive effects (on search) associated with unemployment insurance. But unemployment loans run into difficulties when individuals face successive bouts of unemployment. Conventional loans can leave individuals in hardship later in life. ICLs are a solution to this quandary, providing better incentives than ordinary unemployment insurance, but better risk sharing than a conventional loan. They show that there are complex externalities, across periods and instruments, with the unemployment program in one period affecting search behavior in other periods. These externalities have to be taken into account in designing the optimal unemployment program. They show that in general, the mix of loans and insurance and the terms of the ICLs should vary over the individual's life and depend on his or her work experience.

The final section of the book includes commentaries from several participants on a number of different ICL areas. While the workshop focus was on ICL, in Chapter 17 Palacios describes the benefits and costs of income contingent financing more broadly, to include human capital contracts and graduate taxes. Palacios describes the involvement of the private sector as providers of human capital contracts, which are privately underwritten income contingent contracts that are a form of equity rather than debt finance. His major contribution is beyond the comparison of these different contingent arrangements and lies in the argument that the costs imposed by adverse selection and moral hazard may not be as critical as generally perceived, and that such products might provide important price signals to students, government, and higher education providers as to the value of human capital.

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Chapter 18 from Yun outlines welfare effects of ICL as compared to other types of government aid program such as mortgage-type loans and grants. Yun describes the Korean student loan program, and discusses the potential efficiency and equity aspects of two-tier loan systems that consist of an ICL for low-income families and mortgage-type loans for other income groups.

In Chapter 19, Racionero provides a considered summary of many points of debate covered during the workshop. Among other matters, she summarizes the options for ICL design (risk-sharing, where the cost of non-repayment is borne by taxpayers, versus risk-pooling, where successful graduates are responsible for covering the repayment shortfall of low earning graduates); and the theoretical work on scheme design selection for optimal participation in the presence of risk aversion. Racionero also discusses issues relating to the application of ICLs beyond higher education, reiterating the significance of moral hazard and adverse selection as critical in scheme design. Her chapter also expresses concern over the accumulation of ICL debt if multiple ICLs are simultaneously offered, and refers to contributions in the 'new dynamic public finance' literature that may provide lessons and guidance for further development of ICL theory. Of note, Stiglitz and Yun (Chapter 16) explicitly address the problem of multiple loans in the context of an individual facing the possibility of multiple bouts of unemployment.

In Chapter 20, Quiggin poses the interesting question of why ICLs have yet to be adopted in policy areas outside of higher education financing. His basic proposition is that while the conceptual case for ICL is strong, special interest groups will generally have the political muscle to resist policy changes which in many cases would reduce financial privileges of citizens currently in receipt of grant assistance. In the United States and many other advanced countries, the financial sector has been an impediment to the design of better financial products. As a number of papers in this volume have emphasized, one of the significant advantages of ICL is collection of payment/enforcement through the tax services. However, greater adoption of ICL is likely to cut out the financial sector from the large rents that they currently receive (the issue is taken up further by Denniss in the final chapter of the volume).

Withers pursues the issues of ICL in rational individual choice theory in Chapter 21. He suggests that there are also complementary possibilities for additional new directions for ICL theory and research. An especially promising way to identify such sectors is through a positive political economy analysis of the role of voters, politicians, bureaucrats and interest groups.

Throughout the workshop there was robust discussion on the benefits and values associated with the features of ICL. It was argued that the lower transaction and collection costs of government through the income taxation system offer considerable untapped opportunities that go beyond the ability of such loans to smooth consumption across time and over different income contingencies. A persuasive argument on these lines is presented in Chapter

22 by Denniss. As the lower costs can be passed on to borrowers (whether through scheme benefits such as insurance, or because charges are lower than they are for private sector loans), an ICL is welfare enhancing, and on this basis an argument can be put forward for government intervention in all areas where there is a case for intertemporal and interstate smoothing (across contingencies that affect individuals' lifetime well-being), essentially implying an alternative welfare state to the contemporary system. The argument is strongly consistent with the benefits highlighted by Stiglitz in Chapter 2 on the issue of ICL transactional efficiencies. This represents a major departure from the direction being taken in many countries, entailing *greater* reliance on private sector lending.[2]

A key message from the contributions in this volume is that there appears to be a critical potential for the use of ICL instruments not only in higher education, but in many other areas. And the opportunity for welfare gain from lower cost government administration and collection (in countries with appropriate institutions) suggests that consideration be extended for contingent loans even when capital markets are functioning (albeit with higher transactions costs).

The papers in this volume have noted that there are critical matters of design, most obviously motivated by the need to maximize ICL debt recovery, addressing adverse selection and moral hazard concerns, which often loom large. Many of the examples in this volume have shown how these issues of design can be, and have been, addressed. The considerable transactional efficiencies associated with government intervention of these forms, combined with the improvements in risk and incentives that well-designed ICL programs can provide, suggests that such programs can play an important role in a modern welfare state.

Of course it should be acknowledged that policy change is difficult even when there is a clear case for reform on economic grounds. In the event of vested interests and generous benefit payments, barriers to reform can be great. A more widespread embrace of ICL requires careful framing of the benefits to the public, politicians and to policy makers. The strong potential for welfare gains suggests that this is a challenge well worth pursuing, and especially so at times such as these when so many countries are facing severe fiscal issues.

Notes

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1. Yale University had introduced an income contingent loan program some years earlier but there were two critical distinctions (highlighted in the paper by Nerlove (1975)): in the Australian program the debts were collected by the tax authorities, enhancing enforcement and lowering transactions costs; and because all students participated in

the program, the adverse selection problem which plagued the Yale program did not arise.

2. Note that the U.S. finally recognized the extra burden associated with private financial markets, moving in 2010 to a public higher education program that relied exclusively on direct loans from the government rather than subsidies to private banks, This measure will save approximately $68 billion from 2010 to 2020. However, the U.S. has not yet moved to an income contingent loan program.

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