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Grants for Students

What They Do, Why They Work

Alex Usher

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INTRODUCTION

Student aid policy around the developed world depends to varying degrees on the idea that the cost of post-secondary education needs to be subsidized. Despite the fact that governments around the world are spending hundreds of billions of dollars to support and widen participation in higher education, policymakers pay surprisingly little attention to what the research on these subsidies actually says.

The purpose of this paper is simple: to summarize the literature with respect to grants and their impact on access to education. As we shall see, the evidence on this is neither simple nor straightforward; indeed, there are some critical issues in the data that have not received adequate attention and pose some serious questions of well-known economic theories. The paper's concluding sections will apply the lessons that can be drawn from the literature to existing policy regimes in OECD countries.

1. What is a Grant?

Let us begin this investigation by defining what we mean by a "grant." At its broadest level, the term "grant" could be defined to include all forms of non-repayable assistance designed to lower the cost of education for a student. Such a broad definition would probably have include grants to institutions, which are given to institutions in many countries in order to reduce or eliminate any fees required of students. Because this is outside the traditional definition of the term "grant," however, these kinds of payments will be excluded from the bulk of this survey, though the implications of subsidizing tuition fees in this manner will be examined again in the conclusion.

A more restrictive definition of the term "grant" might include only non-repayable assistance which is paid *to the student* (or his/her family). This definition would certainly exclude tuition subsidies, but would still include most forms of tax credits or family allowance payments. While these types of aid are controversial policy instruments in Canada (Finnie, Schwartz and Lascelles 2003, Finnie, Usher and Vossensteyn 2004), the United States (Cooper 2005), Germany, Austria and Belgium, (Usher and Cervenan 2005), they are still real non-repayable forms of assistance that reduce the real cost of education by a significant amount. On the other hand, such a definition would also eliminate loan remission programs, which are common but small in the United States (NASSGAP 2005, Kirshstein, Berger, Benatar and Rhodes 2004) and common and large in Canada (Junor and Usher 2004), which are clearly non-repayable forms of assistance, but technically are payable to a student's financial institution, not the student.

In its most restrictive and traditional form, the term "grants" traditionally means payments made to an individual student (not the family) at the start of a period of schooling. In some countries (e.g. Australia, the United Kingdom, Canada, the United States and Germany), these payments are rationed to lower-income students based on income or need; in others (e.g. Finland, Sweden and the Netherlands) they form a basic kind of social assistance payment made to all students regardless of financial need to ensure a reasonable standard of living independent of one's parents. This is how we define grants in this paper.

Grants perform two functions in terms of access to education. First, they increase students' purchasing power in the short-term, hence reducing the "out-of-pocket" (i.e. the amount students pay from current income) costs of education. They also reduce the *net price*[1] of education in real terms. That is to say, grants increase the benefit-to-cost ratio of education by offsetting educational costs such as tuition and foregone income. This may seem like an idle distinction but it is far from that: student loans, for instance, reduce out-of-pocket costs as easily as grants (and at a much lower cost to

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[1] In a nutshell, the concept of "net price" is as follows: tuition is a "price" for education. However, this "price" is – for some students at least – offset by grants. As a result of this offsetting effect, grants can be considered "negative tuition." Tuition plus negative tuition therefore equals "net tuition" or "net price."

government), but only grants can change net price and affect cost-benefit ratios.

The ability of grants to change cost-benefit ratios, as we shall see in the following section, is the crucial point in determining their effectiveness. At this point, however, it is worth noting that although the rest of this paper will be referring to the ability of "grants" in the traditional sense to perform these tasks, it is worth keeping in mind that whatever is true of these policy instruments is likely also to be true of other policy instruments which affect student costs, such as tuition subsidies, tax credits and loan remission.

The ability of grants to change cost-benefit ratios, as we shall see in the following section, is the crucial point in determining their effectiveness

2. The Literature on Grants and Net Price

A distinguishing feature of the literature on grants is that much of it is actually measuring something else entirely – that is, "net price." The reason for this is simple. Grant programs, per se, are difficult to study in isolation. They tend not to lend themselves to experimental or quasi-experimental methodologies. Moreover, to the extent that they provide money to people based on financial need, the need itself becomes a confounding factor in the analysis – to the extent one has detectable effects it is difficult to determine the extent to which one is measuring the effect of the need or the effect of the intervention designed to alleviate that need. Also, since a grant's primary effect is financial, it is important to know both sides of the cost equation and calculate costs alongside subsidies.

For this reason, much of the literature on grants relies on analyses which look at the combined effects of tuition and grants. This is useful because the research kills two birds with one stone; what is true of grants in this literature is necessarily the negative of what is true for tuition (and vice-versa).

There are really two types of literature on the related concepts of grants and net prices: aggregate, jurisdiction-level studies and various types of micro-analyses of responses to changes in net price. The former, very much smaller than the latter, will be examined first. The latter will be examined in more detail, looking first at the dominant US literature and then at the less extensive international literature.

2.A – Jurisdiction-level studies

The aggregate, jurisdiction-level studies all aim to test the hypothesis that lower levels of net price necessarily lead to "better" access to post-secondary education, both in the sense of allowing more people to attend and providing better access to people from disadvantaged backgrounds (however that may be defined). For the most part, the answers have been negative. At the international level, Mateju (2003), Swail and Heller (2004) and Usher and Cervenan (2005) have all shown that there is no evidence to suggest that the absolute level of tuition in a particular jurisdiction in a particular year has any bearing at all on national levels of enrolment, or on providing more "equal" access to education.[2] Junor and Usher (2002) and Usher (2004a) found similar results looking at Canada, as did Swail (2004) when looking at the US and Canada combined. Thus, low- or zero-tuition jurisdictions may have high or low participation rates, just as high-tuition jurisdictions may have high or low participation rates. The two are simply uncorrelated.

This makes a certain intuitive sense since as Finnie (2004) has pointed out, "participation" is a function of both supply and demand. Since student

[2] That said, Swail and Heller did find that year-on-year changes in tuition in specific U.S. states generated the changes in year-on-year enrolment one would expect based on the evidence of micro-analytic studies (below); however, they went that the US seemed to be anomalous in this respect and that similar relationships did not appear to hold in other countries.

costs are only half of that equation – less if one takes account of such factors as living expenses – it is hardly surprising that tuition, on its own, has little effect on participation. At least as important, if not more, are issues such as number of places, available professors, quality of secondary schools, the secondary school completion rate, etc. These factors create the "equilibrium conditions" in each jurisdiction.

However, just because the absolute breadth and levels of accessibility are uncorrelated with the absolute levels of net price, that does not mean that changes in net price (i.e. positive or negative changes in grants) will not change the size or composition of enrolment in each jurisdiction at the margin. It is to this question that we now turn.

2.B. – Micro-analytic Analyses

2.B.1 – Studies from the United States

Starting with the authors who might be considered "skeptics" on grants, Hansen (1984) noted that between 1972 and 1982 that there had been no change in the proportion of the student body coming from disadvantaged backgrounds and hence implied that Pell Grants had failed to achieve their purpose. As several commentators noted, this conclusion based on a pre-post comparison, without controlling for other factors – notably for net price – was too simplistic. Most commentators (e.g. Kane, 1994), when making the case for grants, tend to focus on the coincidence of high government aid and high participation rates among low-income and minority students in the 1970s and the coincident fall in both indicators during the 1980s. St. John (2003), in his review of literature and policy trends, while broadly agreeing with this line of argument, cautions, however, that coincidence is not evidence of causation and further suggests that school reforms and de-segregation efforts in the 1960s were at least as responsible as grants for the upsurge in minority enrolments in the 1970s.

Over the past 30 years, a number of American studies have looked at "Student Price Response Co-efficients." Jackson and Weatherby (1975), Manski and Wise (1983) and Leslie and Brinkman (1987) all performed meta-analyses of small-scale price-response studies. Each of the three studies found consistent negative relationships between *net price* and enrolment. Heller (1999), analyzing a national database, came to the same conclusion, although he found that the coefficient of response was somewhat lower, indicating perhaps that over time net price was becoming less important (perhaps in response to the growing returns to education). Heller also found, significantly, that grant increases can fully offset the negative effects of tuition fees on enrolment. He also found that the reverse was true, that "tuition increases that are not offset by concomitant increases in financial aid appear to have the effect of reducing access." Looking at changes over time, Swail and Heller (2004) found clear correlations between changes in tuition and enrolment in several US states.

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But not all students seem to respond equally to changes in net price. One constant across all research findings is that grants/reductions in net price are much more effective among low-income students than among middle or high income students.[3] The size of the impact varies somewhat from study to study but the general result does not. Leslie and Brinkman (1988) – found that between 20 and 40 percent of total enrolments of low-income individuals was due to grants.

In what are probably the most accurate series of studies conducted to date, St. John (1992, 1994), St. John and Starkey (1995) and St. John and Paulsen (2002) showed that changes in net prices had considerably different effects on low-income students than on their more affluent peers when it came to year-on-year retention.[4] In fact, his studies showed that higher-income students were virtually price insensitive when it came to education, but that changes in net costs had a relatively important effect on the poor.

This all seems very conclusive; however, there is a flaw in net price literature that needs to be underlined. Part of the problem with assessing the effects of grants on participation and retention is that, inevitably, grants are only part of the total student aid picture. The Institute for Intergovernmental Relations (2003) has noted that there are in fact three separate types of financial constraints - all of which must be satisfied if a student is to attend tertiary education. The first barrier is what might be called a "price constraint;" where an individual believes that the total price or cost outweighs the benefits of a particular educational choice. The second is a cash or liquidity constraint where an individual cannot obtain sufficient funds to cover the immediate cost of obtaining an education. The third barrier is debt aversion; a reluctance to incur debt in order to obtain an education.

It is important to note that these three barriers are in effect sequential. If someone is price-constrained, then cash constraints and debt aversion are irrelevant. A cash constraint only applies to someone who has already "overcome" the price barrier and decided that it is worthwhile (in a cost-benefit sense) to attend post-secondary education. Debt aversion only applies to someone who has already decided that going is worthwhile (in a cost-benefit sense), has lined up the necessary short-term but, in the end, decides that too much of this short-term income comes in the form of loans.

Applying this to the issue at hand, we realize that grants (or rather, net prices) are primarily of use in overcoming the first barrier. But unless the cash/liquidity barrier is also overcome, overcoming the first barrier is for

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[3] Indeed, some studies have even found a positive relationship at the institutional level between net price and high income students, possibly as the result of education purchases at elite institutions being a form of "conspicuous consumption"

[4] Again, this net price literature is sometimes misinterpreted to mean that tuition *alone* has this effect. This is particularly the case in the Canadian literature where McKenzie (2004) and CAUT (2006) both write about the effects of tuition as if student aid did not exist. As even a casual reading of St. John's work makes clear, he is talking about the effects of tuition after grants have been subtracted.

naught. In the United States and Canada, the liquidity constraint is largely met through loans. Therefore, it follows that the *total* amount of all aid, including both loans and grants, needs to be examined as a variable in any sensible examination of access. Unfortunately, the most influential pieces in net price theory, such as Manski and Wise (1983), Leslie and Brinkman (1987) and McPherson and Schapiro (1991) failed to take into account size of loans and size of total aid package as a variable separate from grant size. Heller (1998) effectively omitted the same variables, although he sagely warned in another article (1997) about the importance of taking the different types of assistance into account.

This raises the question as to whether or not many price response studies are actually examining the phenomenon they purport to be examining. What these studies tell us is that grants to students, ***which add to total assistance,*** (i.e. they expand purchasing power) are effective in increasing attendance from low-income students. However, they do not tell us how effective this assistance is compared to loans; neither does it tell us what would happen if new grant money simply replaced loans and did not increase the total assistance package (as is the case, for instance, with all of Canada's many loan remission programs). Put another way: these studies tell us that if price and cash constraints are overcome simultaneously, significant improvements in attendance result, but they do not preclude the possibility that the real problem is cash constraint and could be solved more cheaply and efficiently with loans. Only one study (St. John, 1992) comes close to analyzing the differential effects of loans and grants on enrolment, but since the study assumed at the outset that low-income students will receive their package in the form of grants, the relative efficacy of the two instruments was not actually tested.

Another consistent finding within the American net price literature is that grants have a bigger impact on Blacks and Hispanics than on Whites. Some authors have assumed that race is a good proxy for class and that this is therefore evidence that grants work for all low-income students, but this is a hypothesis rather than a fact. It may equally be the case that different ethnic groups have different "tastes" for education, and hence different views on the benefits of education. If this latter hypothesis is true, then the evidence that a grant increases attendance presumably means that grants are acting on the price barrier (where long-term benefits enter into the calculation), not the cash constraint barrier (where they do not).

While the effects of grants on enrolments may not be clear-cut, the same cannot be said of the effects of grants on persistence. This is because the effects on persistence are, from an empirical point of view, much easier to capture; more data is available on individual students and the outcomes (stay in or drop-out) are easier to model than that for enrolments, where a large number of different outcomes are possible (e.g., enroll now at institution A, enroll later at institution A, enroll at institution B, enroll at institution B then transfer to institution C, don't enroll, etc). Here, the United States Government Accounting Office (1994) made an important

contribution when it noted that a shift in the loan-grant mix (note the difference between this construct and the construct of net price theorists) could improve retention among low-income students. The study also found that this effect was limited to the first two years of study, after which time students became insensitive to changes in the loan-grant mix.

In the early 1990s, Ed St. John began looking at the effects that different aid products had on persistence decisions, both singly and in combination with one another, an approach he termed "differentiated price response," as opposed to the more traditional "net price" theory. This work culminated in St. John and Starkey (1995) which demonstrated rather clearly that among lower-income students, grants were considerably more effective than loans at improving persistence (all forms of aid were shown to be negatively correlated with persistence because aid is a correlate of need; however, the correlate was much smaller for grants than loans).

Wei and Horn (2002) compared low-income Pell Grant recipients to low-income students without Pell grants. Based on background characteristics alone, students with Pell Grants should have been less likely than non-recipients to persist in their studies. However, a rigorous analysis of data from the 1996 *Beginning Postsecondary Study* showed that Pell recipients' persistence rates were identical to those of non-recipients. Given Pell recipients' background characteristics, this result suggests that the presence of Pell Grants had a positive impact on persistence.

In St John's (2002) authoritative summary of policy and literature on college access in the United States, much of the literature says the decline of grants in the 1980s fuelled a widening gap in post-secondary rates between whites on the one hand and Blacks and Hispanics on the other. Unfortunately, this case is not made directly. It is based on a number of studies that look at the effects of net price generally (and loans and grants separately) on persistence at the post-secondary level. Basically, what these studies show is that loans are useful for persistence among middle- and upper-income students, but ineffective among lower-income students, while the converse is true for grants. On the basis of this quite solid finding that grants are more effective than loans at promoting persistence among low-income students, St. John and others have made a logical but not empirically proven leap to say that the same is true for enrolment decisions. It is this analysis, which is empirically respectable if not entirely watertight, which effectively forms the prevailing policy wisdom in the United States.

2.B.2 – Studies from outside the United States

While most of the literature on this topic has come from the United States, it is also worth looking at some of the international literature on this topic, too. Non-US literature is in some ways distressingly thin (Sweden, for instance, appears not to have any published literature on the effectiveness of grants despite distributing hundreds of millions of such dollars annually), but it tends

to confirm the basic hypothesis that grants do in fact make a measurable difference at least in defined circumstances.

In **Canada**, the concept of net price is not well-understood and is not – unfortunately – a subject of any serious research. As a result, there have been no net-price studies looking at issues related to access, though Coelli (2003) and Johnson and Rahman (2005), looking *only* at tuition found statistically relevant effects of tuition on post-secondary participation during the 1990s, at least among low-income youth, during the 1990s. However, neither model incorporates the effects of grant, which may explain why Coelli's results (which are the stronger of the two) clash so strongly with Corak et. al (2003) and Drolet (2005), which do not show these same effects.

There have, however, been serious attempts to look at the effects of grants on retention, most notably by McElroy (2004, 2005). McElory's two studies came to different conclusions regarding the efficacy of grant aid. The first, which simply attempted a pre-post analysis of the effects of adding two years of grant eligibility (BC's two-year grants program became a four-year grant program when Millennium bursaries were introduced in 2000) seemed to show that the introduction of an extra two years of grants had no effect on completion, which declined over the period being monitored, though its finding of correlation between unmet need and dropping out suggested that the size of the total assistance package is a more important factor in persistence than the loan-grant balance within that package.

The second study examined student records at six post-secondary institutions and correlated the likelihood of persistence to the receipt of grants. This study came up with results that were much more positive and showed that even with the receipt of loans, students with grants were more likely to persist. However, limitations on the source data from institutions' effects made it impossible to separate need-based grant aid from merit-based grant aid; hence some of the effects McElroy describes are likely due to merit as opposed to monetary factors.

In **Australia,** there have been no studies that look directly at the effects of grants on participation. Due to the fact that both the original AUSTUDY and the later Youth Allowance were given to students at both the secondary and post-secondary level, the two major studies that were done on these programs (Walker et. al, 2001, and FaCS 2002) emphasized the programs' effects on the under 19s (as in the UK, the official school-leaving age in Australia is 16). While both studies showed that providing grants in return for school attendance was an effective way of promoting retention, especially among lower income groups, neither study makes a particularly compelling case that grants were behind low-income students' enrolment growth in post-secondary education in the early 1980s and 1990s.

One study appears to show the effectiveness of grants, at least indirectly. Birrell *et al* (2001) noted that in response to program changes that restricted eligibility of grants since 1998, an increasing number of young, low-income students have begun to take two years off full-time studies before applying to

post-secondary education in order to qualify as an "independent" student and hence gain access to grants. This strongly suggests that low-income students are dependent on grants to attend higher education in Australia and that making them more widely available would increase participation rates from lower-income families.

Perhaps the most direct piece of evidence on the importance of grants reducing price comes not from a need-based program but a merit-based one. In 2000, the Commonwealth government abandoned a merit-based equity scholarship aimed primarily at aboriginal students. The year the program was abolished, the number of newly-enrolled aboriginal students, which has been increasing for two decades, fell by 15 percent. (see Phillips Curran, 2003).

In the **United Kingdom**, the only real evidence on the effectiveness of grants is an experimental pilot project which began in 1999, known as the Education Maintenance Allowance (EMA). The EMA provides funding to low-income 16-18 year-olds in return for participation, retention and achievement in post-compulsory schooling (where 16 is the official school-leaving age in the UK). It is a means-tested allowance, providing either 30 or 40 pounds/week (depending on the testing area) plus bonuses for retention and achievement. Four variations of the EMA were introduced in different parts of the country and a random longitudinal cohort evaluation scheme was put in place to monitor its progress. As of the third year of the pilot, results seem to indicate that grants can entice low-income participation to prolong their education into the post-compulsory period (Middleton et. al, 2003). It does not, however, seem to result in higher participation in post-secondary education, possibly because the grant ends before further education takes place. This result may suggest that increased preparation at the secondary level, in the absence of adequate financial assistance at the post-secondary level, is not very effective.

In **Holland,** Vossensteyn (2005) reports that although there have been a number of studies on student choice behaviour that looked at the potential relationships between student financing policies and participation in tertiary education. However, most of these studies indicated no clear relationships between changes in student finance and changes in student choice or in the composition of the student body.

Finally, in **Germany**, American researcher Jon Oberg (1997) investigated the "natural policy experiment" of the period 1983-1991 when grants were first eliminated and then re-introduced. Oberg's data suggests that the abolition of grants was followed by a decrease in participation rates for students from all socio-economic backgrounds and that the re-introduction of grants resulted in a large increase in participation across all socio-economic groups. In other words, grants and participation rates moved in tandem: when one increased or decreased, so did the other. While the effect was slightly more pronounced for youth from working-class back-grounds, and slightly less prominent for the children of self-employed workers, the effect was remarkably similar across all socio-economic groups – a result which has not been seen in studies in other countries.

Oberg's data suggests that the abolition of grants was followed by a decrease in participation rates for students from all socio-economic backgrounds and that the re-introduction of grants resulted in a large increase in participation across all socio-economic groups

The importance of Oberg's result lies in the fact the German "experiment" involved only a shift in the *quality* of money (that is, a shift from loans to grants); total assistance amounts remained relatively constant over the period in question. This appears to be fairly strong evidence that, in the German case at least, reductions in net costs have a significant effect on participation even when they do not change out-of-pocket costs.

2.C – Summarizing The Literature on Grants and Net Price

The evidence that grants and net price have an effect on retention would appear to be fairly strong. The evidence that grants and net price have an effect on access is not as strong both because it is inherently more difficult to capture access effects and because those studies that have tried to measure the effects have sometimes assumed away the alternate hypothesis that loans might have an effect on access too. Nevertheless, the strength of the data on retention makes it at least plausible that grants and net price do indeed have an important impact on access.

A key point, though, is that with the exception of Oberg (1997), all the studies find that the significant effects of net price and grants ***only*** occur among low-income students. This might not sound like a particularly surprising result – after all, low-income students are precisely the ones one would expect to need money. But this is to pre-judge the nature of the financial barrier; yes, one expects low-income students to need money in the short term, but this could be provided with loans as easily as it could with grants – so why should the form of money make a difference?

This is a bigger question than it appears at first glance. As we shall see, the fact that grants do in fact make a difference to access for low-income students violates a basic assumption of one of the most important economic theories of our age. Understanding why it does so is key to understanding why grants work.

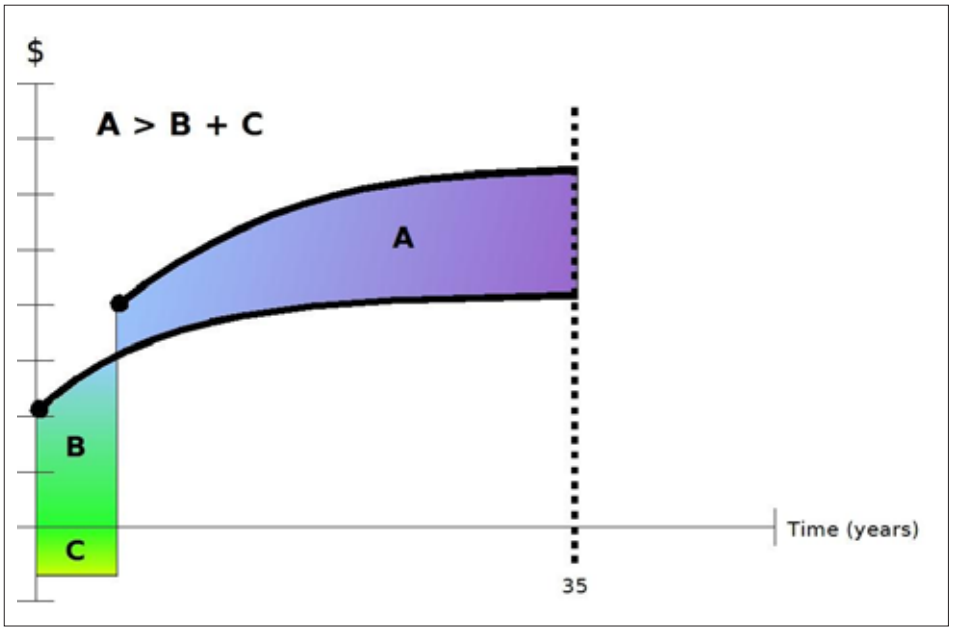
3. Reconciling Human Capital Theory with Evidence on Grants

3.A – What is Human Capital Theory?

One of the most well-known theories in late-twentieth century economics is what is known as "Human Capital Theory" (HCT). Developed by Nobel prize-winning economist Gary Becker in the early 1960s, HCT simply says that people invest in their own training and education based on the same kinds of rate-of-return calculations that they use when making other kinds of investments (e.g. in stocks, bonds, etc.).

With respect to an investment in post-secondary education, this theory can be represented in a simplified graphic fashion as it is below in Figure 1. The top and bottom curves represent the income paths of an average university and a high school graduate, respectively. The area "A" therefore represents the amount of "benefit" that a university graduate receives from his/her education. The area "B" represents the income foregone by a university student while he/she is pursuing his/her studies, while area "C" represents the cost of tuition and mandatory fees. According to HCT, provided that area "A" is larger than areas "B" and "C" combined, then the educational investment is "worth it" and the individual will pursue the course of study.

Figure 1 – Standard Human Capital Theory



Source: Usher, 2005.

HCT is sometimes lampooned for being overly theoretical in its assumptions about how people make decisions. It is sometimes claimed that its proponents

believe that students in high school act as "adolescent econometricians." Backers of the Human Capital Theory are not naïve about young people's ability to make this investment. They are quite aware that some people might wish to make an investment (i.e. they may believe that for a course of study A> (B+C), but lack the funds to make it. This, in effect, is the entirety of the justification for student loans as a means of helping student. By providing capital to help cover the short-term costs of education, government student loan programs allow individuals to invest appropriately in their own human capital regardless of their income at the time they make the investment[5].

HCT is a good theory and in many respects has been proven true. But it is here that we begin to have trouble reconciling HCT with the research on grants. As we have seen, there a significant body of research that shows that the cost of education has a *disproportionate* effect on people from lower-income backgrounds (see particularly St. John 2003). Now, HCT clearly allows for the fact that a subsidy will make an educational investment more attractive. But it does not allow for the possibility that a subsidy might be more important to one group of potential students than to another. All other things being equal, different responses to the same incentive simply should not be possible. If HCT is true, then it should be true for people from all backgrounds, not just people from particular backgrounds.

So, what exactly is going on?

3.B – Possible Explanations

There are, as it turns out, a number of ways to reconcile the grants research with HCT. In order for one group of students to respond differently from others to a financial stimulus, one or more of the following four conditions must apply:

1. The group has a rational reason to expect lower-than-average returns.
2. The group is systemically misestimating costs, returns or both.
3. The group uses personal discount rate that are systematically higher than those of other students.
4. The group has an economically-irrational aversion to borrowing.

We now proceed to verify whether or not these four conditions are present among lower-income students.

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[5] Arguably, this would be true of private student loan programs, too, but generally speaking economists have converged on the view that private lenders would not invest in "human capital" because of the lack of collateral; the resulting market failure is in fact the main argument for a government role in the provision of student loans.

3.B.1 – Do Lower-Income Students Have Rational Expectations of Lower Returns?

The distribution of benefits of education is highly unequal; one simulation done by Statistics Canada and the federal department of Human Resources found the rate of return was over 30 percent for the top quintile of university graduates but actually *negative* for the bottom quintile of graduates (Boothby and Rowe 2002). There is a continuing debate as to whether or not the distribution of benefits is in fact tilted in favour of students from higher income backgrounds.

Grayson (1997), looking at the very short-term (three months after graduation) found systemically different labour market outcomes for lower-income families. Rahman and Situ (2006), using CSLP-LAD[6] data, found a similar gap in post-graduation earnings by parental income. However, they concluded that since these gaps exist both for students with a high-school education and those with a university education, the "benefit" of post-secondary education (that is, the boost to earning was constant even if the face value of post-graduation wages was different) was actually the same for students of high-income and low-income families. The Maritime Provinces Higher Education Council (2004) went further, in fact, suggesting that two years after graduation, there was no difference in labour market outcomes by parental education at all. A common bias of all these studies, however, is that they look only at graduates: to the extent that low-income students are more likely to drop-out, all these studies will therefore overstate the benefits of PSE *attendance* for low-income students to some extent.

There is a continuing debate as to whether or not the distribution of benefits is in fact tilted in favour of students from higher income backgrounds

All this data is useful, because it strongly suggests low-income students have reason to worry that their investment might not pay off. But one could legitimately question whether or not this empirical data actually plays a role in student decision-making. The literature cited above is highly specialized – it is highly unlikely that many teenagers contemplating their education have digested its contents. Teenagers are therefore unlikely to know about these diminished returns and would therefore be unlikely to make decisions based upon them.

However, though they may be ignorant of the macro-level statistics regarding returns to investment, low-income students are unlikely to be unaware of their general place in the academic pecking order. As shown below in figure 2, students from low-income backgrounds tend, on average, not to perform as well as students from higher-income backgrounds at the secondary level. To the extent that they are aware of this fact, lower-performing students might rationally expect that they would get below-average returns from education and hence would be less likely to invest in education.

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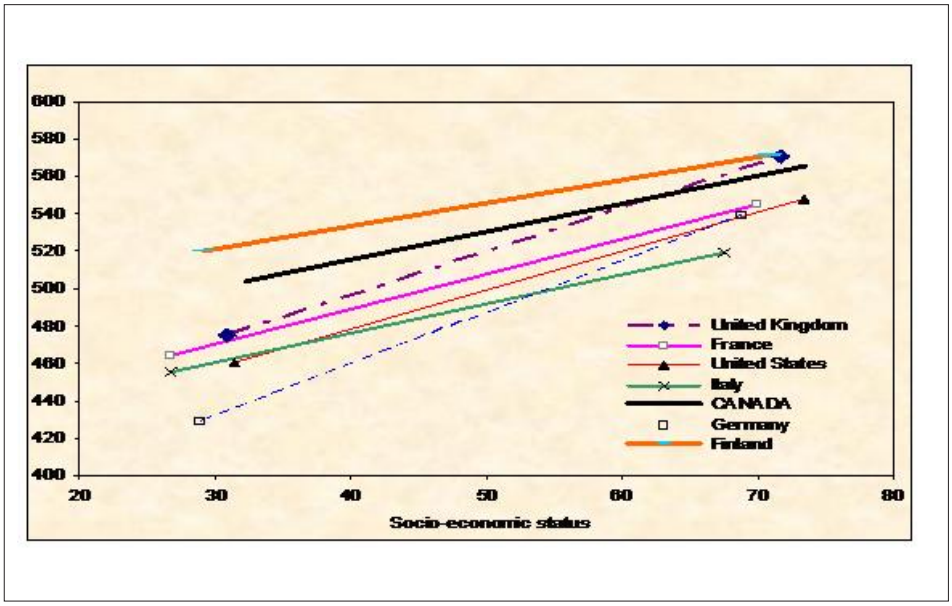
[6] CSLP-LAD is a database which combines Canada Student Loans Program Administrative data with data the Longitudinal Administrative Database, which contains data from individual tax files from a 20% sample of Canadians, selected randomly and then followed longitudinally.

Figure 2 – Literacy scores by socio-economic percentile, selected countries



Source: Programme for International Student Assessment (PISA) 2002.

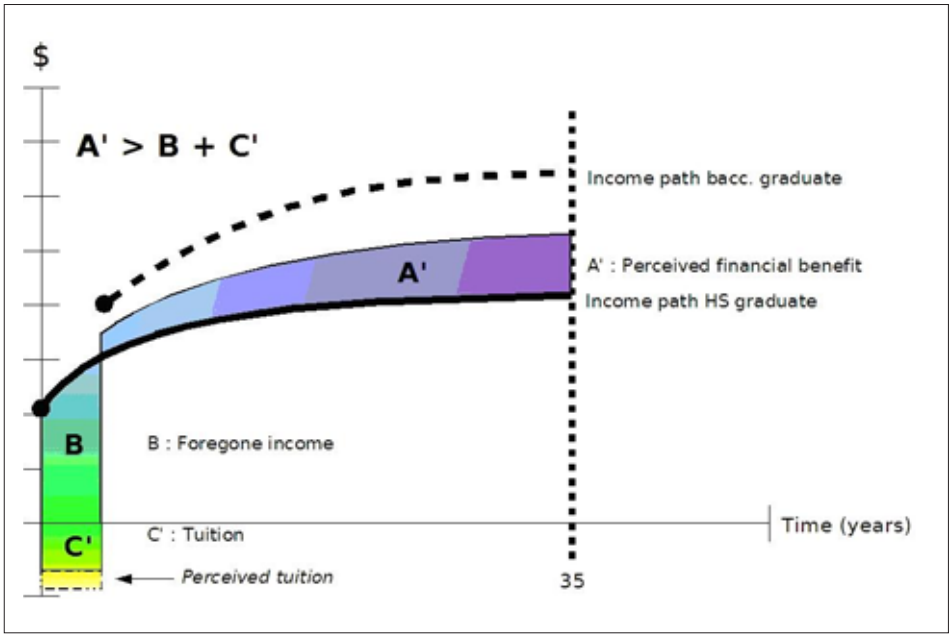
3.B.2 – Do Lower-Income Students Systematically Misestimate Costs and Benefits?

It has been known for some time that neither secondary-school students nor the public at large have an especially good understanding of higher education costs and benefits. Ikenberry and Hartle (2001) noted in the American context that most people overestimate the cost of tuition by a factor of two. This observation was recently re-confirmed by Horn, Chen and Chapman (2003), who found that 11th grade students and their parents overestimated the cost of college by roughly 70 percent.

Neither of these studies, however, examined difference in knowledge by family background. A similar study (Usher 2005) using data from Canada showed that, indeed, lower income Canadians (i.e. household incomes under $30K) were much more likely than higher-income Canadians both to underestimate the average benefits and overestimate the average costs of post-secondary education. Though this is not a perfect sample (it includes people of all ages rather than just prospective students), the fact that students are most likely to get their information about education from friends and family suggests that at the least, youth from low-income backgrounds are not being dealt from the same informational deck as higher-income youth. As a result, low-income students' HCT calculation is not the positive picture shown in Figure 1 (above) where A > B+C, but the much less rosy picture shown in figure 3

(below) where it is no longer clear if A is larger than B + C and hence there is greater uncertainty about the benefits of enrolment.

Figure 3 – HCT calculation for low-income Canadians based on survey data



Source: Usher, 2005.

In other words, when making decisions, people from low-income backgrounds appear to be working from an information base that systematically makes investing in education much less attractive.

3.B.3 – Do Lower-Income Students Have Systematically Different Personal Discount Rates?

One of the difficulties of making investments of any kind lies in the calculation of the return. It is not enough to calculate the amount of near-term money foregone and the longer-term amount of money to be gained. One also needs to take into consideration the "discount rate" – that is, the rate at which one values money in the present more than one values money in the future.[7] If one group of potential students has a higher discount rate than another, then, all other things being equal, the group with the higher discount rate will be less likely to make the investment.

It is not enough simply to calculate the amount of near-term money foregone and the longer-term amount of money to be gained

Though no studies have ever examined this point specifically with reference to education, a number of researchers (Lawrance 1991, Becker and Mulligan 2003, Shapiro 1997, Mayer 1997) have determined that, on

[7] Note that in this context, the term "discount" has an entirely different meaning than it normally does in debates about student aid,where the terms tends to refer to the practice of reducing the cost of attendance by replacing all or part of their tuition with funded or unfunded student aid.

average, people from lower-income backgrounds have different discount rates – that is, they have a different investment "horizon" – than people with higher, more stable incomes. Simply put, the evidence shows that long-term poverty encourages short-term thinking, and those who experience it over time come to identify very strongly with the expression "one in the hand is worth two in the bush."

This outlook – perfectly understandable when income is low and irregular - makes people from low-income backgrounds less likely to want to make *any* investment whose return comes only in the long term. Since post-secondary education – and particularly a university-level degree – takes a considerable amount of time to acquire and an even longer period to show a positive return on investment, it is easy to see how individuals who have acquired shorter temporal preferences through poverty may be disinclined to see education as a constructive use of their time. For some lower-income youth, therefore, time preferences may be acting as a deterrent to post-secondary education.

3.B.4 – Do Lower-Income Students Have Systematically Different Views of Debt?

A fourth possible factor is that lower-income students are systematically (and economically irrationally) averse to debt. Despite the frequency with which this statement is put forward by analysts and lobby groups opposed to loans or tuition fees, the evidence in favour of it is slim to non-existent.

Take, for instance, a recent policy paper from the University of California on problems with student borrowing in the United States (Burdman 2005). Though the entire thrust of the paper is about how to help students and families who are fearful of debt, the paper produces nothing beyond anecdotes with respect to the actual effect of borrowing on access. Major student position papers (e.g. Canadian Federation of Students 2004) simply assert that low-income students are averse to debt, and back it up with "facts" that, on closer inspection, actually describe the research on grants described in section 2 of this report.[8]

Part of the problem is that "proving" that a fear of debt (which is an internal state of mind that can only be measured through self-reports) actually affects decision-making in an externally-observable sense is very difficult. How can one reliably know, for instance, that someone chose not to attend post-secondary education *because* of fear of debt? It is not obvious that we can rely on self-reports for this – a student who answered "fear of debt" might be telling the truth, but he/she might also be covering for the fact that his/her secondary school grades weren't very good.

[8] To be fair, the way the Canadian system of loans works encourages this kind of misinterpretation. In Canada, grants until very recently were based solely on need, and required substantial amounts of borrowing to qualify. Thus, results of US net-price research (effectively, the reaction of low-income students to *income-based grants* - i.e. grants that are awarded without reference to "need" in the Canadian sense) have interpreted incorrectly in the Canadian context as saying something about debt aversion. An understandable mistake, but a mistake nonetheless.

It is of course possible to ask individuals' views about debt and then correlate the results with behaviour. A number of such studies have been done either with current post-secondary education students or current secondary school students. Both of these types of studies are, from a methodological point of view, nearly useless. Asking post-secondary education students about their views on debt will certainly reveal that students *dislike* debt, but the mere fact that they are in the survey sample guarantees that this dislike has not proved to be a barrier to access. Asking secondary school students their views on debts and their future plans is marginally better but still requires students to answer hypothetical questions about their future behaviour.

Even the most sophisticated of these studies – that is, those conducted by Claire Callender of South Bank University in the UK – explain less than they appear to. Her most famous work on the subject, a report done for Universities UK (Callender 2002), did not, as is sometime alleged, show that *fear* of debt *causes* people to avoid post-secondary education. In fact, her data showed that people who have *fear* of debt are no more or less likely to say they will not go on to PSE than anyone else. What this report actually showed was a *correlation* between a *moralistic* attitude towards debt (i.e. debt is wrong) and an indication that they will not be likely to go on. This correlation may indicate causation or it may not – there could be unobserved variables causing both states of affairs. For instance, it could be that there are cultural factors causing Bengali females in the UK to be both uninterested in further education *and* moralistic about debt.

What this report actually showed was a *correlation* between a *moralistic* attitude towards debt (i.e. debt is wrong) and an indication that they will not be likely to go on

A more interesting piece of research from the UK comes from a 2002 survey of A-level and Further Education students taken at precisely the time that applications were due for entrance to the following year's university courses (Callendar 2005). This one used more sophisticated techniques (including multivariate analysis) to disaggregate views on debt from decisions to determine the relationship between debt and application to university. The result was inconclusive: while clear relationships existed between debt and social class, once academic results were taken into account, the relationship disappeared. Possibly, this suggests that fear of debt at the post-secondary level actually affects achievement at the secondary level. More likely, the "fear of debt" observed among low-income students in this study is in fact a reflection of the "fear of investment" that is generated by having a high personal discount rate (see above).

This actually raises an interesting and frequently-ignored implication of the personal discount rate factor described in the previous section. Recall that having a high personal discount rate is akin to preferring "one in the hand" to "two in the bush." While this characteristic makes people from low-income backgrounds less likely to *invest*, it should also make them more likely to *borrow*, because borrowing gives immediate benefits. Moreover, government student loans are one of the few types of credit for which low-income individuals are automatically eligible. If anything, therefore, low-

income students should be *less* averse to student debt than youth from higher income-brackets.

The best kind of sample for correlating views of debt and access decisions are youth who finished secondary school but chose not to attend post-secondary education. Very few such samples are available in major industrialized country, and only one has systematically made use of it to ask questions abut debt aversions. Canada's Post-Secondary Education and Participation Survey (PEPS) asked students and non-students alike about their views on debt. As Junor and Usher (2004) reported, non-students were no more likely than students to say they refused to take on educational debt.

None of this is to say that debt aversion does not exist. Clearly, people have different tolerances for debt. There are also cultural views of debt which are very real and pose real barriers to education if funding is not available other than through loans (e.g. Koranic prohibitions on Muslims taking interest-bearing loans). It is to say that debt-aversion is a much murkier and less proven phenomenon than commonly assumed, and cannot reliably be described as a "barrier" for low-income students.

3.B.5 – Assessing the Evidence

It seems clear that of the three possible explanations why low-income students deviate from classic human capital theory behaviour are true. They have rational reasons to expect lower-than-average returns; they systematically misestimate costs and benefits of education and they have systematically higher personal discount rates than youth from wealthier backgrounds. Though they do not appear to be systematically more debt averse than other students, this does not detract from the overall point that there are systematic differences between low-income youth and their wealthier counterparts. All other things being equal, these differences make low-income youth "subjectively" view education as a less beneficial investment than what might appear "objectively" to be the case.

Accordingly, *even if they are not credit-constrained*, low-income students will be less likely to attend post-secondary education unless they are given some kind of subsidy which would increase their subjective rate of return. These subsidies – grants, in other words – are therefore much likelier to have an effect on low-income students than on higher income students, who, on average, *already* view education as a good investment.

***Even if they are not credit-constrained,* low-income students will be less likely to attend PSE unless they are given some kind of subsidy which would increase their subjective rate of return**

4. Summary and Policy Conclusions

This review has found that grants appear to be effective at increasing retention among low-income students, and by inference they are likely to be effective at increasing access for low-income students. We have not been able to determine how *efficient* grants are in achieving these tasks (that is, whether the cost of providing grants is outweighed by the benefits of increasing low-income students' access to post-secondary education), but as this presumably would be a function of program targeting, which necessarily varies from program to program, this is a task that can be left to future research.[9]

Moreover, this review has shown why grants work for low-income students. It is not because they are short of money at the time they go to post-secondary education; if that were the problem, then loans would likely suffice since debt aversion does not seem to be a problem. Rather, it is because low-income youth evaluate the cost-benefit ratio of post-secondary education in a systematically different way from wealthier youth. This makes them less likely to see post-secondary education in a positive light and therefore more in need of financial inducements to "tip the balance" of the decision in favour of enrolling and remaining in PSE.

What policy conclusions can we draw from this? Recall from our discussion of grant programs in section 1 that there are a number of different ways that "grants" can be delivered to students. Aside from traditional "up-front" grants, there are loan remissions, tax credits, and increased tuition subsidies. Some of these types of subsidies are targeted in more or less the way that the research says is best: towards low-income students. Others are not targeted at all and result in substantial wastage resulting in windfall gains for higher-income students who do not need the higher subsidy in order to attend post-secondary education.

Within Canada, the policy balance-sheet is not very good. An increasing percentage of Canada's aid is now being distributed in "wasteful" ways, mostly through tax credits (Junor and Usher 2004) but to an increasing degree through funded tuition freezes/tuition reductions (Junor and Usher 2006). Of the remainder, most grant and remission aid is distributed on the basis of need, which has been shown (Usher 2004b) to have substantial leakage towards students from higher income backgrounds. Only the federal government, the Canada Millennium Scholarship Foundation and the Government of Ontario have programs that directly target income, which the research suggests is the most efficient way to spend "non-repayable assistance."

In the United States, the situation is somewhat better, as the means-tested Pell Grant program continues to keep a laser-like focus on need, even if its purchasing power continues to be eroded due to uneven funding from Congress. As well, the Pell Grant suffers from "income creep," caused by an

Within Canada, the policy balance-sheet is not very good. An increasing percentage of Canada's aid is now being distributed in "wasteful" ways

[9] One of the Canada Millennium Scholarship Foundation's pilot projects currently running in the province of New Brunswick will come very close to answering this question. Results should be available in the latter half of this decade.

increase in the maximum grant which, in turn, causes eligibility for the program to move up the income scale due to the means-testing process. But even in the US, politicans have moved toward wasteful "universal" subsidies like tax credits, as was done during the Clinton administration both federally (through the Taxpayer Relief Act of 1997) and at the state level (through state-wide merit scholarships).

In much of Europe (e.g. France, Germany, Ireland Austria, Italy, Belgium), the current situation combines low or nominal tuition fees with small targeted grant programs (Usher and Cervenan 2005). This is good to the extent that small grant programs are kept targeted, but bad to the extent that a very expensive-to-maintain underlying tuition subsidy is for the most part benefiting people who would attend higher education in any case. An elimination of free tuition could free up money both to improve universities in these countries and fund a major expansion of grants which could easily offset any negative effects for lower-income students by giving them larger grants and keeping their "net tuition" at zero, if not below.

Scandinavian countries, a term that in this instance includes the Netherlands, are a bit more difficult to evaluate. Clearly, their free-tuition systems are wasteful (in the same way as continental Europe) and could be reformed in a similar way to the rest of Europe (the Netherlands are effectively on their way to doing this already). In addition, these countries have universal, non-need tested systems of grants. It is tempting to condemn these as wasteful as well, and surely there are more efficient ways of increasing participation. But it is wise to keep in mind that the explicit policy goals of these grant programs are not simply to increase participation, but to make students independent of their parents. Though this policy goal might sound odd to North Americans or Southern Europeans, we should not judge this policy in our terms.

Finally, the set of countries that appear to have at least the framework of their grant programs "right" is Australia, the UK and New Zealand. In each of these cases, they have moved away over time from wasteful universal subsidies of tuition while at the same time not falling prey to the equally wasteful North American practice of distributing tax credits left, right and centre. Moreover, each has a grant program that is completely based on income – though as some have noted (e.g. Dobson 2005) – much room for improvement exists in the level at which these grant programs are funded.

As the journalist Henry Louis Mencken once said: "There is always an easy solution to every human problem—neat, plausible and wrong." Much recent student aid policy in North America – such as using tuition freezes, merit aid and tax credits to improve access to education - falls into Mencken's definition of an "easy solution." As the research presented in this paper shows, a sensible and efficient access policy would concentrate non-repayable aid on low-income students rather than take the "easy" solution of spreading it thinly across the entire population.

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