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by Jerry Sheehan Davis and Laura Greene Knapp

This article describes how federal expenditures for interest benefits, special allowance payments, default claims reinsurance, and administrative cost allowances are distributed among different types of over 61,000 borrowers whose loans came due for repayment during Federal Fiscal Year (FFY) 1989. Changes in factors that affect the amounts of subsidies are examined to show how federal expenditures would be reduced. Subsidy distributions are described for the in-school, grace and repayment periods by students' types of institutions attended, years enrolled, dependency statuses, and family financial circumstances.

The characteristics of Pennsylvania students who accept Stafford Loans each year are well documented. For example, in FFY 1989, over 120,000 borrowers received over $414 million in subsidized loans to attend Pennsylvania postsecondary institutions. Slightly over 86 percent were full-time undergraduates receiving 78 percent of the dollars; 7 percent were full-time graduate/professional school students receiving 17 percent; 6 percent were part-time undergraduates receiving 4 percent; and the remaining 1 percent receiving 1 percent of the dollars were part-time graduate/professional school students.

About 61 percent of the borrowers attended four-year colleges as undergraduates, 8 percent attended graduate or professional schools, 5 percent attended two-year colleges, 23 percent attended proprietary schools, and the remaining 3 percent attended nursing, theology or public vo-tech schools. About 73 percent of the borrowers were dependent and 27 percent were independent students. The median family income for dependent students was $29,901; the median for independent students, $6,439.

Although the characteristics of Pennsylvania borrowers and amounts they borrow are readily available and understood, the total amounts of different federal subsidies they receive are not known. This is because the payments of subsidies of various kinds are linked to specific borrowers *only* for the *single* years in which the subsidies are paid, not for all the years in which individual borrowers receive subsidies.

Knowing the amounts and types of subsidies and benefits received by different types of Stafford Loan borrowers makes it possible to more specifically assess the costs of these subsidies and the effects of proposed modifications to them. The purpose of this article, which is based on a more comprehensive research report prepared by the authors, is to assess and assign the amounts of different subsidies to a cohort of Pennsylvania borrowers whose loans came

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due for repayment in FFY 1989 (Davis and Greene, 1990). It is hoped that this article can help policymakers better understand who benefits from program subsidies in Pennsylvania and, by inference, the rest of the nation.

The article describes the distribution among various borrowers of interest benefits and special allowance payments paid to lenders, and of administrative cost allowances and reinsurance claims paid to guarantors. Reinsurance claims payments to guarantors are offset from collections on defaulted loans. When guarantors collect funds from borrowers on their defaulted loans, 70 percent of the funds are returned to the federal government and 30 percent are retained by guarantors to defray collections costs. The effects of these returned collections are assessed.

The federal government's costs for interest benefits and special allowance payments are offset by collection of a 5 percent "origination fee" by lenders when borrowers accept their loans. These fees are considered in the analysis. The federal government also experiences subsidy obligations when borrowers discharge their loans through death, disability and bankruptcy. However, since these costs amount to under 0.4 percent of total amounts of all matured Pennsylvania loans and could not be easily assigned to individual borrower categories, they were not assessed.

In-School and Grace Period Subsidies

Assessing and assigning costs first involved determining how many dollars in interest benefits and special allowance payments were received by lenders to benefit a sample of Pennsylvania borrowers while they were enrolled and in their loan grace periods. The sample was comprised of 61,552 borrowers who had attended Pennsylvania postsecondary institutions, whose loans had come due for repayment during FFY 1989, and whose application records or Pennsylvania Higher Education Assistance Agency (PHEAA) files contained complete data on their dependency statuses and family incomes, where they attended school, and how much they borrowed in different years of their education. There is no reason to believe these borrowers are not representative of the total 78,097 borrowers whose loans came due for repayment during that year.

Table 1 shows the borrowers received almost $368 million in Stafford Loans. (It might be noted that the dollar column totals for the sub-groups are not always identical in this and subsequent tables. This is due to differences in totals when dollar amounts were rounded to thousands.) Their lenders received over $74 million in in-school and grace period subsidies, representing 20.1 percent of the total amount borrowed. In-school/grace subsidy dollars are not proportionately distributed according to numbers of borrowers or amounts borrowed. For example, only 8.5 percent of borrowers were graduate students who borrowed 20.8 percent of the dollars, but they received 31 percent of in-school subsidy dollars. On the other hand, two-year college students represented 6.1 percent of the borrowers, borrowed only 3 percent of the dollars, but received just 1.7 percent of the subsidies.

TABLE 1
Pennsylvania Stafford Loan Borrowers, Amounts Borrowed, and In-School Subsidy Amounts, By Borrower Characteristics
(amounts are in thousands of dollars)

	Borrowers						
School Type	**Number**	**Percent**	**Dollars Borrowed**	**Percent**	**In-School Subsidy***	**Percent**	**Average Loan**
Four-Year	39,352	63.9%	$238,739	64.9%	$44,738	60.4%	$6,067
Two-Year	3,738	6.1	10,986	3.0	1,295	1.7	2,939
Proprietary	13,260	21.5	41,690	11.3	5,025	6.8	3,144
Graduate	5,202	8.5	76,545	20.8	22,988	31.0	14,715
Total	61,552	100.0%	$367,960	100.0%	$74,046	100.0%	
Dependent Students	45,240	73.5%	$254,075	69.0%	$47,429	64.1%	$5,616
Independent Students	16,312	26.5	113,885	31.0	26,618	35.9	6,982
Total	61,552	100.0%	$367,960	100.0%	$74,047	100.0%	
Years In School							
One	20,253	32.9%	$46,596	12.7%	$4,411	6.0%	$2,301
Two	11,267	18.3	48,767	13.3	6,579	8.9	4,328
Three	8,055	13.1	49,016	13.3	8,500	11.5	6,085
Four	15,783	25.6	136,325	37.0	29,093	39.3	8,637
Five	992	1.6	10,711	2.9	2,475	3.3	10,797
Six	1,696	2.8	14,718	4.0	3,917	5.3	8,678
Seven	1,378	2.2	17,713	4.8	4,632	6.3	12,854
Eight and Above	2,128	3.5	44,115	12.0	14,439	19.5	20,731
Total	61,552	100.0%	$367,961	100.0%	$74,046	100.0%	

*Total in-school subsidy costs equal in-school costs, grace period costs, and administrative cost allowance, minus origination fees.

Independent students, because many were graduate students, received disproportionately larger shares of in-school subsidy dollars. They represented 26.5 percent of borrowers, received 31 percent of the dollars, but got 35.9 percent of in-school subsidy dollars.

The portion of Table 1 that shows how subsidy dollars are distributed according to the borrowers' numbers of years in school or deferment clearly reflects the effects of years in attendance or deferment on subsidy costs. Borrowers who spent seven or more years in school received only 16.8 percent of the loan dollars but got 25.8 percent of subsidy dollars.

Table 2 shows how the total in-school and grace period subsidy dollars were divided. In general, about two-thirds of the costs were for in-school interest benefits and special allowance payments ($68.545 million minus $18.251 million in origination fees equals $50.294 million; divided by $74.046 million equals 67.9 percent). About 27.1 percent of subsidy dollars were for grace period interest benefits and special allowance payments. The remaining 5 percent was for administrative cost allowances (ACAs). However, these proportions vary considerably by borrower characteristics. For example, 45.5 percent of subsidy dollars assigned to students who had attended two-year colleges were for in-school subsidies, 46.0 percent were for grace period interest benefits and special allowance payments, and 8.5 percent were for ACA payments. About 78 percent of subsidy dollars assigned to graduate/professional school students were for in-school subsidies, but 18.7 percent were for grace periods interest benefits and special allowance payments, and 3.3 percent were for ACA payments.

Out-of-School Subsidies

Four types of subsidy amounts were to be assessed and assigned for borrowers once their loans come due for repayment at the end of the grace period. They include: special allowance payments for borrowers who repay their loans, special allowance payments for defaulters up to the time they default, and amounts of defaulted loans, *minus* the amounts of defaulted loans later collected by guaranty agencies and returned to the federal government.

It was relatively easy to assess and assign *in-school* subsidy amounts for Pennsylvania borrowers, because the needed data were readily available from borrower records. Data elements that affect in-school subsidy amounts include: (1) how much students borrowed; (2) when and for how long amounts were borrowed; (3) loan interest rates; (4) special allowance payment rates for loan periods; and (5) length of the borrowers' grace periods. These were all historical data.

Data elements and factors that affect *out-of-school* (or repayment) period subsidy costs include: (1) amounts borrowed; (2) loan interest rates; (3) numbers of months taken to repay loans; (4) special allowance payment rates while loans are amortized; (5) amounts on which borrowers default; and (6) amounts of defaulted dollars that are recovered. Only the first two of these data elements were available for borrowers whose loans entered repayment in FFY 1989,

TABLE 2
Apportionment of In-School Subsidy Amounts
(amounts are in thousands of dollars)

School Type	Total In-School Subsidy*	Percent	In-School Portion	Percent	Grace Period Portion	Percent	Administrative Cost Allowance	Percent	Origination Fee	Percent
Four-Year	$44,738	60.4%	$41,388	60.4%	$12,900	64.3%	$2,387	64.9%	$11,937	65.4%
Two-Year	1,295	1.7	1,138	1.7	596	3.0	110	3.0	549	3.0
Proprietary	5,025	6.8	4,405	6.4	2,287	11.4	417	11.3	2,084	11.4
Graduate	22,988	31.0	21,614	31.5	4,290	21.4	765	20.8	3,681	20.2
Total	$74,046	100.0%	$68,545	100.0%	$20,073	100.0%	$3,680	100.0%	$18,251	100.0%
Dependent Students	$47,429	64.1%	$43,854	64.0%	$13,722	68.4%	$2,541	69.0%	$12,688	69.5%
Independent Students	26,618	35.9	24,692	36.0	6,351	31.6	1,139	31.0	5,564	30.5
Total	$74,047	100.0%	$68,546	100.0%	$20,073	100.0%	$3,680	100.0%	$18,252	100.0%
Years In School										
One	$4,411	6.0%	$3,718	5.4%	$2,557	12.7%	$466	12.7%	$2,330	12.8%
Two	6,579	8.9	5,877	8.6	2,652	13.2	488	13.3	2,438	13.4
Three	8,500	11.5	7,807	11.4	2,654	13.2	490	13.3	2,451	13.4
Four	29,093	39.3	27,208	39.7	7,338	36.6	1,363	37.0	6,816	37.3
Five	2,475	3.3	2,322	3.4	582	2.9	107	2.9	536	2.9
Six	3,917	5.3	3,692	5.4	814	4.1	147	4.0	736	4.0
Seven	4,632	6.3	4,367	6.4	974	4.9	177	4.8	886	4.9
Eight and Above	14,439	19.5	13,556	19.8	2,502	12.5	441	12.0	2,060	11.3
Total	$74,046	100.0%	$68,547	100.0%	$20,073	100.0%	$3,680	100.0%	$18,253	100.0%

*Total in-school subsidy costs equal in-school costs, grace period costs, and administrative cost allowance, minus origination fees.

because the latter four factors will not be known for several years.

Therefore, it was necessary to develop some reasonable estimates of data for these borrowers. Three years of repayment, default, and recovery patterns for a similar group of Pennsylvania borrowers whose loans had come due for repayment in FFY 1986 were known. It was assumed that these patterns would be representative of patterns for the FFY 1989 borrowers, when factors proven to affect repayment were considered.

When the FFY 1989 borrowers' dependency statuses, family incomes when they last borrowed, numbers of years spent in postsecondary education, and types of institutions last attended were all identical to those of the FFY 1986 borrowers, it was assumed that their patterns of repayment would be identical. For example, it was assumed that FFY 1989 independent borrowers with incomes under $6,000 who spent one year at a two-year college would have the same probability of repaying or defaulting on their loans as did their FFY 1986 counterparts. If they defaulted, they were assumed to have the same probability of repaying their defaults as their FFY 1986 counterparts. If they did not default, they were assumed to take the same number of years to repay their loans, adjusting for any differences in amounts borrowed.

"It is hoped that this article can help policymakers better understand who benefits from program subsidies in Pennsylvania and, by inference, the rest of the nation."

It is believed that the assumptions about repayment patterns of borrowers when their dependency statuses, family incomes, years in postsecondary education, and types of institutions are held constant are valid, because the authors' research on several years' cohorts has shown that repayment patterns remain stable among different cohorts when these variables are identical.

The Special Allowance Payment (SAP) rates which would apply to the FFY 1989 borrowers during their repayment periods obviously were unknown. Therefore, they had to be estimated. It was decided that the best estimate of future SAP rates would be the average rate for the last 28 quarters before the borrowers entered repayment, 2.98 percent.

The estimated out-of-school subsidy amounts are, in total, very similar to in-school subsidy amounts, $75.67 million versus $74.05 million. Table 3 shows how out-of-school subsidy amounts are distributed among different borrower groups. Out-of-school amounts are more closely correlated with amounts borrowed than are in-school amounts. The reasons out-of-school subsidies correlate more closely to amounts borrowed are: (1) because borrowers' lengths of repayment are identical (ten years) when they borrow more than $4,000, the number of months they receive SAPs are more uniform, and (2) because borrowers who have higher default rates borrow less and default relatively quickly, default costs closely correspond to amounts borrowed.

Four-year college student borrowers who received 64.9 percent of total amounts borrowed, received only 60.4 percent of the in-school subsidies, but are expected to receive 61.8 percent of the total out-of-school subsidies. Borrowers who attended graduate school received 20.8 percent of loan dollars, received 31 percent of the in-

TABLE 3
Pennsylvania Stafford Loan Borrowers, Amounts Borrowed, and Out-of-School Subsidy Amounts, By Borrower Characteristics
(amounts are in thousands of dollars)

School Type	Borrowers Number	Borrowers Percent	Dollars Borrowed	Percent	Out-of-School Subsidy*	Percent
Four-Year	39,352	63.9%	$238,739	64.9%	$46,761	61.8%
Two-Year	3,738	6.1	10,986	3.0	2,194	2.9
Proprietary	13,260	21.5	41,690	11.3	11,447	15.1
Graduate	5,202	8.5	76,545	20.8	15,271	20.2
Total	61,552	100.0%	$367,960	100.0%	$75,673	100.0%
Dependent Students	45,240	73.5%	$254,075	69.0%	$49,664	65.6%
Independent Students	16,312	26.5	113,885	31.0	26,009	34.4
Total	61,552	100.0%	$367,960	100.0%	$75,673	100.0%
Years In School						
One	20,253	32.9%	$46,596	12.7%	$10,140	13.4%
Two	11,267	18.3	48,767	13.3	11,529	15.2
Three	8,055	13.1	49,016	13.3	10,207	13.5
Four	15,783	25.6	136,825	37.0	26,437	34.9
Five	992	1.6	10,711	2.9	2,090	2.8
Six	1,696	2.8	14,718	4.0	2,831	3.7
Seven	1,378	2.2	17,713	4.8	3,453	4.6
Eight and Above	2,128	3.5	44,115	12.0	8,987	11.9
Total	61,552	100.0%	$367,961	100.0%	$75,674	100.0%

*Total out-of-school subsidy costs equal repayment costs plus default costs minus default collections.

school subsidy amounts, but should get 20.2 percent of out-of-school subsidy amounts.

Although borrowers who spent more years in school (or in deferment) received disproportionately more of the in-school subsidy amounts, they are expected to receive fairly similar proportions of out-of-school subsidy amounts.

For example, borrowers who spent four or more years in school borrowed 60.7 percent of the dollars, got 73.7 percent of in-school subsidy amounts, but are expected to receive only 57.9 percent of out-of-school subsidy amounts. Borrowers who spent one or two years in school received 26 percent of dollars, received only 14.9 percent of in-school subsidy amounts, but should get 28.6 percent of out-of-school subsidy amounts.

Table 4 shows that, in general, 70.4 percent of out-of-school subsidy amounts are for special allowance payments on loans estimated to be paid in full. The remaining 29.6 percent are for estimated costs of paying default claims *plus* special allowance payments

TABLE 4
Apportionment of Out-of-School Subsidy Amounts
(amounts are in thousands of dollars)

School Type	Out-of School Subsidy*	Percent	Repayment Costs	Percent	Default Costs	Percent	Collections	Percent
Four-Year	$46,761	61.8%	$35,798	67.2%	$15,654	51.3%	$4,691	57.8%
Two-Year	2,194	2.9	1,160	2.2	1,416	4.6	382	4.7
Proprietary	11,447	15.1	4,230	7.9	8,970	29.4	1,753	21.6
Graduate	15,271	20.2	12,065	22.7	4,489	14.7	1,283	15.8
Total	$75,673	100.0%	$53,253	100.0%	$30,529	100.0%	$8,109	100.0%
Dependent Students	$49,664	65.6%	$37,493	70.4%	$17,197	56.3%	$5,026	62.0%
Independent Students	26,009	34.4	15,760	29.6	13,332	43.7	3,083	38.0
Total	$75,673	100.0%	$53,253	100.0%	$30,529	100.0%	$8,109	100.0%
Years In School								
One	$10,140	13.4%	$3,025	5.7%	$9,002	29.5%	$1,887	23.3%
Two	11,529	15.2	7,105	13.3	5,920	19.4	1,496	18.4
Three	10,207	13.5	7,596	14.3	3,700	12.1	1,089	13.4
Four	26,437	34.9	21,762	40.9	6,845	22.4	2,170	26.8
Five	2,090	2.8	1,701	3.2	573	1.9	184	2.3
Six	2,831	3.7	2,350	4.4	698	2.3	217	2.7
Seven	3,453	4.6	2,816	5.3	912	3.0	275	3.4
Eight and Above	8,987	11.9	6,899	13.0	2,880	9.4	792	9.8
Total	$75,674	100.0%	$53,254	100.0%	$30,530	100.0%	$8,110	100.0%

*Total out-of-school subsidy costs equal repayment costs plus default costs minus default collections.

up to the time of default, *minus* default amounts collected and returned to the federal government.

Although only 15.1 percent of total out-of-school subsidy amounts are assigned to proprietary school student borrowers, because their default rates are higher, they are estimated to receive 29.4 percent of the gross default subsidy amounts and 32.2 percent of the "net" default subsidy amounts. Because their default rates are lower, graduate/professional school students are expected to receive 20.2 percent of the estimated out-of-school subsidy amounts, but are estimated to receive only 14.7 percent of gross default subsidy amounts and 14.3 percent of "net" default subsidy amounts.

Because independent students are more likely than dependent students to default on their loans, they receive a greater share of estimated gross and "net" default amounts than of total out-of-school subsidies, 43.7 percent, 45.7 percent, and 34.4 percent, respectively.

Borrowers who spent only one or two years in postsecondary education are more likely than others to default on their loans. Therefore, while these borrowers are estimated to receive only 28.6 percent of total out-of-school subsidy amounts, they should get 48.9 percent of gross default amounts and 51.5 percent of "net" default amounts.

TABLE 5
Pennsylvania Stafford Loan Borrowers, Amounts Borrowed, and Total Subsidy Amounts, By Borrower Characteristics
(amounts are in thousands of dollars)

	Borrowers					
School Type	**Number**	**Percent**	**Dollars Borrowed**	**Percent**	**Total Subsidy**	**Percent**
Four-Year	39,352	63.9%	$238,739	64.9%	$91,499	61.1%
Two-Year	3,738	6.1	10,986	3.0	3,489	2.3
Proprietary	13,260	21.5	41,690	11.3	16,472	11.0
Graduate	5,202	8.5	76,545	20.8	38,259	25.6
Total	61,552	100.0%	$367,960	100.0%	$149,719	100.0%
Dependent Students	45,240	73.5%	$254,075	69.0%	$97,093	64.8%
Independent Students	16,312	26.5	113,885	31.0	52,627	35.2
Total	61,552	100.0%	$367,960	100.0%	$149,720	100.0%
Years In School						
One	20,253	32.9%	$46,596	12.7%	$14,551	9.7%
Two	11,267	18.3	48,767	13.3	18,108	12.1
Three	8,055	13.1	49,016	13.3	18,707	12.5
Four	15,783	25.6	136,325	37.0	55,530	37.1
Five	992	1.6	10,711	2.9	4,565	3.1
Six	1,696	2.8	14,718	4.0	6,748	4.5
Seven	1,378	2.2	17,713	4.8	8,085	5.4
Eight and Above	2,128	3.5	44,115	12.0	23,426	15.6
Total	61,552	100.0%	$367,961	100.0%	$149,721	100.0%

Total Subsidy Amounts for Pennsylvania Borrowers

When in-school subsidy amounts and estimated out-of-school subsidy amounts are combined for a total subsidy amount, it is estimated that it will cost the federal government $149.72 million in subsidies for the $367.96 million borrowed by Pennsylvania students. This works out to about $407 per $1,000 borrowed and $2,432 per borrower. Table 5 displays the data.

Total subsidy amounts are distributed in fairly close proportion to dollar amounts borrowed, especially when borrowers' attendance years are considered. For example, 39.3 percent of the dollars and 34.3 of expected subsidy amounts are received by students who spent under four years in college; 37.0 percent of the dollars and 37.1 percent of subsidies go to students spending four years in college; and 23.7 percent of dollars and 28.6 percent of subsidies go to students who spent more than four years in college.

Dependent students received 69 percent of the dollars and are expected to receive 64.8 percent of subsidies; independent students, 31 percent and 35.2 percent, respectively. Graduate students, because they borrowed much more than other students, got 20.8 percent of the loan dollars but are expected to receive 25.6 percent of subsidy amounts.

Effects of Default Rates on Subsidy Amounts

The overall default rate for students whose loans came due for repayment in FFY 1986 was 14.7 percent. There is reason to believe that the default rate for Pennsylvania students whose loans came due for repayment in FFY 1989 will be lower than the original estimates, used above, since the Department of Education's recent "two-year cohort" default rates for Pennsylvania borrowers and borrowers nationwide are declining.

Therefore, it was considered useful to assess the effects on subsidy amounts of a decrease in default rates. Table 6 shows how subsidy amounts would change if default rates of *each* sub-group *and* the total FFY 1989 cohort decreased by 25 percent. That is to say, if the original estimated default rate were 12.0 percent, the new estimated rate would be 9 percent; or if the original estimated default rate were 15.6 percent, the new one would be 11.7 percent.

Reducing default rates by 25 percent would result in a 4.8 percent reduction in total estimated subsidy costs, from $149.7 million to $142.5 million. Reducing default rates by one-fourth does not result in a large reduction in total subsidy costs because the original default costs represented only 15 percent of the total subsidy costs, and because special allowance payments must be made until the loans that do not default are repaid.

Reducing default rates by one-fourth does not appreciably change the distributions of total subsidies among the various borrower groups. For example, before default rates are reduced, four-year college borrowers get 61.1 percent of total subsidies. After the reduction, they get 61.8 percent. Before the default reduction, graduate/professional school borrowers get 25.6 percent of subsidies; after the reduction, 26.1 percent. The largest change is for proprietary school borrowers (who have higher estimated default rates than

TABLE 6
Pennsylvania Stafford Loan Borrowers, Amounts Borrowed, and Total Subsidy Amounts, By Borrower Characteristics, When Default Rates Are Reduced By One-Fourth
(amounts are in thousands of dollars)

School Type	Borrowers Number	Borrowers Percent	Dollars Borrowed	Percent	Total Subsidy	Percent
Four-Year	39,352	63.9%	$238,739	64.9%	$87,999	61.8%
Two-Year	3,738	6.1	10,986	3.0	3,156	2.2
Proprietary	13,260	21.5	41,690	11.3	14,076	9.9
Graduate	5,202	8.5	76,545	20.8	37,263	26.1
Total	61,552	100.0%	$367,960	100.0%	$142,494	100.0%
Dependent Students	45,240	73.5%	$254,075	69.0%	$92,735	65.1%
Independent Students	16,312	26.5	113,885	31.0	49,758	34.9
Total	61,552	100.0%	$367,960	100.0%	$142,493	100.0%
Years In School						
One	20,253	32.9%	$46,596	12.7%	$12,053	8.5%
Two	11,267	18.3	48,767	13.3	16,818	11.8
Three	8,055	13.1	49,016	13.3	18,033	12.7
Four	15,783	25.6	136,325	37.0	53,922	37.8
Five	992	1.6	10,711	2.9	4,404	3.1
Six	1,696	2.8	14,718	4.0	6,592	4.6
Seven	1,378	2.2	17,713	4.8	7,880	5.5
Eight and Above	2,128	3.5	44,115	12.0	22,790	16.0
Total	61,552	100.0%	$367,961	100.0%	$142,492	100.0%

other borrowers), from 11 percent of total subsidies before the reduction to 9.9 percent after. But the total subsidy reduction for proprietary school borrowers is 14.5 percent, from $16.472 million to $14.076 million, as compared to a 3.6 percent reduction for all other borrowers.

The most important results of the assessment of the effects of a substantial reduction in default rates are: total subsidy amounts are reduced by a relatively small amount and the distribution of total subsidies among various borrower groups are not appreciably changed.

Effects of Special Allowance Payment Rates on Subsidy Amounts

To evaluate effects of changes in special allowance payment rates on total subsidy costs, SAP rates for out-of-school repayment/default periods were cut in half, from the original 2.98 percent to 1.49 percent. (Since SAP rates for the in-school period were fixed and had already influenced the FFY 1989 borrowers' in-school subsidy costs, it was considered appropriate to focus attention on modification of the SAP rates for the out-of-school periods.) The effects of the 50 percent reduction in special allowance payment rates on total subsidies are displayed in Table 7.

The decision to assess the effects of a 50 percent reduction in SAP rates, rather than a 25 percent reduction to correspond to the default rate reduction, was made in part because the original estimate of SAP rates was about 1.5 percentage points greater than estimates of future SAP rates provided by the Congressional Budget Office for FFY 1990 and beyond.

Halving the SAP rate cuts total subsidy amounts by 18.4 percent, from $149.7 million to $122.2 million. This means a reduction of $75 per $1,000 borrowed or $447 per borrower. The respective effects of a one-fourth reduction in default rates were $20 and $117. Clearly the reduction in SAP rates has a much greater effect on cutting total subsidy amounts than does cutting default rates. And this statement would be true if SAP rates had been cut by only one-fourth rather than by one-half.

When out-of-school SAP rates are reduced, the distribution of total subsidies among different borrower groups does not change substantially. Four-year college students get 61.1 percent of *total* subsidies before the reduction, and 60.0 percent after. Graduate students get 25.6 percent before and 26.1 percent after. Independent students get 35.2 percent before and 36.3 percent after. Borrowers who attended for one or two years get 21.8 percent of the subsidies

TABLE 7
Pennsylvania Stafford Loan Borrowers, Amounts Borrowed, and Total Subsidy Amounts, By Borrower Characteristics, When Out-of-School Special Allowance Payment Rates Are Reduced By One-Half
(amounts are in thousands of dollars)

	Borrowers					
School Type	**Number**	**Percent**	**Dollars Borrowed**	**Percent**	**Total Subsidy**	**Percent**
Four-Year	39,352	63.9%	$238,739	64.9%	$73,373	60.0%
Two-Year	3,738	6.1	10,986	3.0	2,890	2.4
Proprietary	13,260	21.5	41,690	11.3	14,013	11.5
Graduate	5,202	8.5	76,545	20.8	31,913	26.1
Total	61,552	100.0%	$367,960	100.0%	$122,189	100.0%
Dependent Students	45,240	73.5%	$254,075	69.0%	$77,834	63.7%
Independent Students	16,312	26.5	113,885	31.0	44,356	36.3
Total	61,552	100.0%	$367,960	100.0%	$122,190	100.0%
Years In School						
One	20,253	32.9%	$46,596	12.7%	$12,706	10.4%
Two	11,267	18.3	48,676	13.3	14,469	11.8
Three	8,055	13.1	49,016	13.3	14,847	12.2
Four	15,783	25.6	136,325	37.0	44,548	36.5
Five	992	1.6	10,711	2.9	3,705	3.0
Six	1,696	2.8	14,718	4.0	5,534	4.5
Seven	1,378	2.2	17,713	4.8	6,623	5.4
Eight and Above	2,128	3.5	44,115	12.0	19,757	16.2
Total	61,552	100.0%	$367,961	100.0%	$122,189	100.0%

before and 22.2 percent after, and borrowers who attended for eight or more years get 15.6 percent before and 16.2 percent after.

Halving SAP rates has a greater cost reduction effect on four-year college and graduate/professional school borrowers than on two-year college and proprietary school borrowers, because the former borrow more and take longer to repay their loans. Therefore, they receive special allowance payments on more loan dollars for more months, and a reduction in SAP rates would have a greater effect on their total subsidies.

Table 8 displays average per-borrower subsidy amounts and amounts per $1,000 borrowed for each borrower group for the original estimate, when default rates are reduced by one-fourth, and when out-of-school SAP rates are cut by one-half. In general, as noted above, cutting the SAP rate reduces subsidy amounts by more than cutting default rates. However, for proprietary school students, cuts in either rate have almost identical subsidy-reduction effects. The original subsidy cost per $1,000 borrowed by these students was $395. When defaults are reduced, the subsidy cost drops to $338 and, when SAP rates are reduced, it drops to $336. The original subsidy per-borrower amount was $1,242 but it decreases to $1,062 when default rates are cut and to $1,057 when SAP rates are cut.

Only one borrower group's subsidy costs are reduced by more when default rates rather than SAP rates are cut, those who had

TABLE 8
Pennsylvania Borrowers' Total Subsidy Amounts Per Borrower and Per $1,000 Borrowed, By Borrower Characteristics Under Three Assumed Conditions

	Original Estimate		Reduced Defaults		Reduced Special Allowance Payment	
School Type	**Per Borrower**	**Per $1,000**	**Per Borrower**	**Per $1,000**	**Per Borrower**	**Per $1,000**
Four-Year	2,325	$383	$2,236	$368	$1,865	$307
Two-Year	933	318	844	287	773	263
Proprietary	1,242	395	1,062	338	1,057	336
Graduate	7,355	500	7,163	487	6,135	417
Total	$2,432	$407	$2,315	$387	$1,985	$332
Dependent Students	$2,146	$382	$2,050	$365	$1,721	$306
Independent Students	3,226	462	3,050	437	2,719	389
Years In School						
One	$718	$312	$595	$259	$627	$273
Two	1,607	371	1,493	345	1,284	297
Three	2,322	382	2,239	368	1,843	303
Four	3,518	407	3,416	396	2,823	327
Five	4,602	426	4,440	411	3,735	346
Six	3,978	458	3,887	448	3,263	376
Seven	5,867	456	5,718	445	4,806	374
Eight and Above	11,008	531	10,710	517	9,284	448

TABLE 9
Pennsylvania Stafford Loan Borrowers, Amounts Borrowed, and Total Subsidy Amounts, By Borrower Characteristics, When Interest Rates Increase to 10 Percent After Four Years of Repayment
(amounts are in thousands of dollars)

	Borrowers		Dollars		Total	
School Type	**Number**	**Percent**	**Borrowed**	**Percent**	**Subsidy**	**Percent**
Four-Year	39,352	63.9%	$238,739	64.9%	$82,358	60.3%
Two-Year	3,738	6.1	10,986	3.0	3,258	2.4
Proprietary	13,260	21.5	41,690	11.3	15,770	11.6
Graduate	5,202	8.5	76,545	20.8	35,099	25.7
Total	61,552	100.0%	$367,960	100.0%	$136,485	100.0%
Dependent Students	45,240	73.5%	$254,075	69.0%	$87,777	64.3%
Independent Students	16,312	26.5	113,885	31.0	48,709	35.7
Total	61,552	100.0%	$367,960	100.0%	$136,486	100.0%
Years In School						
One	20,253	32.9%	$46,596	12.7%	$14,551	10.7%
Two	11,267	18.3	48,767	13.3	16,243	11.9
Three	8,055	13.1	49,016	13.3	16,704	12.2
Four	15,783	25.6	136,325	37.0	49,770	36.5
Five	992	1.6	10,711	2.9	4,119	3.0
Six	1,696	2.8	14,718	4.0	6,130	4.5
Seven	1,378	2.2	17,713	4.8	7,347	5.4
Eight and Above	2,128	3.5	44,115	12.0	21,622	15.8
Total	61,552	100.0%	$367,961	100.0%	$136,486	100.0%

attended for only one year. This was primarily because these borrowers' estimated default rates were quite high, about 26.4 percent.

It is noteworthy that regardless of whether default rates or SAP rates are cut, the proportionate distribution of *total* subsidies among the various borrower categories remains rather constant. Moreover, the relationships between per-borrower subsidies and subsidies per $1,000 borrowed remain quite similar. That is, the average subsidy amounts increase when borrowers spend more years in school, and the amounts for independent students and for graduate/professional school students are consistently higher than for other students. While the per-borrower average subsidy amounts for four-year college borrowers are almost twice those for proprietary school borrowers, because they borrow more and stay in school longer, the average amounts per $1,000 borrowed are quite similar for both groups. This is because proprietary school borrower default rates are much higher, 27.2 percent versus 8.3 percent.

Effects of Increasing Interest Rates After Four Years In Repayment

Only a few of these borrowers are affected by the Higher Education Amendments Act of 1986 provision which calls for an increase in their loans' interest rate from 8 to 10 percent after four years in repayment. However, in the interest of serving policymakers who are interested in the subsidy cost reduction effects of this provision, it was assumed that the interest rates on *all* borrowers' loans would rise to 10 percent at the end of the fourth year in repayment. The distribution of subsidy amounts under this assumption is displayed in Table 9.

Raising interest rates to 10 percent reduces the SAP rate from 2.98 percent to 0.98 percent for repayment years five through ten. This reduces the total subsidy costs by 8.8 percent, from $149.7 million to $136.5 million. It has little effect on the distribution of subsidy amounts among the different student groups. By comparing the data in Tables 5 and 9, one can see that two-year college and proprietary school borrowers get just slightly more of the subsidies, 14.0 percent versus 13.3 percent, and borrowers who spend less than four years in school get slightly more, 34.8 percent versus 34.3 percent. Raising the interest rate to 10 percent results in a larger reduction than cutting default rates by one-fourth, 8.8 percent versus 4.8 percent, but results in a smaller reduction than decreasing SAP rates for the entire out-of-school period by half, 8.8 percent versus 18.4 percent.

Subsidy Amounts by Borrowers' Family Incomes

One of the major interests in conducting this study was to determine how Stafford Loan Program subsidies are distributed among borrowers of different family financial circumstances. It was expected that, even though lower-income students are much more likely than other students to default on their loans, more of the subsidies would go to middle- and upper-income students, because it was assumed they would borrow more, remain in school for more years, and take longer to repay their loans. However, the data did *not* meet the expectation.

Table 10 displays dependency statuses and family incomes of the sample of FFY 1989 borrowers. Almost one out of every three borrowers, 29.9 percent, had family incomes of $12,000 or less, with 15.9 percent of dependent, and 68.6 percent of independent, borrowers fitting this description. These students borrowed 31.9 percent of total dollars and should get 36.4 percent of total subsidy amounts.

About 20.8 percent of borrowers had family incomes between $12,000 and $23,999, with 21.0 percent of dependent, and 20.3 percent of independent, students fitting this description. They received 20.7 percent of the dollars loaned, but should get only 19.6 percent of subsidy amounts. About 23.1 percent of borrowers had family incomes between $24,000 and $35,999, with 27.5 percent of dependent borrowers and 11.1 percent of independent borrowers fitting this description. These borrowers received 23.0 percent of loan dollars and should get 21.2 percent of total subsidy amounts.

The remaining 26.2 percent of borrowers, 35.6 percent of dependent students, had family incomes of $36,000 or above. They received 24.4 percent of loan dollars but should get only 22.8 percent of total subsidies.

It was noted above that subsidy amounts for the in-school/grace period and out-of-school repayment periods were similar for borrowers in general. However, 52.6 percent of total subsidies received by

TABLE 10
Pennsylvania Stafford Loan Borrowers, Amounts Borrowed, and In-School and Out-of-School Subsidy Amounts, By Dependency Statuses and Family Incomes
(amounts are in thousands of dollars)

Income Level	Borrowers	Percent	Dollars Borrowed	Percent	In-School Subsidy	Percent	Out-of-School Subsidy	Percent	Total Subsidy	Percent
Dependent										
$0–$11,999	7,210	15.9%	$35,844	14.1%	$6,282	13.2%	$8,947	18.0%	$15,229	15.7%
$12,000–$17,999	4,424	9.8	25,276	9.9	4,648	9.8	4,869	9.8	9,517	9.8
$18,000–$23,999	5,051	11.2	29,770	11.7	5,533	11.6	5,635	11.3	11,168	11.5
$24,000–$29,999	6,059	13.4	36,591	14.4	6,861	14.5	6,788	13.7	13,649	14.0
$30,000–$35,999	6,390	14.1	36,454	14.3	6,767	14.3	6,716	13.5	13,483	13.9
$36,000–$41,999	5,581	12.3	30,621	12.1	5,780	12.2	5,650	11.4	11,430	11.8
$42,000–$47,999	4,177	9.2	22,989	9.1	4,357	9.2	4,255	8.6	8,612	8.9
$48,000–$53,999	2,647	5.9	14,473	5.7	2,783	5.9	2,687	5.4	5,470	5.6
$54,000 & Above	3,701	8.2	22,056	8.7	4,417	9.3	4,116	8.3	8,533	8.8
Total	45,240	100.0%	$254,074	100.0%	$47,428	100.0%	$49,663	100.0%	$97,091	100.0%
Independent										
$0–$5,999	7,813	47.9%	$60,200	52.8%	$14,889	55.9%	$15,194	58.4%	$30,083	57.2%
$6,000–$11,999	3,369	20.7	21,178	18.6	4,652	17.5	4,542	17.5	9,194	17.5
$12,000–$17,999	2,061	12.6	12,779	11.2	2,801	10.5	2,510	9.7	5,311	10.1
$18,000–$23,999	1,250	7.7	8,271	7.3	1,788	6.7	1,600	6.2	3,388	6.4
$24,000–$29,999	1,014	6.2	6,109	5.4	1,246	4.7	1,158	4.5	2,404	4.5
$30,000 & Above	805	4.9	5,348	4.7	1,242	4.7	1,005	3.9	2,247	4.3
Total	16,312	100.0%	$113,885	100.0%	$26,618	100.0%	$26,009	100.0%	$52,627	100.0%

the lowest-income borrowers (those with incomes below $12,000) were received during their repayment periods, primarily because of their higher default rates. Only 49.4 percent of the other more affluent borrowers' subsidies were received for their repayment periods.

The effects of default rates on distribution of subsides by family incomes and dependency statuses were examined in the comprehensive report when it was assumed that all default rates were reduced by one-fourth. Subsidy amounts to borrowers with incomes below $12,000, who were most likely to default, were reduced the most when their default rates were cut, by 7.2 percent, from $54.51 million to $50.6 million. Before the default reduction, these students received 36.4 percent of total subsidy dollars. After the default reduction, these students would receive only 35.5 percent of total subsidies. However, even with the default reduction, lower-income borrowers would still receive a disproportionately larger share of subsidies, since they received only 31.9 percent of loan dollars.

"When either default rates or SAP rates are cut, lower-income borrowers still should get disproportionately larger shares of total subsidies."

When SAP rates for the out-of-school period are cut in half, lower-income students' share of total subsidy dollars rises from 36.4 percent to 37.5 percent, even though their subsidy dollar amounts decrease by 15.8 percent, from $54.51 million to $45.9 million. The lower-income borrowers' share increases because the cut in SAP rates has a greater reduction effect on other, more affluent borrowers. These other borrowers' total subsidy costs decrease by 19.8 percent, from $95.2 million to $76.3 million. This was expected, because more affluent borrowers are not as likely to default and, therefore, the reduction in SAP rates would affect their repayment period subsidy costs for more years. When *either* default rates *or* SAP rates are cut, lower-income borrowers still should get disproportionately larger shares of total subsidies. The *only* way in which the lower-income borrowers would receive smaller proportionate shares of total subsidies is if their default rates *are reduced while other borrowers' default rates remain constant.*

Table 11 displays the per-borrower and per-$1,000 borrowed total subsidy amounts by borrowers' dependency statuses and incomes. Under the original estimated subsidy costs, the per-borrower cost for dependent borrowers with incomes above $54,000 is 9.2 percent more than the cost for dependent borrowers with incomes below $12,000, $2,306 versus $2,112. When defaults are reduced by one-fourth, the *per-borrower* cost for highest-income borrowers becomes 17.6 percent greater than the per-borrower cost for lowest-income borrowers, $2,241 versus $1,906. When SAP rates are cut by one-half, highest-income borrowers' per-borrower cost is only 6.6 percent greater, $1,842 versus $1,728. Therefore, reducing SAP rates has the greater "equalizing effect" on per-borrower subsidies. Lowest-income borrowers' per-$1,000 subsidy amounts are higher than those of the highest-income borrowers under all three conditions. But reducing *defaults* has the greater "equalizing effect" on the subsidies per $1,000 borrowed.

Under all three conditions, borrowers who receive the largest per-borrower and per-$1,000 borrowed subsidies are independent

TABLE 11
Pennsylvania Borrowers' Total Subsidy Amounts Per Borrower and Per $1,000 Borrowed, By Dependency Statuses and Family Incomes

Income Level	Original Estimate		Reduced Defaults		Reduced Special Allowance Payment	
Dependent	**Per Borrower**	**Per $1,000**	**Per Borrower**	**Per $1,000**	**Per Borrower**	**Per $1,000**
Below $12,000	$2,112	$425	$1,906	$383	$1,728	$348
$12,000–$17,999	2,151	376	2,066	362	1,727	302
$18,000–$23,999	2,211	375	2,132	362	1,768	300
$24,000–$29,999	2,253	373	2,179	361	1,797	298
$30,000–$35,999	2,110	370	2,042	358	1,681	295
$36,000–$41,999	2,048	373	1,984	362	1,634	298
$42,000–$47,999	2,062	375	1,999	363	1,644	299
$48,000–$53,999	2,066	378	2,005	367	1,649	302
$54,000 and Above	2,306	387	2,241	376	1,842	309
All Incomes	$2,146	$382	$2,054	$366	$1,720	$306

	Original Estimate		Reduced Defaults		Reduced Special Allowance Payment	
Independent	**Per Borrower**	**Per $1,000**	**Per Borrower**	**Per $1,000**	**Per Borrower**	**Per $1,000**
Below $6,000	$3,850	$500	$3,601	$467	$3,290	$427
$6,000–$11,999	2,729	434	2,589	412	2,285	364
$12,000–$17,999	2,577	416	2,478	400	2,126	343
$18,000–$23,999	2,710	410	2,626	397	2,218	335
$24,000–$29,999	2,371	394	2,301	382	1,925	320
$30,000 and Above	2,791	420	2,711	408	2,294	345
All Incomes	$3,226	$462	$3,050	$437	$2,719	$389

students with incomes below $6,000. Even when these borrowers' default rates are cut by one-fourth, they still receive disproportionately larger subsidies. It is noteworthy that when these borrowers' default rates were cut from 30.1 percent to 22.6 percent, their subsidy amounts decreased by less than 7 percent; but when their SAP rates were cut in half, their subsidy amounts dropped by over 14 percent. This again illustrates the more substantial cost-reduction effect of cuts in SAP over cuts in default rates.

Conclusions

The analysis shows that the Pennsylvania students who borrowed $367.96 million should benefit from federal subsidies totaling $149.72 million, representing an average subsidy of $2,432 per borrower and $407 per $1,000 borrowed. For every $1 in subsidy costs the borrowers received $2.46 in loans. The amounts and types of subsidies received are as follows:

(1)	Administrative cost allowances	$ 3,680,000	2.4%;
(2)	In-school interest/SAPs	$50,294,000	33.6%;
(3)	Grace period interest/SAPs	$20,073,000	13.4%;
(4)	Repayment period SAP payments	$53,253,000	35.6%;
(5)	Default/SAP payments to default	$22,420,000	15.0%.

The subsidy amounts for the in-school/grace period and the out-of-school or repayment period are very similar, $74.047 million and $75.673 million, respectively. Total subsidy amounts are distributed among different borrower categories in fairly close correspondence to amounts they borrowed.

Because the costs of defaults and SAP payments to default represent only 15 percent of all subsidy amounts, cutting the borrowers' expected default rates by one-fourth results in only a 4.8 percent reduction in total federal subsidy costs, representing a per-borrower savings of $116 and a per-$1,000 borrowed savings of only $22. Cutting the out-of-school SAP rate from the original estimate of 2.98 percent to 1.49 percent results in an 18.4 percent reduction in total subsidy amounts for all borrowers, representing a per-borrower savings of $447 and a per-$1,000 borrowed savings of $75. Cutting the out-of-school SAP rates has little effect on the distribution of total subsidies among the various borrower categories. But cutting the default rate reduces the total subsidy amounts paid to proprietary school borrowers by 14.5 percent, while reducing other borrowers' subsidy amounts by only 3.5 percent. For all but the very lowest-income borrowers, a cut in SAP rates results in greater reductions in total subsidy amounts than does a cut in default rates.

It was expected that the more affluent borrowers, because they generally borrow more and stay in school longer, would receive disproportionate shares of the total subsidies. This was not the case. The lowest-income borrowers get a disproportionately larger share of the subsidies, because they borrow almost as much and stay in school for about as long as the more affluent borrowers do, while defaulting at almost four times the rate, 25.5 percent versus 6.4 percent.

The data suggest that program administrators and other federal and state policymakers have over-emphasized the effects of reducing defaults on cutting subsidy costs for the Stafford Loan Program. Reductions in SAP rates produce far greater effects. ◆

Reference

Davis, J. S. and Greene, L.L. (1990) *How Federal Subsidies to the Stafford Loan Program Are Distributed Among Pennsylvania Borrowers,* Harrisburg, PA: Pennsylvania Higher Education Assistance Agency.

Note

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