

It is a truism, but nonetheless true that prepaid tuition programs create value for purchasers. Considering how this value is created is important because it points out some clear directions in setting prices for these benefits.

There are two ways in which value is created for consumers by prepaid tuition programs. The first is through the implementation of the guarantee. This is true whether the guarantee is a “hard” guarantee (full faith and credit), or a “soft” guarantee (that is, some form of moral/political compulsion, such as was construed by Moody’s in their recent rating of the Pennsylvania TAP Guaranteed Savings Program).

The second way in which value is created is by substituting a fixed and predictable stream of costs for a variable and unpredictable stream of costs. While this is related to the guarantee, there are some elements of this substitution that are important in their own right. Only the guarantee is considered in this article.

The Guarantee

The guarantee provided by prepaid tuition plans is unique. Nowhere else can a fixed price guarantee future tuition. How much is this guarantee worth? In a general sense, the value of the guarantee is determined by the difference between the actuarial discount rate and the risk-free rate (technically, the return rate consistent with the guarantor’s credit rating should be used, but we will use “risk-free” in this article to denote the rate consistent with the guarantor’s credit rating.).

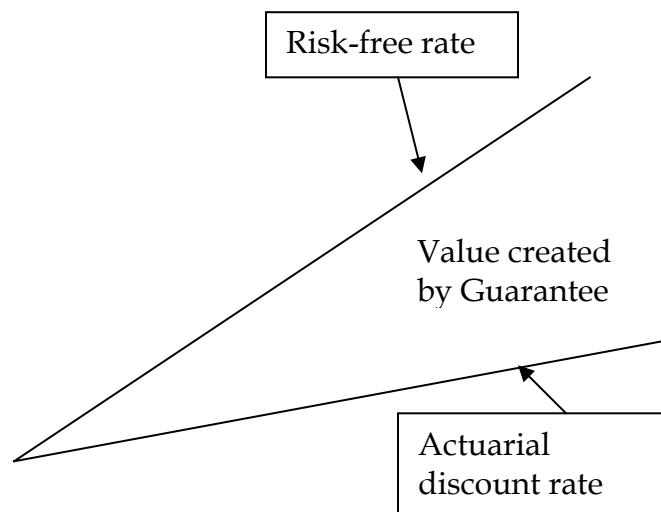
The reason for this difference is that for the purchaser, the cash flows are guaranteed. This guarantee creates a different value for the purchaser than the offsetting value to the issuer.

The actuarial value of prepaid liabilities is simply the projected cash flows discounted at the actuarial discount rate. Discounting in this context means recognizing the time value of money. That is, a dollar of benefits paid out 10 years in the future has less value than a dollar of benefits paid out today. Discounting, in this sense, is simply assigning the appropriate value to the cash flow based on the payout date. The rule here is that the higher the discount rate, the less value there is to future cash flows. The converse also holds true – the lower the discount rate, the more value there is to future cash flows.

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The actuarial discount rate is almost always based on the anticipated returns of the assets backing the liabilities, so the actuarial discount rate will be higher than the risk-free rate unless the assets are invested in risk-free assets. Using the rule stated above – the higher the discount rate, the less value there is to future cash flows – means that the value of the benefit cash flows (a liability to the prepaid program, an asset to the purchaser) will be lower for the prepaid program than the purchaser.

In fact, the value of the guarantee can be determined by looking at the difference in the value of the cash flows determined at the risk-free rate and the value of those same cash flows determined at the actuarial discount rate (illustrated below).



Implications for Pricing

If prices are set based on the expected investment return of the assets backing the liability, then all of the value created by the guarantee accrues to the purchaser. On the other hand, if prices are set based on the risk-free return rate, then none of the value created by the guarantee accrues to the purchaser, but stays with the state. The intermediate option is, of course, that the investment return assumption is betwixt and between the expected asset return rate and the risk free rate. In this case, the purchaser and the state share the value created by the

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guarantee, with the proportionate share of each determined by the distance of the rate used from either the expected return or the risk-free return.

Most states seem to use the expected investment return (or something close to it) to develop prices. This implies that public policy is that purchasers should receive all of the value generated by the guarantee. Of course, it may be that this issue has simply not been examined, and that appropriate public policy would lead to a different approach to setting prices – that is, either hold some or all of the value of the guarantee back from the purchaser by using an investment rate lower than the anticipated earned rate for setting prices.

This hold-back provides funding for the guarantee. That is, it creates a level of conservatism in the prices that reflects in a natural way the cost of providing the guarantee. The surplus that this method of pricing typically generates would offset systemic shocks such as tuition spikes and drops in equity values.