The Political Economy of College Prepaid Tuition Plans

IHELG Monograph
05-03

Katie Baird
Assistant Professor of Economics
Interdisciplinary Arts and Sciences
University of Washington Tacoma
1900 Commerce Street
Tacoma, Washington 98402-3100
office: 403 WCG
phone: 253-692-5854
fax: 253-692-5718
email: ke Baird@u.washington.edu
website: http://faculty.washington.edu/ke Baird/

© 2005, Katie Baird, $5.00
University of Houston Law Center/Institute for Higher Education Law and Governance (IHELG)

The University of Houston Institute for Higher Education Law and Governance (IHELG) provides a unique service to colleges and universities worldwide. It has as its primary aim providing information and publications to colleges and universities related to the field of higher education law, and also has a broader mission to be a focal point for discussion and thoughtful analysis of higher education legal issues. IHELG provides information, research, and analysis for those involved in managing the higher education enterprise internationally through publications, conferences, and the maintenance of a database of individuals and institutions. IHELG is especially concerned with creating dialogue and cooperation among academic institutions in the United States, and also has interests in higher education in industrialized nations and those in the developing countries of the Third World.

The UHLC/IHELG works in a series of concentric circles. At the core of the enterprise is the analytic study of postsecondary institutions— with special emphasis on the legal issues that affect colleges and universities. The next ring of the circle is made up of affiliated scholars whose research is in law and higher education as a field of study. Many scholars from all over the world have either spent time in residence, or have participated in Institute activities. Finally, many others from governmental agencies and legislative staff concerned with higher education participate in the activities of the Center. All IHELG monographs are available to a wide audience, at low cost.

Programs and Resources

IHELG has as its purpose the stimulation of an international consciousness among higher education institutions concerning issues of higher education law and the provision of documentation and analysis relating to higher education development. The following activities form the core of the Institute’s activities:

Higher Education Law Library

Houston Roundtable on Higher Education Law

Houston Roundtable on Higher Education Finance

Publication series

Study opportunities

Conferences

Bibliographical and document service

Networking and commentary

Research projects funded internally or externally

IHELG

20TH ANNIVERSARY

1982-2002
The Political Economy of College Prepaid Tuition Plans

Katherine Baird

Assistant Professor of Economics
Interdisciplinary Arts and Sciences
University of Washington Tacoma
kebaird@u.washington.edu
phone: 253-692-5854

May 2004

\[1\] The author would like to thank Dave Corbett, David Morris, Levis Kochin, Peter Horak, Marc Gaspard, and participants of the 2003 Western Economic Association annual meetings for useful comments and suggestions; Larry E. Lee, Operations Manager of Washington’s Guaranteed Education Tuition Program for information on GET participants; Mike Mohrman, Forecast Analyst, Washington State Office of Financial Management for census data by zipcode; and Chris Hunter of the College Savings Plan Network, and numerous officials with state prepaid tuition programs for data.
The Political Economy of College Prepaid Tuition Plans

Abstract

Rising college tuition has led many states to offer college prepaid tuition plans. Support for these plans is representative of a broader trend whereby recent policy initiatives in higher education financing have addressed the needs of wealthier households. The paper develops a model of tuition setting based on median voter theory; it suggests that the existence of PPT plans could result in higher tuition inflation for non-participants. As such prepaid tuition plans may have the unintended consequence of making college less affordable for those least able to afford it.

Keywords: education finance, higher education, public policy
The Political Economy of College Prepaid Tuition Plans

For several decades, the average college tuition at public institutions has increased more rapidly than both inflation and median income. Concern over the affordability of higher education has resulted in a variety of legislative responses (see Paulson, 2003; Arenson, 2003). State-sponsored college prepaid tuition (PPT) plans are one of the more innovative programs that governments have implemented to spur savings and address college affordability.

While widespread and increasingly popular, PPT plans have largely escaped public scrutiny. Support for these plans is representative of a broader trend whereby recent policy initiatives in higher education financing have addressed the needs of wealthier households. More importantly, the existence of PPT plans – plans that insure some families against tuition inflation and create a constituency favoring more rapid tuition increases -- could result in higher tuition inflation for others. If wealthier families are ones joining these programs, PPT plans could thus make public subsidies to higher education more regressive. Ironically, the public policy response to concern over college affordability could be making college less affordable for those least able to afford it.

This paper first discusses characteristics of states’ prepaid tuition plans. It then models the determination of tuition levels within states, and examines the role of PPT plans in influencing tuition rates. According to median voter theory, PPT plans may result in higher tuition levels than otherwise would occur. A third section examines the
rationale for offering publically-sponsored PPT plans, and a fourth concludes that PPT plans represent a misplaced response to the problem of college affordability.

STATE PREPAID TUITION PLANS

Overview

State-sponsored prepaid tuition (PPT) plans allow parents (or others) to buy future college education by prepaying at roughly the existing tuition rate. Individuals buy a specified number of academic periods or credits at today’s price; in the future they can redeem their investment for the equivalent educational quantity at a public institution within their state. In most states, accounts can be redeemed for the equivalent in-state tuition value should the beneficiary choose to attend either a private institution or an out-of-state institution. A state invests contributions into its program, and uses the principle and interest to meet its liabilities. For PPT plans to operate without a loss, investment returns must equal or exceed tuition inflation.

Michigan initiated the first PPT plan in 1988. In his 1986 State of the State address, then-Governor Blanchard called the proposed Michigan Education Trust (MET) an “investment program designed to help parents guarantee to their children the opportunity of a Michigan college education” (cited in Lehman 1990, p. 1043). Over the next ten years several states copied the Michigan program; however, states were reluctant to initiate PPT plans until after the IRS clarified their tax-advantaged status in 1995. Today PPT plans exist in 20 states, generally guaranteeing the investor a rate of return equivalent to the inflation rate on state tuition. As shown in Figure 1, over the period 1989 to 2002, the real value of investments in PPT plans has increased rapidly to almost
$8 billion, and today there are over 1.2 million individuals PPT accounts (Figure 2).²

Table 1 shows the current size of PPT plans in each state; the last column shows the relative size of these programs by indicating enrollments as a share of the state’s 0-17 population. Florida’s program is exceptionally large: the number of PPT accounts equals almost 15 percent of the state’s 0-17 population. More typically, though, the number of accounts equals about 1-2 percent of the state’s 0-17 population.

Figure 1 here

Figure 2 here

Table 1 here

Today, many state prepaid tuition plans are operating with an actuarial deficit due to low investment returns and rising tuition (Max, 2003; Schmidt, 2003). During the last few years, tuition rose four times faster than investment returns in Tennessee’s PPT plan (Schmidt, 2002a). In 2003, Washington State’s PPT program was operating with an actuarial deficit of $35 million – or almost $1,000 per account (GET 2003a). Pennsylvania was operating with a $53 million deficit in 2003 (over $700 per account), and Ohio with a $70 million deficit (over $600 per account) (Schmidt 2003). A number of the state programs guarantee PPT investments, which means that the state legislature must fund any program loss.³ Many states have responded to these imbalances by significantly increasing the price of their tuition units, temporally suspending enrollments.

² This may or may not represent 1.2 million different individuals, as in some states individuals may have more than one account.
³ PPT program benefits in Illinois, Maryland, Washington, Texas, Ohio, Massachusetts, Florida, and Mississippi are backed by the full faith and credit of their state (see Olivas 2003). In states without such a guarantee, enrollees theoretically stand to lose if their state’s investment comes up short of tuition inflation. Whether or not this would actually happen is another matter. In Michigan, PPT investments are not guaranteed, but the Governor is quoted in Olivas (2001, p. 92) as saying the state had a moral, if not legal, obligation to fund any shortfall. Despite often poor investment returns, with the exception of Colorado no state has yet failed to give account holders the full tuition value of their account (Block, 2002).
in the program (Tennessee, Kentucky, Texas, and West Virginia), or, in the case of Colorado, reducing the face value of the tuition credits that families have purchased (Salmans, 2003; Schmidt, 2002a).

**Public Policy and College Saving**

Prepaid tuition plans reflect a new focus in federal and state policy on encouraging college savings. This section briefly describes the incentive structure behind PPT plans.

Parents and other individuals anticipating future college expenses can prepare for these through a range of investment strategies. Recent changes in federal tax policy, however, now offer tax advantages for certain savings plans. For the most part, these plans must be sponsored by a state government, with the funds managed by state-authorized investment specialists and backed by the government. The most common of these plans is often referred to as a "529 plan". These 529 plans take two forms:

a. **Prepaid tuition (PPT) plans** that permit individuals to pay tuition at today’s rates, through lump sum, periodic or regular (contract) payments. The specifics of each plan vary from state to state.

b. **College savings plans**, where individuals can establish an investment account for a future college student, and use account balances to pay for a beneficiary’s college-related expenses.

All states now offer at least one of these two 529 options: all states offer or will soon offer the savings plan, and 20 states additionally offer a prepaid tuition plan. Over

---

4529 plans are named after the section in the federal tax code that authorizes their usage, and are sometimes also referred to as Qualified Tuition Programs (QTP).
$34 billion in almost 5.5 million accounts has now been invested in 529 plans (Schmidt 2003).

529 plans offer investors preferential treatment under the federal income tax code. First, the state-sponsored plans are exempt from federal corporate taxes so that investment returns are higher. Second, beginning in 1996 personal income taxes on 529 earnings were deferred until withdrawal. The Economic Growth and Tax Relief Reconciliation Act of 2001 further extended the tax benefits by allowing all earnings to be completely tax exempt. Finally, most states offer their own tax advantage to 529 plans: 42 states exempt 529 earnings from state income (or dividend) taxes; and 25 states allow individuals to at least partially deduct their 529 contributions from their taxable income (Levine, 2003). The last column of Table 5 categorizes the tax benefits offered by each state PPT plan.

The benefit from these tax exemptions can be large. Assume a family invests $492/month toward their children’s college expenses, and can earn 7 percent in a taxable investment or alternatively in a 529 account (where for a PPT account 7 percent is the estimated rate of tuition inflation). If the family were in a 30 percent tax bracket, after five years the investment would be worth $33,634 if earnings were subject to a federal income tax, versus $35,429 in a tax-free 529 account. After 10 years the difference would be $76,884 versus $85,654—a difference of over 11 percent.5 Adding in preferential state tax treatment would increase this difference,6 although if the family

5See http://www.collegeachievementplan.com/home.html, and http://www.smartmoney.com/college/investing/index.cfm?story=529calc#calc for other calculations. Assuming households are saving over 23 years at a rate to cover the cost of five years of college, Coronado and McIntosh (2001) estimate the net present value of tax breaks from a 529 savings account at $12,000 for households in a high tax bracket versus $4,500 for households in a low tax bracket.
6Almost all states with state income taxes use progressive tax brackets.
invested in an asset earning capital gains, the difference would be quite a bit smaller. In any case, 529 plans offer an important advantage to college savers in higher income tax brackets.

**Participant Characteristics**

Because the size of tax benefits to those investing in a PPT account is based on the investor’s tax bracket, PPT plans are especially attractive to higher income households. This is true for a two other reasons as well. First, for federal financial aid purposes, the monetary value of a PPT account is treated as student resources, 100 percent of which are expected to go toward paying for college. For students eligible for federal financial aid, each dollar invested in a PPT plan reduces financial aid by one dollar. Parents who both wish to save and expect financial aid are better off investing in parental assets, as these reduce the student’s eligibility for financial aid by at most 5.6 cents for every dollar saved (Levine, 2003). Even assets saved by students reduce financial aid eligibility by 35 cents of each dollar saved.\(^7\) For this reason, families expecting to be eligible for financial aid would likely be made worse off by saving for college through a PPT plan rather than just about any other way.\(^8\)

Second, because of stiff penalties should 529 balances be used for non-educational purposes, PPT programs are also designed for families where college attendance is quite certain and savings adequate. A recent Congressional Research

---

\(^7\)For financial aid purposes, 12 percent of family assets above the family’s allowance is considered as income for financial aid purposes. Families in the highest bracket are expected to contribute 47 percent of available income to their child’s education. Thus, the highest rate at which family assets would reduce financial aid is 5.6 percent (47 percent x 12 percent) (Levine, 2003).

\(^8\)There is currently much lobbying to have PPT plans treated like 529 savings plans, which would mean account values would be treated as parental assets rather than student resources. See Dynarski (2004) for an excellent discussion of the poor coordination between the income tax code and the financial aid system.
Service report describes why even middle income families may not want to invest in a 529 plan:

Middle income taxpayers could well have the greatest problem figuring out whether Section 529 should be part of their college financing plan and which type of [529] to fund. If, for example, a family suffers a reversal of fortune brought about by extended unemployment, very high medical bills or some other unanticipated event...after having established a [529 account], it is more likely that a middle-income compared to high-income family will need the plan’s savings for current consumption. As previously noted, however, account owners must pay income tax and penalties on refunds from either type of [529 account]....Thus, for some middle income families, saving for college through a vehicle not dedicated to a single purpose might be a more prudent choice. (Levine, 2003, p. 14)

That higher income families are likely to enroll in PPT plans has been shown in one early study of participants in Michigan’s MET program. Lehman (1990, p.1139) estimated that 50 percent of enrollees were in the states’ top income quintile, while only four percent were in the bottom quintile. A 1995 General Accounting Office study reports similar income characteristics for Alabama, Florida and Ohio participants (GAO 1995).9

As further evidence, in November 2002, Washington State’s PPT program -- called GET -- provided the author with information on the zipcode of all GET account owners. Out of these, 22,195 accounts – 96 percent of the total -- were analyzed for the income characteristics of the zipcode in which account owners resided.10 Zipcode districts in Washington average about 10,000 residents, varying in size from a few dozen to 64,000 people. Given their typically large size, residents within each zip code undoubtably represent a range of incomes. However, if within each zipcode, the

---

9 Since both of these studies, changes in the federal tax code have increased the incentives for wealthier households to invest in 529 programs.
10 Eliminated from the analysis were enrollees with out-of-state addresses, those without zipcodes (302 accounts), and those with zipcodes for which census data were not available (586 cases).
wealthier households are more likely to enroll their children in GET, then using zipcode averages to approximate GET family income will underestimate GET participant’s income, and thus would be a conservative approximation of the extent to which GET participants come from wealthier Washington families.

Table 2 compares the income of zipcodes in which GET enrollees live, with those of all Washington citizens. As shown, the median household income of Washington state residents is $46,311, while the median GET participant lives in a zipcode where median household income is $51,689. Table 2 also presents a comparison by quintile of the zipcode characteristic of all Washington residents versus the zipcode characteristics of GET participants. Not surprisingly, GET enrollees live in zipcodes with significantly higher incomes than do Washington residents as a whole. Table 3 further shows that based on statewide zipcode median household income, approximately 35 percent of GET participants live in Washington’s wealthiest zipcode quintile, while only 3 percent live in the state’s poorest zipcode quintile.

Table 2 here

Table 3 here

PREPAID TUITION PLANS AND TUITION LEVELS

The ostensible justification for publicly-sponsored PPT plans is that they increase family college savings and thereby promote college attendance and reduce the burden of financing college. Consequently, most discussion of PPT plans focuses on the demand side of these plans, with popularity being an indicator of success. However a full analysis of PPT plans should examine not only demand, but also institutional (supply)
responses, as effects on the price and quantity supplied side may have important implications for the desirability of PPT programs. This section investigates possible supply responses by modeling the determination of tuition levels with and without PPT plans.

Researchers have long been interested in the effect of the structure of subsidies to higher education on tuition policy. Bennett (1987) first hypothesized that government aid to students could induce schools to raise tuition to capture the increased subsidy. Li, cited in Long (2003), reports evidence that increases in federal Pell Grants did indeed have this effect; she found that every dollar increase in Pell resulted in a $1.12 increase in tuition rates. In her study of Georgia’s financial aid program, Long (2003) concludes that Georgia colleges have responded to increased student scholarships by increasing tuition and/or lowering institutional aid. And Long (forthcoming) finds evidence that recent federal tax credits for tuition expenses may have induced some colleges to increase their tuition. These examples illustrate the potential for changes in financing policy to be counteracted by institutional responses elsewhere.

**Tuition Setting Authority**

Before examining below how tuition-setting institutions may respond to a PPT plan, it is useful to briefly review the institutional setting in which tuition is determined. While the exact mechanism by which tuition is set varies with each state, almost all states are similar in that the tuition-setting process is a political one. In some states, tuition is set either by the legislature or by some state-level agency, often made up of officials either appointed by the governor or directly elected. Other states allow rates to be set by governing boards of higher education institutions, who themselves may be elected or
appointed. Finally, some states allow the individual institution itself to set tuition rates. The institution used most frequently to set tuition rates is the system-wide governing board (Washington State Senate Ways and Means Committee, 1998). In some states, tuition-setting authorities may have little real discretion over tuition rates as they may be set by a legislatively-determined formula, or constrained by the size of legislative allotments to higher education (Griswold and Marine, 1996).

How Do Institutions Respond to PPT Plans?

How might the decisions made by those who control tuition rates be influenced by the existence of PPT plans? As shown in Table 4, on average in states that now have a PPT program, tuition grew faster than the national average both 5 years before the initiation of their PPT program as well as 5 years after. On the face of it, it does not appear that the existence of a PPT program has had much effect on tuition inflation. Below we develop two models of how PPT plans may affect decision-making over tuition levels. The first shows that despite beliefs to the contrary, concern over the future liabilities of PPT plans is unlikely to have any dampening effect on tuition today. The second develops a median voter model of tuition levels and shows that the median voter will support higher tuition levels once she establishes a PPT account.

Table 4 here

*An accounting model.* States with *guaranteed* PPT plans accumulate greater program liabilities when they raise tuition. Some contend that the existence of PPT plans may make officials more reluctant to raise tuition rates. Washington State’s GET

\[\text{11This seems to be what Horvitz (1993) has in mind with his statement: "I believe that this is the heart of the interest in prepaid tuition plans; they are a means of preserving the historical tuition subsidy for the wealthy in low-tuition states". The belief is stated more directly in a GAO report: "A [PPT] program}\]
program office regularly informs the legislature of the impact of tuition increases on GET’s actuarial imbalances so that the legislature factors this into its deliberations (Gaspard, 2003); administrators with Florida’s PPT program have similarly warned state officials of looming financial distress should tuition increase too rapidly (Schmidt, 2003). Developing a simple accounting relationship allows exploring the theoretical possibility that PPT plans may put pressure on tuition-setting authorities to keep tuition low.

Let:

c= total cost to state of providing a unit of higher education (such as a tuition unit)
t= price to a citizen of purchasing this unit of public higher education
n=number of tuition units provided/year by public institutions in the state
i=current value of investments in the state PPT plan
r= number of total credits purchased with a PPT tuition plan
v = current value of investments in a PPT plan, expressed in terms of a tuition unit (i/r)
p=percent of state tuition units (n) to be paid for in current year with PPT account

Let S be the amount of state subsidies to higher education in a given year; assuming these subsidies are only for tuition subsidies,\textsuperscript{12} then:

(1) \[ S = (c-t)n + (t-v)np, \]

where the first term represents the size of subsidies to all students, and the second is the additional subsidy (or tax if negative) to those paying with purchased credits through a PPT account.

\footnotesize{\textsuperscript{12}Most state subsidies to higher education go for defraying general expenses, and as such in effect take the form of a tuition subsidy.}
From (1) it is clear that subsidies in any given year *decrease* as tuition rises: each additional dollar increase in tuition reduces state subsidies by \( n \) dollars, while leading to an additional payout of \( np \) dollars, where \( p<1 \). If tuition-setting officials are motivated by concern over this year’s budget only, the existence of a PPT plan will never constrain their choice of tuition levels.

But what if officials care about the *long term* fiscal implication of current tuition decisions? Tuition increases improve the current year’s fiscal outlook, but increase the state’s future obligations to PPT account owners. Define the actuarial imbalance of a PPT program as the present value of obligations valued at current tuition rates less the present value of investments. Then this imbalance can be represented by:

(2) \( r(t-v) \).

Define \( S' \) as the present value of subsidies to higher education, including not only current subsidies (equation 1) but also actuarial imbalances (equation 2):

(3) \[ S' = (c-t)n + (t-v)np + r(t-v). \]

If officials are concerned about \( S' \), under what circumstances would *lowering* tuition actually reduce the present value of subsidies to higher education? This occurs when \( \delta S'/\delta t > 0 \), or when:

(4) \[ \frac{r}{n} > (1-p). \]

Equation (4) holds when the total cumulative number of tuition units held in PPT accounts (\( r \)) relative to the number of units offered by the state each year (\( n \)) exceeds the percent of credits paid for out of pocket (\( 1-p \)). When this holds, then tuition-setting officials seeking to reduce \( S' \) can do so by reducing tuition.
Clearly PPT plans would have to be both large and actuarial balances important to tuition-setting authorities for the existence of PPT plans to constrain tuition increases. To illustrate, let r/n be approximated by (the total amount invested in PPT plans)/(annual state expenditures on higher education). As shown in Table 5, currently this ratio ranges from .02 to 1.18, with an average of .33. This means that typically, the size of a PPT program in a state is small relative to annual public investments in higher education. Given this, the percent of tuition payments paid for with PPT credits versus out of pocket must also be small. Together this implies that currently in each state, the left hand side of (5) is typically small, and the right hand side is large. It is very unlikely that officials motivated by the long term fiscal stability of the state will keep tuition inflation low due to the existence of PPT programs. With the possible exception of Florida and Alabama, PPT plans would have to grow much larger before tuition decreases would improve the long term fiscal position of the state.

Table 5 here

**Median voter model.** An alternative model of institutional responses to PPT plans is that as enrollees become less sensitive to tuition increases, institutions will respond by increasing tuition. For those with a PPT account, higher tuition may even benefit them: it lowers their taxes and makes attending private or out-of-state institutions cheaper by increasing the value of their college savings. PPT plans thus may create a constituency favoring more rapid tuition increases which may translate into higher tuition inflation. Olivas (2001, p. 94) expresses this concern when he asks: “Will [PPT programs] supplant state support rather than supplement appropriations?...What will
happen if the answer is to free tuition levels to rise to “market levels”?" (emphasis in original).

Assume that legislators directly or indirectly set tuition rates, and that their votes reflect their constituents’ preferences for spending levels on various public programs. According to median voter theory, where voters are choosing between two candidates based on the proximity of the candidate’s position to their own, legislators will seek the funding level of public programs preferred by the median voter.\footnote{Median voter theory entails many simplifying assumptions, such as all policy issues being one dimensional in scale, voters having perfect knowledge about candidates’ position, and candidates taking positions that maximize their chances of being elected. The implication of median voter theory is that legislative candidates will adopt the position of the median voter, and as a consequence political decision making will reflect the median voter’s preference. While simplistic, predictions from median voter models have received empirical support (Congleton, 2002).}

Let the median voter have utility \( u \), where \( u \) is affected by higher educational expenditures insofar as these reduce tuition rates, have positive spillover effects, and also raise taxes:

\[
(5) \quad u = u(t,e,x),
\]

where \( t \) is tuition, \( e \) captures the external benefits to higher education, and \( x \) is the tax rate. All three of the arguments in \( u \) are functions of subsidies to higher education, \( s \).

Specifically:

\[
(6) \quad t = t(s), \quad t' < 0, \quad t'' = 0, \quad u_t < 0, \quad u_{tt} > 0;
\]

\[
(7) \quad e = e(s), \quad e' > 0, \quad u_e > 0, \quad u_{ee} < 0; \quad \text{and}
\]

\[
(8) \quad x = x(s), \quad x' > 0, \quad x'' = 0, \quad u_x < 0, \quad u_{xx} < 0.
\]

If the median voter seeks the level of subsidies to higher education, \( s \), that maximizes her utility, \( s^* \), then \( s^* \) satisfies the condition:

\footnote{In 2002-2003, 21 percent of Washington citizens who used their GET benefits to pay for college attended out of state or private in-state institutions (GET, 2003). This percent is consistent with percentages reported in other states (GAO, 1995).}

\[\]

15
(9), \( u_t t' + u_e e' + u_x x' = 0 \).

The first two terms are the marginal benefit to the individual of subsidies to higher education, and the last is her marginal cost of subsidies.

How does the median voter’s preference for public subsidies to higher education change with the introduction of a PPT plan? If the median voter is not enrolled in a PPT plan, then it will have no effect. Assume she is enrolled in a PPT plan, and let \( u^p \) be her utility.

**Proposition 1:** Let \( s^{p*} \) be the level of subsidies that maximizes the median voter’s utility when she has a PPT account. If this median voter has the same utility function as the median voter without a PPT account (expressed in equations (5)-(9)), with the exception that:

(10) \( u^p t' < u_t t' \quad \forall t \),

then the median voter with a PPT account will support less subsidies to higher education than will the median voter without a PPT account. Specifically:

(11) \( s^{p*} < s^*. \)

Equation (10) states that the existence of the PPT account reduces the marginal utility of lower tuition rates. This would be for two reasons: with a PPT account, one is less affected by spot tuition prices; and second, lower tuition rates lower the value of one’s PPT account, since the growth in its value is equal to tuition inflation. In fact, at some size of a PPT account, \( u^p t' \) would turn negative as the benefit of lower spot tuition prices becomes outweighed by the lower value of the PPT account.

Proposition 1 comes from the presumptions stated in (6) and (7) that the marginal benefits of subsidies decrease with higher subsidies, and the marginal costs increase (8).
Thus, as long as there is an internal solution to (9) – that is, the median voter supports some level of subsidies – this level will decrease if (10) holds. How much less \( s^* \) will be from \( s^* \) will depend on the fraction of tuition that the median voter pays via her PPT account versus out of pocket.

To conclude, the potential effect of PPT plans on tuition in part depends on the decision making underlying tuition choices. If decision makers are concerned primarily about the impact of tuition levels on the state budget, then the existence of a PPT plan will restrain tuition increases only a) when decision makers are very concerned about future fiscal imbalances, b) when PPT plans are very large, and c) when a large percent of tuition payments are prepaid rather than paid out of pocket. Even if this is the appropriate model of decision making underlying tuition decisions, PPT plans must grow much larger than they currently are before they will have this theoretical impact.

On the other hand, according to the median voter theory of collective decision making, PPT plans have the potential to increase tuition levels once median voters begin enrolling in these programs. Since median voters in each state have middle class incomes, this currently is not very likely. However it may be that the median voter on issues of higher education has a significantly higher income than the median voter. Since many citizens do not attend institutions of higher education, they may pay no attention to tuition rates, and may not care about higher education policy. These citizens are also likely to be citizens with lower incomes, so that median income for those who vote on education issues may be higher than overall median income in the state.\(^{15}\) If true, then

\(^{15}\)Students in particular tend to be the most vocal advocates for low tuition, and student protests can influence tuition levels, as they did in New York in 1989 (Griswold and Marine, 1996, p. 372).
the existence of PPT plans may indeed lead to higher tuition inflation than would otherwise be expected.

**DISCUSSION: THE POLITICAL ECONOMY OF PREPAID TUITION PROGRAMS**

State prepaid tuition plans, and federal tax incentives that encourage them, represent a political response to state budgetary problems and rising tuition rates throughout the nation. These, along with other recent federal tax incentives as well as states’ movement toward more non-need based grants (Stoll and Stedman, 2003; Schmidt, 2002; Dynarski, 2000), reflect the growing emphasis in higher education policy on meeting the needs of middle and upper-middle class families.\(^{16}\)

PPT programs raise a number of issues deserving of public greater scrutiny. Reasons why publicly-sponsored PPT programs may be problematic are discussed below.

**How Compelling is the Rationale for PPT Plans?**

States introduce PPT plans in order to increase parental savings and/or reduce the risk associated with saving for college. These seemingly benign objectives are not compelling reasons for offering publically-sponsored college savings programs.

First, do PPT plans increase savings? Enrollment in a PPT plans is motivated by one or two factors: the expected return from a PPT plan is greater than the alternative, or enrollees are risk averse and value the certainty that PPT plans provide. The first motive could theoretically increase or decrease total savings, depending on the interest elasticity of saving. The second motive would not increase saving, and it may even decrease savings. Combined together, it is not clear whether PPT plans will increase or decrease
savings. Coronado and McIntosh (2001, p. 99) think the latter: “The tax breaks built into [529 plans] constitute a windfall gain that will more likely lead these household to increase consumption by spending the tax savings. National savings will decrease by shifting what would have been government saving into personal consumption”. Hansen is equally skeptical: “There is little consensus about whether financial incentives encourage increased saving, or only cause savers to shift their funds from one kind of saving instrument to another…History should make policymakers cautious about thinking that they can dramatically affect family behavior by adding this or that feature to a college savings plan” (cited in Olivas, 1993, pp. 10-11).

Assume, though, that savings are increased due to the expectation of higher returns. If investors’ expectations are met, these higher returns must be due to some public subsidy –through general state tax revenue, in the case where tuition inflation exceeds investment returns, and/or through state and federal tax expenditures via tax breaks. In this way, one wonders what public interest is served in subsidizing college savings through programs that primarily attract wealthier citizens. If encouraging families to save for college is a defensible public goal, then a more justifiable policy would be one where incentives to save were at least consistent across income groups.

Second, if PPT plans succeed in making planning for college easier and more affordable, then it may encourage more people to attend college – which could be yet another public justification for them. Recall the earlier quote by Governor Blanchard,

---

16Roth (2001) reports that in his literature review of recent state legislative documents on higher education, reference to middle-class affordability is four times more frequent than are comments on access and equity.

17In some states, the set-up and/or operating costs of the state PPT plan are not covered by enrollee contributions (GAO, 1995).
where he said that Michigan’s MET program would help “guarantee...the opportunity of a Michigan college education” (Lehmann, 1990, p. 1043).

However, if one purpose of PPT plans is to increase college attendance, then it is hard to imagine a less effective way of accomplishing this. As already discussed, PPT plans are potentially good investments only for relatively wealthy families with children who will in all likelihood attend college. Census data compiled by Mortenson (2001) reveal that dependant children of families with an income over $75,000 have a college participation rate of about 80 percent. This rate declines steadily with income; for families with an income below $25,000, less than 35 percent of college-age dependant children attend college. Moreover, evidence in Kane (1999) indicates that higher income families are price-insensitive when it comes to college attendance, while lower income families are more price-sensitive.18 For both of these reasons, targeting subsidies to higher income families is among the least effective ways of increasing college enrollments.

Third, PPT plans reduce the risk of planning for future tuition needs. Ideally, PPT plan investment returns cover the cost of tuition inflation. Leaving aside federal and state tax breaks, they thus offer no public subsidy, but are attractive because of their risk-reducing property. If indeed they offer no subsidy, then one wonders why there is a need for a publicly-sponsored program. Private financial markets have been exceedingly innovative in responding to the public’s investment demand; why not leave this need to the private sector? One response to this is that state governments choose tuition rates and also have some ability to control the cost of higher education; without this ability the private sector is unwilling to insure against the risk of tuition inflation. Again one must ask, why reduce the risk of only a select segment of the population? If the public interest
is served in assuring some citizens what future tuition will be, why not with others? Why not assure all citizens that tuition growth will not exceed some reference point – be it in the percentage of instructional costs, stock market returns, inflation, or so on. That state governments would be unlikely or unable to make this commitment raises the question as to why they should be willing and able to do it for some of their citizens, particularly when that subset is likely to be those most able to bear the risk they are insuring themselves against.

External Costs

But if it doesn’t hurt anyone else, what can be undesirable about PPT plans? This is the strongest and best defense in support of PPT plans. Since they all involve federal tax subsidies, there are external costs. Since federal income taxes are progressive, the income group that pays these subsidies may not be that different from the group that receives them.19 However, the distributional consequences are less neutral when state subsidies are also involved since state taxes tend to be regressive.

A more important concern with PPT plans is the potential for them to alter the political environment in which tuition rates are set. As discussed in the preceding section, if popular pressure for keeping tuition low is relieved via PPT plans, institutions may respond by raising tuition rates. McPherson (forthcoming), in discussing the recent trend in federal higher education policy toward tax credits, captures this concern: “…this entire episode can be viewed as a kind of weird reverse federalism, with tax credits for college tuition helping to offset increases in public tuition occasioned by state budget

---

18 Although see Dynarski (2000) for contrary evidence.
19 This assumes that the tax expenditure is financed by higher taxes elsewhere, rather than expenditure cuts or higher federal debt. The distributional impact would be different if either of these two latter financing mechanisms were used.
pressures. Unfortunately...the losers in this shifting fiscal picture are poor families who get hit with the tuition increase but who...do not receive the full benefit of the tax credits”. Whether or not there is currently any association between the size and characteristics of PPT plans and state tuition rates is a question deserving of empirical inquiry.

**Tax Expenditure and Federal Education policy**

A final concern with PPT plans is that these plans are representative of a general trend in using tax expenditures rather than direct expenditures for advancing education policy. The trend toward relying on tax policy to address issues of affordability is by the nature of the tax system designed to target a different population – people who pay income taxes, who keep abreast of changes in tax policy, and who are in higher tax brackets. More importantly, relying on tax expenditures (tax-free earnings in a PPT account) for a wealthier constituency and direct expenditures (Pell Grants and loans) for a less wealthy constituency -- while standard practice in the US -- is troubling. Direct expenditures are subject to budget constraints, frequent budgetary review, and public scrutiny; tax expenditures, which by their nature are never collected, are not. While expenditures on Pell Grants is readily available and widely published, federal (and state) expenditures on 529 plans are not.\(^{20}\) The Pell Grant program must compete with all other federal programs for funds; tax expenditures are typically treated as an entitlement, are administered by the IRS, and increase automatically as people become eligible for them. Today, federal tax expenditures on higher education likely surpasses expenditures on the perceived cornerstone of federal education policy, Pell Grants. Yet these expenditure are

---

\(^{20}\) As discussed in Levine and Stedman (2004, fn 20), it is nearly impossible to estimate the size of federal tax expenditures on 529 plans.
rarely mentioned in Department of Education publications reporting federal expenditures on higher education.\textsuperscript{21}

CONCLUSION

Despite the growing popularity of and important policy issues surrounding prepaid tuition programs, there has been surprisingly little analysis of the policy implication of these programs. This paper has raised a number of concerns with these programs, and has argued that the general public interest is hard to find in them. Moreover, median voter theory suggests that the existence of these programs may result in higher tuition inflation, which would mean that those who do not enroll in these programs may be harmed by their existence.

That PPT plans primarily address the interests of wealthier citizens is not in and of itself a reason to question their validity. Good public policy takes the interests of all citizens into account. Yet the emergence of PPT plans is reflective of a discernible trend in higher education policy, a trend away from its traditional purview of access and equity, and toward affordability for the already college-bound population. Ironically, this shifting emphasis over the last couple of decades comes during a time when the gap in college participation rates by income and racial groups has increased (McPherson and Schapiro, 1998; Kane, 2001). It is for these reasons that one should question whether PPT plans reflect the appropriate priority facing higher education policy.

\textsuperscript{21}In 2002, the US Department of Education (DOE) allocated $18.5 billion to higher education, $10.4 billion of which was for Pell Grants (DOE, 2002, Table 367). According to the DOE, the value of tuition tax credits (the HOPE and Life Long Learning tax credits) was expected to equal $9.7 billion in 2000 (DOE, 2000). As mentioned above, it is nearly impossible to estimate the size of federal tax expenditures on 529 plans. However, the 2002 Digest of Education Statistics does report the value of federal tax expenditures on all levels of education. In 2001, this amounted to $41 billion, compared with $130 billion of direct federal expenditures on all levels of education (DOE, 2002, Table 363).
REFERENCES


GET (September 15, 2003). Nearly 1,000 Washington students go to college this fall using state’s Guaranteed Education Tuition (GET) program. News Release. Unpublished.


Schmidt, P. (April 26, 2002). State spending on student aid has surged in recent years, study finds. Chronicle of Higher Education.


Schmidt, Peter (Sept 12, 2003). Prepaid-tuition plans feel the pinch. Chronicle of Higher Education.


Table 1
Size of State PPT Plans, 2002

<table>
<thead>
<tr>
<th>State</th>
<th>2002 Investment Value</th>
<th>2002 Number of Accounts</th>
<th># Accts as % State 0-17 Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>$481,470,574</td>
<td>55,047</td>
<td>4.90</td>
</tr>
<tr>
<td>Colorado</td>
<td>92,100,000</td>
<td>11,921</td>
<td>1.09</td>
</tr>
<tr>
<td>Florida</td>
<td>3,136,443,440</td>
<td>537,579</td>
<td>14.79</td>
</tr>
<tr>
<td>Illinois</td>
<td>223,491,688</td>
<td>28,683</td>
<td>0.89</td>
</tr>
<tr>
<td>Kentucky</td>
<td>18,800,000</td>
<td>4,145</td>
<td>0.42</td>
</tr>
<tr>
<td>Maryland</td>
<td>91,317,181</td>
<td>14,500</td>
<td>1.07</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>116,631,830</td>
<td>36,000</td>
<td>2.41</td>
</tr>
<tr>
<td>Michigan</td>
<td>933,921,284</td>
<td>50,100</td>
<td>1.93</td>
</tr>
<tr>
<td>Mississippi</td>
<td>79,248,889</td>
<td>14,702</td>
<td>1.90</td>
</tr>
<tr>
<td>Nevada</td>
<td>35,567,971</td>
<td>8,877</td>
<td>1.74</td>
</tr>
<tr>
<td>New Mexico</td>
<td>$267,000</td>
<td>56</td>
<td>0.01</td>
</tr>
<tr>
<td>Ohio</td>
<td>667,400,000</td>
<td>108,179</td>
<td>3.75</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>372,611,493</td>
<td>86,706</td>
<td>2.97</td>
</tr>
<tr>
<td>South Carolina</td>
<td>46,864,873</td>
<td>4,262</td>
<td>0.42</td>
</tr>
<tr>
<td>Tennessee</td>
<td>35,200,000</td>
<td>7,719</td>
<td>0.55</td>
</tr>
<tr>
<td>Texas</td>
<td>787,207,029</td>
<td>104,009</td>
<td>1.77</td>
</tr>
<tr>
<td>Virginia</td>
<td>440,664,000</td>
<td>56,944</td>
<td>3.28</td>
</tr>
<tr>
<td>Washington</td>
<td>120,574,000</td>
<td>24,095</td>
<td>1.60</td>
</tr>
<tr>
<td>West Virginia</td>
<td>57,390,822</td>
<td>8,492</td>
<td>2.11</td>
</tr>
<tr>
<td>Total</td>
<td>$7,787,021,111</td>
<td>1,162,016</td>
<td>3.32</td>
</tr>
</tbody>
</table>

Note: Data on Alaska's plan not available.

Table 2
Comparison of GET Enrollees with Washington State Residents

<table>
<thead>
<tr>
<th>Income</th>
<th>Median GET Enrollees</th>
<th>Median Washington State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median HH Income</td>
<td>$51,689</td>
<td>$46,311</td>
</tr>
<tr>
<td>Median Family Income</td>
<td>61,422</td>
<td>54,093</td>
</tr>
<tr>
<td>Per Capita Income</td>
<td>24,587</td>
<td>21,614</td>
</tr>
</tbody>
</table>

Median Family Income By Zipcode (a)

<table>
<thead>
<tr>
<th>Percentile</th>
<th>Median GET Enrollees</th>
<th>Median Washington State</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 percentile</td>
<td>$50,766</td>
<td>$42,744</td>
</tr>
<tr>
<td>40 percentile</td>
<td>57,761</td>
<td>49,849</td>
</tr>
<tr>
<td>60 percentile</td>
<td>65,454</td>
<td>57,079</td>
</tr>
<tr>
<td>80 percentile</td>
<td>73,750</td>
<td>66,949</td>
</tr>
</tbody>
</table>

(a) Washington zipcode data weighted by zipcode population.

Source: Author calculations based on data obtained from the Washington State Higher Education Coordination Board and the Washington State Office of Financial Management.

Table 3
Share of GET Participants by State Zipcode Quintiles (a)

<table>
<thead>
<tr>
<th>Household Income By Zipcode Quintile</th>
<th>Share of GET Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poorest</td>
<td>3.2 percent</td>
</tr>
<tr>
<td>4th</td>
<td>17.7 percent</td>
</tr>
<tr>
<td>3rd</td>
<td>21 percent</td>
</tr>
<tr>
<td>2nd</td>
<td>22.8 percent</td>
</tr>
<tr>
<td>Richest</td>
<td>35.3 percent</td>
</tr>
</tbody>
</table>

(a) Zipcode data weighted by zipcode population.

Source: author calculation
Table 5
Total Investments into Prepaid Tuition Programs Relative to Annual State Investments in Higher Education

<table>
<thead>
<tr>
<th>STATE</th>
<th>2000 State Invest Higher Education (Thousand)</th>
<th>2002 PPT Invest Investment Value (Thousand)</th>
<th>PPT Invest/ State Tax State Invest Advantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>$991,302</td>
<td>$481,471</td>
<td>0.49</td>
</tr>
<tr>
<td>Colorado</td>
<td>$655,037</td>
<td>$92,100</td>
<td>0.14</td>
</tr>
<tr>
<td>Florida</td>
<td>$2,656,376</td>
<td>$3,136,443</td>
<td>1.18</td>
</tr>
<tr>
<td>Illinois</td>
<td>$1,760,300</td>
<td>$223,492</td>
<td>0.13</td>
</tr>
<tr>
<td>Kentucky</td>
<td>$939,047</td>
<td>$18,800</td>
<td>0.02</td>
</tr>
<tr>
<td>Maryland</td>
<td>$999,723</td>
<td>$91,317</td>
<td>0.09</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>$1,038,998</td>
<td>$116,631</td>
<td>0.00</td>
</tr>
<tr>
<td>Michigan</td>
<td>$1,991,098</td>
<td>$933,921</td>
<td>0.47</td>
</tr>
<tr>
<td>Mississippi</td>
<td>$758,242</td>
<td>$79,249</td>
<td>0.10</td>
</tr>
<tr>
<td>Nevada</td>
<td>$333,117</td>
<td>$35,568</td>
<td>0.11</td>
</tr>
<tr>
<td>New Mexico</td>
<td>$538,822</td>
<td>$267</td>
<td>0.11</td>
</tr>
<tr>
<td>Ohio</td>
<td>$1,922,571</td>
<td>$667,400</td>
<td>0.35</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>$1,123,379</td>
<td>$372,611</td>
<td>0.33</td>
</tr>
<tr>
<td>South Carolina</td>
<td>$853,139</td>
<td>$46,865</td>
<td>0.05</td>
</tr>
<tr>
<td>Tennessee</td>
<td>$969,316</td>
<td>$35,200</td>
<td>0.04</td>
</tr>
<tr>
<td>Texas</td>
<td>$4,236,852</td>
<td>$787,207</td>
<td>0.19</td>
</tr>
<tr>
<td>Virginia</td>
<td>$1,395,308</td>
<td>$57,391</td>
<td>0.35</td>
</tr>
<tr>
<td>Washington</td>
<td>$1,200,392</td>
<td>$120,574</td>
<td>0.10</td>
</tr>
<tr>
<td>West Virginia</td>
<td>$382,269</td>
<td>$57,391</td>
<td>0.15</td>
</tr>
</tbody>
</table>

Average 0.33

Note:
- a-No State Tax Advantage
- b-PPT earnings exempt from state income taxes
- c-Some contributions to PPT exempt from state income taxes
- d-All Contributions to PPT exempt from state income taxes
- e-Miscellaneous tax benefit

### Table 4
Average Tuition Increase by Before and After Initiation of PPT Plan:
State Versus National Average

<table>
<thead>
<tr>
<th>STATE</th>
<th>Initial Year</th>
<th>Tuition Increase</th>
<th>Average Tuition Increase in Nation</th>
<th>Tuition Increase</th>
<th>Average Tuition Increase in Nation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PPT Plan</td>
<td>5 Yrs Prior to PPT Initial Year</td>
<td>5 Years Prior to PPT Initial Year</td>
<td>5 Yrs After PPT Initial Year</td>
<td>5 Years After PPT Initial Year</td>
</tr>
<tr>
<td>Alabama</td>
<td>1990</td>
<td>24.9%</td>
<td>33.5%</td>
<td>40.6%</td>
<td>50.8%</td>
</tr>
<tr>
<td>Alaska</td>
<td>1991</td>
<td>55.2%</td>
<td>49.9%</td>
<td>68.7%</td>
<td>40.9%</td>
</tr>
<tr>
<td>Colorado</td>
<td>1997</td>
<td>18.2%</td>
<td>32.2%</td>
<td>18.4%</td>
<td>30.5%</td>
</tr>
<tr>
<td>Florida</td>
<td>1988</td>
<td>26.7%</td>
<td>33.5%</td>
<td>33.4%</td>
<td>34.4%</td>
</tr>
<tr>
<td>Illinois</td>
<td>1998</td>
<td>26.9%</td>
<td>27.2%</td>
<td>24.5%</td>
<td>25.8%</td>
</tr>
<tr>
<td>Kentucky</td>
<td>2001</td>
<td>42.5%</td>
<td>25.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maryland</td>
<td>1998</td>
<td>40.1%</td>
<td>27.2%</td>
<td>24.0%</td>
<td>25.8%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>1995</td>
<td>65.2%</td>
<td>50.8%</td>
<td></td>
<td>23.1%</td>
</tr>
<tr>
<td>Michigan</td>
<td>1988</td>
<td>32.3%</td>
<td>26.0%</td>
<td>40.6%</td>
<td>42.4%</td>
</tr>
<tr>
<td>Mississippi</td>
<td>1997</td>
<td>43.2%</td>
<td>32.2%</td>
<td>9.6%</td>
<td>30.5%</td>
</tr>
<tr>
<td>Nevada</td>
<td>1998</td>
<td>27.7%</td>
<td>27.2%</td>
<td>29.3%</td>
<td>25.8%</td>
</tr>
<tr>
<td>New Mexico</td>
<td>2000</td>
<td>35.4%</td>
<td>23.1%</td>
<td>14.9%</td>
<td>15.8%</td>
</tr>
<tr>
<td>Ohio</td>
<td>1989</td>
<td>22.7%</td>
<td>26.0%</td>
<td>40.0%</td>
<td>51.0%</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>1993</td>
<td>34.5%</td>
<td>42.4%</td>
<td>23.4%</td>
<td>27.2%</td>
</tr>
<tr>
<td>South Carolina</td>
<td>1998</td>
<td>21.6%</td>
<td>27.2%</td>
<td>79.1%</td>
<td>25.8%</td>
</tr>
<tr>
<td>Tennessee</td>
<td>1997</td>
<td>34.0%</td>
<td>32.2%</td>
<td>56.3%</td>
<td>30.5%</td>
</tr>
<tr>
<td>Texas</td>
<td>1996</td>
<td>76.7%</td>
<td>40.9%</td>
<td>47.1%</td>
<td>25.5%</td>
</tr>
<tr>
<td>Virginia</td>
<td>1996</td>
<td>30.9%</td>
<td>40.9%</td>
<td>-4.7%</td>
<td>25.5%</td>
</tr>
<tr>
<td>Washington</td>
<td>1998</td>
<td>35.0%</td>
<td>27.2%</td>
<td>36.1%</td>
<td>25.8%</td>
</tr>
<tr>
<td>West Virginia</td>
<td>1998</td>
<td>24.6%</td>
<td>27.2%</td>
<td>13.2%</td>
<td>16.1%</td>
</tr>
</tbody>
</table>

Unweighted Average

<table>
<thead>
<tr>
<th>Tuition Increase</th>
<th>Average Tuition Increase in Nation</th>
<th>Tuition Increase</th>
<th>Average Tuition Increase in Nation</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.9%</td>
<td>32.6%</td>
<td>26.6%</td>
<td>25.6%</td>
</tr>
</tbody>
</table>

(a) Or 2002, which is latest data available.

**Source:** Department of Education (various years). “Tuition” is based on average in-state undergraduate tuition and fees at 4-year public institutions.
Figure 1
Total Invested In State PPT Plans

Sources: PPT state agencies.

Figure 2
Number of PPT Contracts 1989-2003

Sources: PPT state agencies.