

Chapman, Bruce

**Article**

## Income contingent loans in higher education financing

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## Income contingent loans in higher education financing

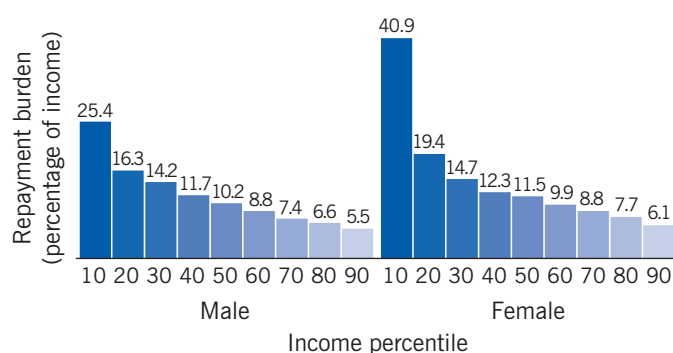
Internationally, there has been a student financing revolution towards income contingent loans

Keywords: income contingent loans, government-guaranteed bank loans, consumption smoothing, default insurance, repayment burdens

### ELEVATOR PITCH

Around nine countries currently use a national income contingent loan (ICL) scheme for higher education tuition using the income tax system. Increased international interest in ICL validates an examination of its costs and benefits relative to the traditional financing system, government-guaranteed bank loans (GGBLs). Bank-type loans exhibit poor economic characteristics: namely, repayment hardships for the disadvantaged, and default. This damages credit reputations and can be associated with high taxpayer subsidies. ICLs avoid these problems, but effective collection of debt requires a sophisticated mechanism.

US repayment burdens for college graduates at the age of 25 by income percentile



Source: [1].

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### KEY FINDINGS

#### Pros

- ⊕ ICLs deliver consumption smoothing by reducing the burden on disposable income from student debt, particularly for those at the lower end of the earnings spectrum.
- ⊕ By coupling loan repayment amounts to a debtor's actual income, ICLs provide insurance against default.
- ⊕ ICL debt can be efficiently collected if functional tax and personal identification systems are in place.
- ⊕ GGBLs provide debt default insurance for lenders but not borrowers.

#### Cons

- ⊖ GGBLs can lead to credit reputation loss for the borrower due to default.
- ⊖ Systems based on GGBLs create inequality in educational access due to an increased fear of future debt default by low-income prospective students.
- ⊖ ICLs have sophisticated administration requirements that may be unachievable for some countries.

### AUTHOR'S MAIN MESSAGE

ICLs possess considerable benefits when compared to GGBLs. ICLs provide insurance to borrowers against both future loan repayment hardships and default. In contradistinction, GGBLs can be very costly to some borrowers who experience periods of low future income. In general, the public-sector administration costs of an ICL scheme are very small for countries that have a comprehensive income tax payment administration in place. This, in combination with the additional borrowers' insurance benefits, strongly suggests that ICL policies are preferable to the standard GGBL model.

## MOTIVATION

In 1989, a higher education policy initiative took place in Australia that can be seen as a first step towards international reforms regarding higher education student loans. The scheme, then known as the Higher Education Contribution Scheme (HECS), involved domestic students being charged tuition, but with the obligation to pay being deferred until debtors' income rose above a given threshold, with repayments set at a maximum of between 4% and 8% of annual personal income. A critical aspect of this reform was that the debt would be collected by employers and remitted to Australia's internal revenue service (IRS), the Australian Tax Office, in much the same way that personal income taxes are.

Twenty-six years later, HECS (now known as HECS-HELP), which can be accurately categorized as an income contingent loan (ICL), exists in different forms in more than a handful of countries, although scheme design, eligibility, interest rates, and debt forgiveness regimes differ widely between systems, and have changed over time. Critically, however, the essential characteristics of the loans, income contingency and collection through auspices equivalent to each country's IRS, are shared.

Evidence suggests that the economic, administrative and equity case for ICLs is very strong, although there are caveats with respect to both design and administration. Relevant in this context are the need for government intervention in higher education financing in the form of loans; the limitations regarding repayment burdens that are associated with government-guaranteed bank loans (GGBLs), which have been the most common form of intervention; and the advantages of, and difficulties associated with, ICLs.

The potential benefits of ICLs for both the student debtor and for governments that guarantee student debt are significant. An examination of these benefits, as well as a look at the most common current form of student loan debt, GGBLs, is therefore important.

## DISCUSSION OF PROS AND CONS

### History and worldwide coverage

ICLs typically take forms that are similar to the scheme initiated in Australia. Debts to cover tuition costs (and, in some cases, income support) are recorded while a person is studying, and the relevant income tax authority is informed of the future repayment obligation. When the debtor, most often as a graduate, is employed and receiving an income that is above a given threshold, that person's employer takes a percentage of his/her income and remits it to the tax authority. For example, the first repayment threshold in Australia is about A\$53,000 per year; at that point the debtor repays 4% of income, or around A\$2,100. A typical debt in Australia is about 45–50% of the recurrent cost of higher education, although in other countries the obligation can be quite different (for example, in England it is close to 100% of recurrent costs).

Countries other than Australia that have adopted (or soon will adopt) ICLs, and the year in which the arrangement first began, are as follows: New Zealand (1991); South Africa (1991); England and Wales (1998); Hungary (2001); Thailand (for 2006 only); South Korea (2009); the Netherlands (revised for 2016); and Malaysia (planned for 2016). A bill proposing the adoption of an ICL scheme was submitted to the US Congress in 2013; while it did not pass, it is widely regarded that there is a real reform impetus towards ICL in the US.

## Higher education financing: Why do we need student loans?

A significant financing reality for higher education in most countries is that there is a contribution from students and a taxpayer subsidy [2], [3]. Agreement on the appropriateness of this so-called “cost sharing” comes from two related features of higher education: high private rates of return and the existence of externalities; in combination, these justify part-payments from both parties [4]. Thus, an important question to pose is: is there a role for government beyond the provision of the subsidy?

The issue is more clearly understood by considering what would happen if there were no higher education financing assistance involving the public sector. In other words, a government, convinced that there should be a subsidy, could simply provide higher education institutions with the appropriate level of taxpayer support, and then allow market mechanisms to take their course. Presumably, this would result in institutions charging students up-front for the service.

However, major problems exist with this arrangement, traceable in most instances to the potent presence of risk and uncertainty. The essential point is that educational investments are risky, with the main areas of uncertainty being as follows [2], [5], [6]:

- Enrolling students do not fully know their capacities for (and perhaps even true interest in) the higher education discipline of their choice. This means, in the extreme, that they cannot be sure they will graduate; in Australia, for example, around 25% of students end up without a qualification.
- Even given that university completion is expected, students will not be aware of their likely relative success in their area of study. This depends not just on their own abilities, but also on the skills of others competing for jobs in the area.
- There is uncertainty concerning the future value of the investment, particularly regarding future labor market conditions. What looked like a good investment at its start might turn out to be a poor choice when the process is finished.
- Many prospective students, particularly those from disadvantaged backgrounds, may not have sufficient access to information concerning graduate incomes, due in part to a lack of contact with graduates.

These uncertainties are associated with important risks for both borrowers and lenders. The important point is that if students' future incomes turn out to be lower than expected, then the individual will be unable to sell part of the investment in order to re-finance a different educational path. For a prospective lender, such as a bank, the risk is compounded by the reality that in the event of a student borrower defaulting on the loan obligation, there is no available collateral to recoup the unpaid balance, a fact traceable in part to the illegality of slavery. Even if it was possible for a third party to own and sell human capital, its future value might turn out to be quite low, taking into account the above-noted uncertainties associated with higher education investments.

It follows that the market, on its own, would not deliver propitious higher education outcomes. Prospective students that are considered relatively risky, and/or those without loan repayment guarantors, would not be able to access the financial resources required for both the payment of tuition and to cover income support.

A possible solution to address these capital market failures is the use of a graduate tax or, more generally, the adoption of strategies to finance higher education that involve graduates using their human capital as equity [7]. The notion of “human capital contracts” developed from that point, and is best explained and analysed in the related literature [5]. A critical point for policy is that without some form of intervention, higher education financing will not deliver the most propitious outcomes in aggregate, nor can such markets deliver equality of educational opportunity, because those without collateral—the poor—will be unable to participate.

Consequently, nearly all governments intervene in the financing of higher education. There are currently two major forms that this intervention takes: GGBLs and ICLs. Conceptually, there are several varieties of the latter [4], but the only type currently in existence is known as a “risk-sharing ICL,” in which governments essentially pay the debts for former students whose lifetime incomes turn out to be insufficient to repay their debt. The following section examines some critical empirical findings with respect to both forms of assistance.

### **Higher education financing: Government-guaranteed bank loans**

Many countries, such as the US and Canada, use a specific financing scheme that potentially solves the capital market issue described above. Higher education institutions charge up-front fees, but students who qualify based on family incomes also receive GGBLs to help cover tuition and to provide income support. Public-sector support usually takes two forms: the payment of interest on the debt before a student graduates, and the guarantee of repayment of the debt to the bank in the event of default. Arrangements such as these are designed to facilitate the involvement of commercial lenders, and the fact that they are a common form of financial assistance on an international scale would seem to validate their use.

GGBLs address the capital market failure problem for lenders, since banks do not need borrowers to have collateral because the public sector assumes the risks and costs of default. However, solving the problem of the provision of finance from the perspective of the banks is not the end of the story.

Two problems persist for borrowers (students) under a GGBL scheme. In particular, loans requiring repayment on the basis of time, rather than capacity to pay, are associated with both default-risk and the prospect of future financial hardships related to borrowers’ repayment difficulties.

#### ***Government-guaranteed bank loans: Default risks and repayment hardships***

All forms of bank loans have repayment obligations that are fixed with respect to time and are thus not sensitive to an individual’s future financial circumstances. This raises the prospect of default for some borrowers, which would in turn damage a student’s credit reputation and thus eligibility for other loans, such as a home mortgage [2]. Thus, in anticipation of potential damage to their credit reputation, some prospective students may prefer not to take the default risk of borrowing because of the high potential costs. This behavior is a form of “loss aversion,” and has been described in relevant works [8].

Strong evidence based on the National Post-secondary Student Aid Study for the US shows that experiencing low earnings after leaving formal education is a strong determinant of default [9]. Importantly, borrowers from low-income households, and minorities, were more likely to default, as were those who did not complete their studies. This supports the notion that some poor prospective students might be averse to borrowing from banks due to the risk of default.

Even so, it would be an exaggeration to suggest that the only alternative available to student debtors if they can't repay is to default. In the US, for example, borrowers have the option to defer loan repayments if they are able to demonstrate that their financial situation is unduly difficult, and in some cases this might lead to loan forgiveness. However, one would not expect banks to forgive debt based on the debtor's capacity to pay.

Arguably the most significant problem for students with bank loans concerns possible consumption difficulties associated with fixed repayments. If the expected path of future incomes is variable, then a fixed level of debt repayment increases the variance of disposable income (i.e. income available after debt repayment). The essential issue comes down to what are known as "repayment burdens" (RBs), the proportions of graduate incomes per period that need to be allocated to repay mortgage-type student loans. In other words, the repayment burden in a given period is equivalent to the loan repayment divided by the income for the relevant group in that given period.

RBs are the critical issue associated with mortgage-type student loans; as the proportion of a graduate's income allocated to the repayment of a loan increases, the remaining disposable income decreases. Lower student debtor disposable incomes are associated with the two problems discussed previously: higher default probabilities and repayment hardship. This point is critical in the policy choice context, because the essential difference between bank loans and ICL is that the latter have RBs set at a maximum, by law; in contrast, RBs for mortgage-type loans are unique for each individual borrower, and can in theory be close to zero for high income debtors while being well over 100% for very low income debtors.

A considerable body of empirical analysis exists regarding RBs associated with mortgage-type student loans [10], [11]. An innovative aspect of this empirical work is that the calculation or simulation of RBs for graduates is done at different parts of the graduate earnings distribution. This allows the impact of student loan repayment obligations to be revealed for the whole of the graduate income distribution according to age and sex, a major improvement over previous analysis that focussed on RBs at the means of graduate income distributions.

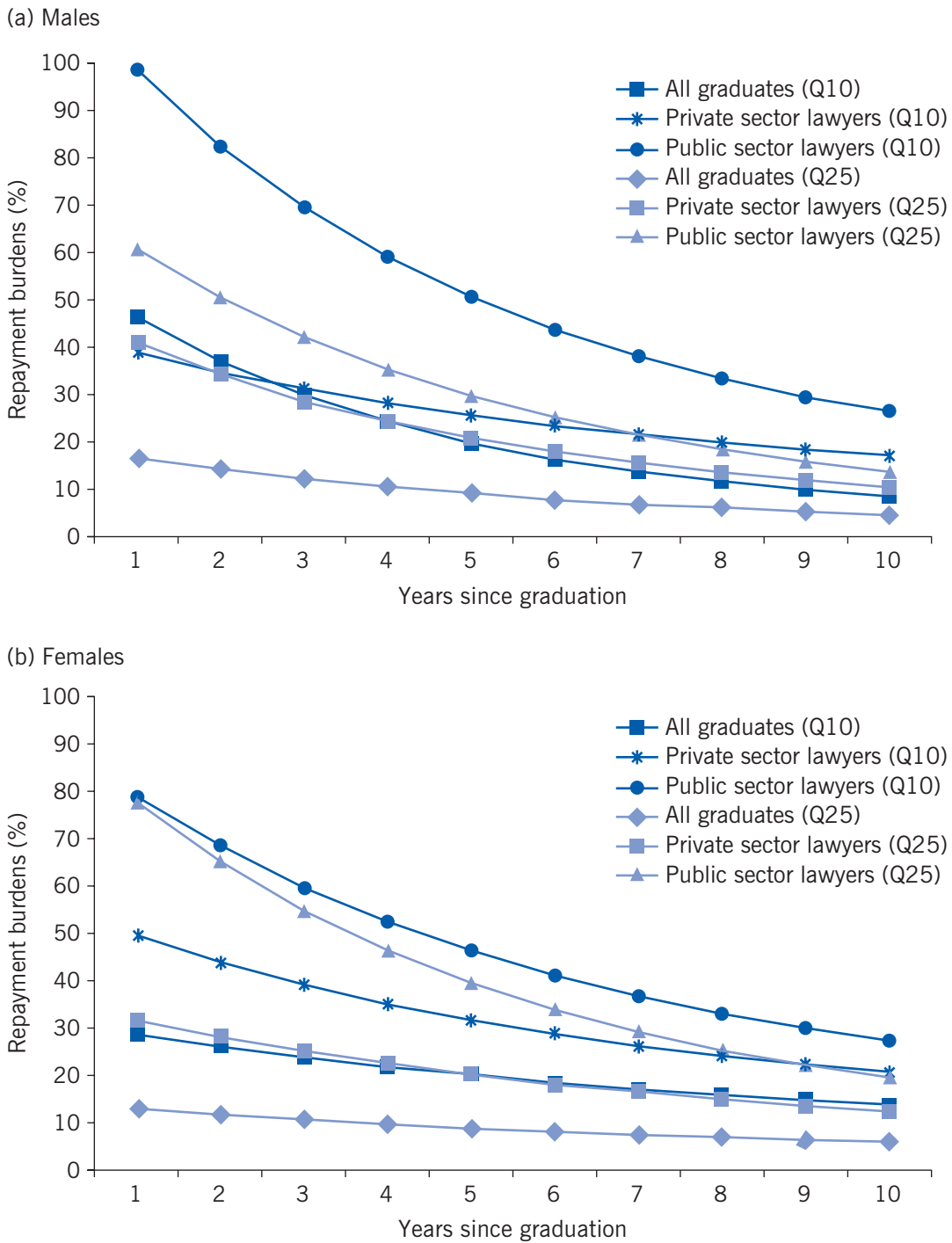
The main results for graduates in the bottom 25% of the income distribution in the investigated countries are:

- In Vietnam, simulations of RBs shows them to be between 20% and 85%.
- In Thailand, where the student loan scheme has a large public subsidy, RBs range from 5% to 30%.
- In Indonesia, simulation of a typical mortgage-style student loan scheme reveals that RBs would vary from around 30% in a relatively high-income area (Java) to around 85% in a relatively low-income area (Sumatra).
- Even graduates in developed countries face high repayment burdens, ranging from 50% for lawyers in the US to 70% for East German women [11].

Results from a study involving the US system of Stafford loans [1] are particularly striking. Figure 1 shows the RBs for borrowers with either \$20,000 debts (all graduates) or \$100,000 debts (law graduates). The data are shown for graduates in the bottom 10% and 25% income brackets (10th and 25th quantiles), and for both public and private sector lawyers. For those in the tenth quartile, the RBs are extraordinarily high: for example, 80–100% for very young lawyers working in the public sector, and around 30–50% for all young graduates.

These estimates reveal that mortgage-type student-loan schemes are associated with very high RBs for low income young graduates, particularly in the first years of repayment, and are thus likely related to significant problems of consumption hardship, and a concomitant high minority of prospective students facing defaults [3].

Figure 1. US repayment burdens for low-income borrowers (10th and 25th quantiles)



Source: Chapman, B., and K. Lounkaew. "An analysis of Stafford loans repayment burdens." *Economics of Education Review* 45 (2015): 89–102 [1].

## Higher education financing: Income contingent loans

The essential benefit of ICLs, if properly designed, is that the arrangement avoids the problems outlined above with respect to GGBLs. Critically, RBs are not an issue with ICLs. Further, for many countries, administrative costs for the collection of ICLs are very small.

### *Income contingent loans: Consumption smoothing*

The essential difference between GGBLs and ICLs is that ICLs are income contingent, which serves to protect former students who consistently earn low incomes; capacity to pay is an explicit feature of the approach. That is, unlike bank loans, ICL schemes offer a form of “default insurance,” since debtors do not have to pay any charge unless their income exceeds a pre-determined level. After the first income threshold is exceeded, ICL repayments are typically capped at a fixed and low proportion of the debtor’s annual income. For example, in Australia, New Zealand, and England and Wales, the maximum repayment proportions of annual income for ICLs are 8%, 9%, and 10%, respectively. Effectively, this means that ICLs offer a form of consumption smoothing since there are no repayment obligations when incomes are low, with a greater proportion of income being remitted to repay debt when incomes are high. These ICL features differ significantly from mortgage-style loans, in which the costs of defaulting may be very high, including being denied access to other capital markets (most notably housing) due to the borrower’s damaged credit reputation. Removal of repayment hardships and the related advantage of default protection via income contingent repayment thus resolves the fundamental problems for prospective borrowers inherent in mortgage-style loans.

A significant further point is that the protections of an ICL could particularly matter in times of recession for both borrowers and governments. That is, if there are poor short-term employment prospects at the time of graduation, such as was the case for many countries from 2008 to 2013, borrowers will suffer from high default rates and governments from low loan repayments in systems with GGBLs. The issue is avoided with an ICL.

### *Income contingent loans: Transactional efficiencies*

ICL can be collected very inexpensively, a feature labelled “transactional efficiency” [6]. The Australian Tax Office estimates the collection costs for the government related to ICLs at around A\$45 million (in 2015 dollars) annually, or less than 3% of yearly receipts. Further estimates regarding the compliance costs for universities indicate a total administration cost of less than 5% of yearly receipts [3]. The system seems to have worked well regarding collections, and there are apparently significant transactional efficiencies in the use of the income tax system for the collection of debt. Estimates of the costs of collection for England’s and Wales’ ICLs are very similar [12].

This efficiency is achieved because the collection mechanism simply builds on an existing and comprehensive personal income tax system, and is essentially a legal public sector monopoly. It should be acknowledged that, as with all government subsidized loan schemes, a system is required that minimizes the potential for non-repayment from debtors going overseas. One (likely very ineffective) approach would be to involve the cooperation of other governments in the collection of debt. However, as currently instituted in New Zealand, an alternate system could be designed that puts a legal obligation on a debtor going overseas to repay a minimum amount of their obligation each year in which they are away.



***Income contingent loans: Some empirical observations on access to education***

When HECS was first implemented, important concerns were raised regarding the new tuition arrangement's potential to exclude prospective students from disadvantaged backgrounds. Significant research has investigated HECS's impact on educational access for economically disadvantaged people, and the main conclusions from the Australian case are as follows:

- The relatively disadvantaged in Australia were less likely to attend university even when there were no student fees.
- The introduction of HECS has been associated with overall increases in higher education enrolments.
- HECS has been associated with increased participation by prospective students from relatively poor families (although the increase was slightly more pronounced for less disadvantaged students, especially those in the middle of the wealth distribution).

It is apparent that there have been few negative consequences on accessibility to higher education for students from relatively disadvantaged backgrounds, at least as represented by enrolment data. Even so, the system has not actually diminished the educational access advantage of the privileged either. Broadly speaking, the socio-economic make-up of the higher education student body was about the same 25 years after the introduction of HECS.

***Income contingent loans as higher education policy: A significant caveat and the role of design***

The introduction of an ICL scheme has turned out to be a relatively simple matter from an administrative point of view. The reasons are that the public administration systems of the relevant countries feature a strong legal framework, a universal and transparent regime of income taxation and/or social security collection, and an efficient repayment mechanism. The last involves computerized record keeping of residents' vital financial particulars and, very importantly, a universal system of unique identifiers (often accompanied by an identity card).

Under these circumstances it is not complicated to identify and track individual citizens and their incomes over time and space. It is not expensive, moreover, to tack an additional function onto some existing tax collection mechanism: the collection of payments from ex-students, on the basis of a fixed proportion of income. In the developing world, however, these preconditions to an ICL scheme are often lacking. A related issue is that even if administrative mechanisms appear to be in place, it is important that the system provides up-to-date knowledge of incomes, since lags could mean inappropriate deductions from current incomes [13]. The difficulty in the administration of an ICL compared to a mortgage-type loan is that, with the former, there must be an efficient way of accurately determining, over time, the actual incomes of former students. Furthermore, it seems clear that a basic requirement for the introduction of an ICL is a strong legal framework and functional judicial system. Indeed, it is hard, from a developed-world perspective, to imagine implementing a workable scheme outside this context.

A final set of points addresses design issues. ICLs around the world differ with respect to some key collection parameters and other policy features. This implies that there is no single ideal system; the following examples illustrate some of these differences. Approaches to interest rates vary widely; the Hungarian system provides no interest rate subsidies, while, the New Zealand arrangement has an interest rate of zero, implying very high subsidies. Furthermore, the first income levels and repayment conditions vary significantly, with most basing debt collection on a marginal rate involving additional income, as compared to the Australian

system, which collects a percentage of total income. Consequently, the amount of unpaid debt in countries such as England and Wales is considerably higher than in Australia; although in the latter there is evidence of income bunching at the first threshold of repayment.

These administration and design issues are very important to the potential success of an ICL system, at least in terms of public sector subsidies. But, the big point remains: if designed properly, ICL are a superior student loan system to the more conventional mortgage-type loans, essentially because the former offer insurance against hardship and default. It should be no surprise that the international transformation within higher education financing has taken clear steps towards the ICL model over the last 25 years.

## LIMITATIONS AND GAPS

Several important key issues remain from this comparative analysis of ICL and GGBLs. For starters, there has been an insufficient examination of the default costs associated with GGBLs for individuals. A critical point here is that people defaulting on student loans also end up damaging their overall credit reputations, which results in them having difficulty and higher costs when attempting to secure non-student loans. There is similarly a lack of information related to the public sector costs associated with GGBLs. These costs are incurred by governments that must compensate banks when student debtors fail to repay loans. Insufficient empirical documentation has been collected regarding the value of consumption smoothing for debtors with ICLs. Finally, the likely inability of public sector administrative structures to provide for the efficient collection of ICLs in many developing countries remains unresolved.

## SUMMARY AND POLICY ADVICE

Over the last 20 years there has been a strong move towards the adoption of ICLs to finance higher education. Around eight countries have now followed Australia's lead in using the income tax system to collect contingent debt, and there is little doubt that this type of reform will continue. Essential reasons for the continuing transformation of student loans include the lack of insurance with GGBLs against both consumption hardship and default. While ICLs provide the type of insurance mechanism to allow equitable and transactionally efficient loan collections, there is a need in many developing countries' institutional environments to focus on improvements in administrative capacities. When this occurs, there should be little doubt that ICL reforms are apposite worldwide.

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## Competing interests

The IZA World of Labor project is committed to the *IZA Guiding Principles of Research Integrity*. The author declares to have observed these principles.

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