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ABSTRACT

The amount of earnings by dependent college students with unmet financial need was assessed in 1983-1984, along with the extent to which student earnings reduce or eliminate unmet need. Aggregated data on imbalances among costs, resources (including expected parent contributions and student earnings), and financial aid were examined for full-time undergraduates. The data, which were obtained from the Public Higher Education Student Aid Recipient Data Base, were weighted to reflect the number of aid recipients in public four-year institutions. The analysis included four income categories and distinguished between work-study earnings and earnings from other jobs. The findings show that the need-based financial aid system awarded relatively similar amounts of financial aid to students regardless of whether they augmented their resources through work. Students who did not work displayed substantial unmet need; those who worked had enough resources to finance their college expenses. Five recommendations are offered, including increasing the appropriation for work-study jobs, and incorporating actual or expected student earnings in the calculation of estimated financial need. (SW)

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Introduction

The role of jobs held by college students and the earnings derived from them in financing postsecondary education have surfaced again recently with publication of the September 1985 report by Frank Newman recommending an expansion of work opportunities and decreased reliance on loans to finance the costs of higher education (Newman, 1985). This follows on the heels of the 1983 proposal by the Reagan administration to require students to meet more of their costs of schooling through earnings from work and loans (Russell, 1983; Hook, 1983). While the Reagan proposals appear to have made little headway, not enough time has elapsed to determine how the Newman proposals will fare. Whatever the outcome of these particular proposals, a major paradox of the student financial need analysis system remains unresolved: although most students who receive financial aid still exhibit substantial unmet need after financial aid awards are made (Fenske, Hearn, & Curry, 1985; Stampen, 1985), the vast majority of them nonetheless manage to continue their college studies. How is this possible?

The answer may be that students with unmet need find some way of reducing their expenditures or augmenting their resources so that gaps between costs of attendance and resources and financial aid are somehow overcome. Several adaptations might produce this result. Students can economize on expenses and thereby reduce the amount of projected unmet need. For some this requires belt-tightening. Others can finance the shortfall between resources (including whatever financial aid they receive) and expenses by

augmenting their resources beyond those used in calculating the amount of their expected unmet need. For some students this means obtaining larger contributions from their parents, and for others it requires borrowing from family members or relatives. A frequent alternative is to take on jobs which enable students to fill the unmet need gap with their own earnings. Of course, some presumably smaller number of students must both economize on costs and simultaneously raise additional resources by working.[1]

The relative paucity of research on how students offset their unmet need or how students offset gaps between costs and resources motivates this analysis (Fenske, Hearn, & Curry, 1985). Our first objective is to learn how much is earned by students with unmet need. Our second objective is to show how far student earnings go in reducing, if not eliminating, unmet need. To accomplish these tasks, we draw on a unique body of data that reports students' earnings along with other information on their expenditures, resources, student aid, and unmet need. Our ultimate objective is to provide a fuller assessment of frequently made statements that the overall amounts of student financial aid are insufficient to meet the demand for student financial aid funds.

The Need Analysis Approach to Unmet Need and Work

Unmet need is commonly thought of in two ways, as a broad concept describing a social problem and as a specific definition of a given student's ability to finance college attendance after the awarding of aid. The broad concept is appropriate for those who want to know whether student aid programs effectively remove

financial barriers to college attendance. The specific definition is used by student aid officers when they estimate an individual student's cost of attendance, resources, and need for aid.

Beyond the assumption that parents and students bear major responsibility for financing attendance, both views confront numerous definitional problems. Among them are how much students and/or parents can afford to pay from their own resources, whether available resources can meet legitimate need, and whether aid is available when awards need to be made. These and other complications result from frequent adjustments in appropriations levels, delays in authorization to disseminate aid, the inability of many students to meet application deadlines, changes in family income status and costs that affect students, and decisions about the mixes of grants, loans, and work-study to be awarded. Whatever view one takes, broad or narrow, what remains between student costs and resources plus financial aid can be described as unmet need. It is a hazy term at best, but nevertheless a useful one.

In this study we are curious about the broad definition of unmet need and accordingly explore aggregated data for imbalances among costs, resources, and financial aid. This approach may trouble those accustomed to associating unmet need with individual students, but the scope of our inquiry requires a broader view.

When we look at aggregated data, unmet need appears to be a nearly universal condition among aid recipients. In one sense this reflects the inadequacy of total financial aid resources to fill the aggregate amount of expected financial need. We have no firm

national estimates of the additional amounts of financial aid that would be needed to eliminate completely all unmet need. Were such estimates available, they would understate the total amount of additional financial aid funds required because of the omission of young people who are eligible for and would like to attend college but cannot or will not do so because of limited economic resources.

In another sense unmet financial need is a reality that the financial aid community has long recognized. Because students are the principal beneficiaries of postsecondary education, they are expected to contribute to the costs of their education, taking account of their particular circumstances and resources (College Scholarship Service, 1984-85). Their own contributions and those of their parents are already built into the calculation of estimated financial need which is then reduced by the award of aid. But unmet need may in some cases still remains and it is implicit in the Uniform Methodology that students are expected to come up with the resources to meet the unmet need figure (College Scholarship Service, 1984-85, pp 59-60). How they are to raise these resources is not clear. It is obvious that greater parental contributions and increased earnings through part-time jobs can help to fill the gap.[2]

Curiously, in the Uniform Methodology, earnings from work are treated differently for dependent and independent students. For dependent students their contributions from earnings are based either on what they might reasonably expect to earn or on a minimum earnings expectation imputed by the institution; in recent years this has been estimated at $700 for freshmen and $900 for upper

classmen. However, institutions can substitute their own estimates to reflect local conditions, provided the estimates based on local surveys or other verifiable data. For independent or self-supporting students the minimum contribution from expected earnings is $100 per month; for a spouse who is a student the same figure applies, but for a nonstudent spouse the figure is $350 per month. As in the case of dependent students, institutions can substitute their own verifiable earnings expectations figures to reflect local conditions. If independent students expect to earn more than these amounts, their earnings are assessed for purposes of meeting college costs at less than 100 percent in order, if warranted on a case to case basis, to maintain the incentives for self-support.[3]

Dependent Students. Several observations emerge from an examination of the need analysis system for dependent students. First, the concept of a minimum earnings expectation clearly applies pressure on students to contribute to their educational costs by working. Second, the recognition that most financial aid recipients still demonstrate unmet need puts additional pressure on them to contribute to their educational costs through working. Third, because of specifications in standard needs analysis systems, there is no effective way of monitoring student earnings to indicate the reasonableness of either the assumed minimum earnings contribution or what is in effect a "required" earnings contribution to meet unmet need. The same is presumably true when institutions substitute their own minimum figures for those from the Uniform Methodology.

A problem with the system is that the monitoring of student incomes is selective. This is apparent from an examination of the Uniform Methodology student financial aid forms. Inquiries of dependent students are limited to estimated earnings during the next academic year; thus, students are asked about the size of their expected earnings for the coming summer (which precedes the academic year for which aid is sought) and for the coming academic year (for which aid is sought). These questions are in sharp contrast to the information required of parents which is always for the base year, i.e., the prior calendar year. For dependent students, actual earnings during the summer and following school year may differ substantially from the estimates made by students when they applied for aid the previous spring. Whatever the case, actual earnings figures may bear little resemblance to the minimum earnings contribution used to determine estimated financial need.

The difficulties of using actual earnings are obvious. Because actual earnings cannot be known until after the fact, they are not useful in helping financial aid officers make financial aid awards that must be announced early enough so that students can plan to attend school the following year. The situation is further complicated because information received by students about the amount of aid awarded them for the next academic year may help determine whether and how much they must work during the summer and the following academic year.

It is interesting to think about what would happen if students, like their parents, were required to report not only their expected earnings (which are in fact assumed to be equivalent to the minimum

earnings expectation) but also their prior year earnings, as shown on their own federal income tax forms. To the extent we can view such earnings as rough proxies for what students might expect to earn in the current academic year, these earnings figures would, as the following analysis shows, offer a quite different picture of the role of student jobs in financing college attendance. It is well known that substantial proportions of college-age students hold part-time jobs while attending school. While it is likely that some students will show no prior year earnings, many others will show positive amounts of earnings which in many cases will meet or exceed the minimum earnings expectation figure and some or all of the unmet need recorded for them.

The use of prior year earnings as a proxy for prospective earnings is fraught with difficulty. For new college entrants, their earnings while in high school may bear no resemblance to their earnings in college. Moreover earnings in the first or second year of college may be poor indicators of earnings levels anticipated in the final two years of college. And yet this information may be better than the minimum earnings expectation that is routinely applied. There are additional complications. For one, student costs (reflected by student budgets) represent an average that may not fit the circumstances of any particular individual. The estimates of resources, while much more finely attuned to the circumstances of individual students and their families, may still not fit perfectly the special circumstances of individual students. Finally, the amount of financial aid awarded reflects in part the judgment of campus student financial aid officers and a number of

considerations including the time a student applies for aid, which in many cases affects the availability of funds.

Independent Students. Independent students differ from dependent students in two important respects that pertain to the subject of this study. The first has already been described, namely, that independent students are classified by their own income level whereas dependent students are, for the most part, classified according to their parents income level. This distinction prevents us from making direct comparisons between the two classifications of students. It should be noted, however, that work earnings have very similar effects on various types of dependent and independent aid recipients. The more important distinction, however, is that higher percentages of independent students work. Also when we add dependent and independent students together, we find that a majority (55 percent) of them work. Thus, our description of the role of work in the financing of college attendance represents the rule rather than the exception.

Jobs and Their Effects

The extent and high level of employment among college students has been remarked about from time to time (Dixon, 1985; Jackson, 1980), with most of the evidence indicating that perhaps as many as 50 percent of all college students hold jobs while enrolled in school (Adams, 1975; Dent et al., 1972). Data from the Current Population Survey indicate that the proportions of the population age 18-19 and 20-24 enrolled in school rose from approximately 42 and 52 percent in 1972 to approximately 46 and 56 percent, respec-

tively, in 1983; these increases mark a continuation of the sharp upward trend evident since the mid 1960s (Bureau of Labor Statistics, 1985). How much the earnings from these jobs contribute to meeting the costs of college for these students is less clear but fragmentary evidence suggests the effect is quite sizeable.

An examination of recent survey data for undergraduates in four states shows that about half of all students are employed during the school year and that three-fourths are employed during the summer (Stampen & Fenske, 1984). The data indicate that students from lower income families are more likely to work than those from higher income families. The earnings gained from work are not insubstantial; about 50 percent of the costs of college attendance come from summer and school-year jobs. The contribution of the federal work-study program, by contrast, is quite small. Only 4 percent of all aid awarded included work-study (Gillespie & Carlson, 1984). Relative to appropriations for grants and loans (87 percent) appropriations for work-study are small (37 percent). Surprisingly 32 percent of those who work reported having participated in work-study programs. However, among those who did participate, total earnings are relatively small as a percent of total costs of attendance, averaging 11 percent for dependents and 7 percent for independents (Stampen, 1985).

The reaction from the public and parents to job-holding by college students is generally quite favorable. Many people see evidence of working one's way through college as representing a solid American tradition and reflective of the age-old struggle for upward mobility (Newman, 1985; Keene, 1975). But the explanation

for the pervasiveness of student job-holding may be considerably simpler--many students must hold jobs to support themselves because their parents cannot or do not provide adequate financial assistance. Indeed, parents frequently fail to provide the expected parental contribution that is assumed on the basis of the financial need analysis (Dovan, 1985; Ratnovsky, 1979).

Others, by contrast, worry about the time students spend working when they could be studying, taking advantage of additional learning opportunities, participating in non-academic campus activities, or enjoying the extra time for reflection that is so essential to learning (Henry, 1967; Astin, 1975a, 1975b). The actual evidence on the interaction between employment while in college and concurrent performance is scant, largely because of difficulties in untangling the host of other variables that affect this interaction, including prior academic performance, receipt of financial aid, and the like. Regardless of these interaction, it is clear that job-holding by students is an important dimension of their college experience and often a necessary one as well.

Analytical Approach

We want to show for a sample of dependent students in public institutions the amount of unmet financial need for those who report themselves as working and then to indicate how this unmet need diminishes as we substitute their actual earnings for the minimum earnings expectation figure used to estimate their original level of unmet need. We draw on the Public Higher Education Student Aid Recipient Data Base for 1983-84; it provides detailed financial

aid information for a random sample of student aid recipients within a set of randomly sampled institutions. Participation rates for institutions in the survey exceeded 80 percent. The data used here are weighted to reflect the actual number of aid recipients in public higher education but they do exclude recipients at two-year institutions. The information on aid requirements was assembled by the student financial aid officers, drawing on active student aid recipient records. (For technical description see Stampen, 1985, pp. 69-73).

These data permit us to show for 1983-84 dependent students, grouped according to several income classifications, their estimated total costs, total resources which include expected parental contributions as well as the minimum earnings expectations for students, estimated financial need, student aid awards, and unmet need. We can also show for those students who work their adjusted gross income for the 1982 calendar year which we used as a proxy for expected 1983-84 earnings from student employment.

One important complication arises and that concerns the treatment of work-study employment. Students who work on jobs provided through college work-study programs do indeed work but the funds they receive are classified as financial aid. If work-study students go out and find others jobs in the local community, their additional earnings are not monitored by financial aid officers even though the work effort required might be the same for the two different jobs. All of this is easily understandable. The difficulty arises because the estimates of unmet need take into account work-study earnings but ignore earnings from other jobs. For this

reason we also distinguish between students who do and do not participate in work-study programs.

Results

We now describe the results, drawing on cross tabulations of of the kind shown in Table 1. These cross tabulations permit an examination of how student earnings from work affect their unmet need by level of family income. To facilitate the reading of the various tables presented here, we begin by working through the top panel for all dependent students. This exercise also demonstrates the difficulties that arise when data for distinctly different categories of students are grouped together.

Need-Based Financial Aid Recipients. For all need-based aid recipients combined, shown in the top panel, we observe that average estimated costs are relatively uniform across family income levels except for students in the highest income class (column 1). Expected resources rise with family income except for the lowest family income group (column 2). Similarly, estimated financial need is fairly constant except for the lowest family income group where it is somewhat higher (column 3). This leads to slightly higher financial aid awards to students from the lower income groups (column 4). Column 5 shows average unmet need facing students after the award of financial aid. Interestingly, average unmet need is only marginally less for higher as compared to lower income students.

The effect of work activity begins to show up in column 6, which reports average student earnings in column 6A. Column 6B

Table 1

Impact of Work Earnings on Unmet Need for Full Time Undergraduates in Public Four-Year Institutions Who Receive Need-Based Aid: Dependent Students Only, 1983-1984

Family Income	Estimated Costs (1)	Expected Family Contribution (2)	Estimated Financial Need (3)	Financial Aid Award (4)	Unmet Need (5)	Earnings* (6A)	(6B)	Adjusted Financial Need** Using B (7)
Panel 1								
All Students								
≤10,180	4400	800	3600	2900	700	900	300	400
10,181-16,564	4500	800	3700	2900	800	1200	600	100
16,565-27,465	4600	1200	3400	2800	600	1100	500	0
27,466-41,143	4800	1900	2900	2600	300	1300	600	-300
>41,143	6200	3200	3000	2600	400	1300	500	-100
Panel 2								
Nonworking Students								
≤10,180	4300	300	3500	2900	600	-	-600	1300
10,181-16,564	4400	800	3600	2900	700	-	-500	1200
16,565-27,465	4500	1200	3300	2800	500	-	-600	1100
27,466-41,143	4800	1900	2900	2600	300	-	-600	900
>41,143	5900	3400	2500	2400	100	-	-700	900
Panel 3								
Working Students								
≤10,180	4600	800	3800	3100	700	2300	1600	-900
10,181-16,564	4500	900	3600	3000	600	2700	2000	-1400
16,565-27,465	4700	1300	3400	3000	400	2300	1600	-1100
27,466-41,143	4800	2000	2800	3000	200	2300	1600	-1400
>41,143	6500	3200	3300	3000	300	2100	1300	-700

NOTE: Numbers have been rounded to the nearest $100. Column 6A is adjusted gross income. Column 6B is the same minus student contribution. Column 2 contains the sum of student and parental contribution as computed using Uniform Methodology.

* Negative values indicate the extent to which students were unable to meet the expected earnings contribution which averages about $700 but, in fact, varies institution by institution.

** Negative values indicate that unmet need is more than offset, that students have a financial cushion over and above estimated costs in Column 1.

shows average earnings after subtracting the student earnings contribution which is expected by the system but may or may not have been generated: depending on whether the student worked. The final column (column 7) shows what we call adjusted unmet need which is work earnings from column 6B minus unmet need in column 5. Positive values indicate that earnings from work are not sufficient to offset unmet need. By contrast, negative values indicate that earnings from work are more than sufficient to offset unmet need; unmet need is overmet. Our approach assumes, of course, that 100 percent of earnings are available for meeting the costs of schooling. What is most interesting about column 7 is that on average adjusted unmet need is not all that large for students from the lower and middle family income strata whereas students in the higher income groups actually emerge with a small financial cushion.

These overall data could be viewed as suggesting that unmet need is not something to be greatly concerned about for those enrolled, because on average students earn enough through their employment to generally offset their not so large unmet need. Of course, we find this result only because these students obtain so much financial aid in the form of grants, loans, and work-study employment, without such aid their unmet need would be considerably higher. If this is true, the situation faced by dependent students who now qualify for need-based grants, as reflected in the Pell Grant system for determining eligibility for aid, is not so bleak.

Once we disaggregate the data, however, the picture is more complex. In Panels 2 and 3 of Table 1 we show similar data for students who do not work and for students who do work. The data for

nonworking and working students are not dramatically different across columns 1-5. The big difference comes in column 6A of Panel 2 where nonworking students show no earnings as contrasted to working students (Panel 3) who report average earnings of roughly $2,300 per year across all income classes. For nonworking students column 6B shows negative values which reflect the extent to which they failed to earn their expected contribution which is already included in expected family resources in column 2. The lack of earnings means that these students have a sizeable amount of adjusted unmet need, ranging from about $900 to $1,300 across the various income classes (column 7). What accounts for whether students work is something we cannot illuminate with out data.

For working students we observe, by contrast, earnings (column 6B) that are in excess of the amounts required for the expected contribution in column 2. The net result is that working students earn between $700 and $1,400 in excess of their unmet need, reflecting what we call adjusted unmet need in column 7.

This disaggregation indicates that earnings from work contribute importantly to the ability of students to offset the unmet need that remains after receipt of their financial aid packages. For both working and nonworking students unmet need (column 5) represents the equivalent of about 15 percent of their estimated costs (column 1). But for those who work, earnings are equivalent to about half their total costs. Thus, earnings from work are a substantial factor in helping students pay for the costs of their postsecondary education.

Were the financial need analysis system designed differently, such that student earnings were counted as a part of estimated resources (column 2), the average amount of estimated financial need (column 3) for working students would be substantially less. As a consequence, they would be awarded smaller financial aid packages. Thus, it is conceivable that working and nonworking students would end up with similar levels of adjusted unmet need but at a considerable reduction in the cost of financial aid programs to taxpayers.

One further comment may be helpful in understanding these differences. Of the approximately 742 thousand dependent need-based financial aid recipients attending public four-year colleges and universities, just under half (47 percent) do not work (Appendix Table A). To our surprise the percentages of students from the lower income groups who do not work exceed those from families with higher incomes. It may be suggested that students who do work may have more time to work because of advantages associated with being from higher income families. This means that they may be better prepared culturally and academically to pursue their studies and still have time to work, or it may mean that they are more likely to have previous working experience which enhances their employment opportunities. Similarly, lower income students may be less well attuned and therefore have greater difficulty with their studies and less time to work. Unfortunately, we have no way of ascertaining the strength of these and other possible explanations.

Effect of Work-Study Participation. We must take our analysis one step further because student financial aid includes earnings

from work which result from work-study programs. While the bulk of the payment for work-study students comes from the federal government, students receiving this form of financial aid do work to earn their wages just as do other students who hold down part-time jobs. To determine the impact of work-study funds, we must disaggregate total financial aid into that which represents work-study funds versus all other types of financial aid.

Consider first nonworking dependent students who are need-based aid recipients, shown in the top two panels of Table 2. Those who have work-study financial aid exhibit somewhat greater estimated financial need in the lowest three income groups while the opposite holds for the two higher income groups. The amount of aid going to work-study students is clearly greater, thereby reducing average unmet need, and leaving a level of adjusted unmet need somewhat smaller than for all norworking aid recipients in Table 1, column 7. Those without work-study aid display considerably more adjusted unmet need, as might be expected.

Next we focus on working students in the bottom two panels. Those with work-study aid have adjusted unmet need (column 7) that exceeds average work-study aid (the difference between total financial aid in column 4 for those with and without work-study aid) and ranges between $1,200 and $1,600. Thus, aid recipients without work-study aid are less well off, with their adjusted unmet need at a somewhat lower level than that for all working students (Table 1, column 7).

To sum up, the difference in the financial situation for those who work and do not work is substantial, in the range of $2,500

Table 2
Impact of Work Earnings on Unmet Need by Work-Study Participation for
Full Time Undergraduates in Public Four-Year Institutions
Who Receive Need-Based Aid, Dependents Only, 1983-1984

Family Income	Estimated Costs (1)	Expected Family Contribution (2)	Estimated Financial Need (3)	Financial Aid Award (4)	Unmet Need (5)	Earnings* (6A)	(6B)	Adjusted Financial Need** Using B(7)
Panel 1								
Nonworking Students With Work-Study Aid								
≤10,180	4600	700	3900	3500	400	-	-500	900
10,181-16,564	4600	700	3900	3700	200	-	-400	600
16,565-27,465	4600	1100	3500	3400	100	-	-500	600
27,466-41,143	4800	1900	2900	3100	-200	-	-700	500
>41,143	5900	3500	2400	2500	-100	-	-700	600
Panel 2								
Nonworking Students Without Work-Study Aid								
≤10,180	4200	900	3300	2500	800	-	-600	1400
10,181-16,564	4300	800	3500	2500	1000	-	-600	1600
16,565-27,465	4400	1200	3200	2300	900	-	-600	1500
27,466-41,143	4800	1800	3000	2300	700	-	-600	1300
>41,143	5800	3200	2600	2400	200	-	-800	1000
Panel 3								
Working Students With Work-Study Aid								
≤10,180	4700	700	4000	3600	400	2166	1500	-1200
10,181-16,564	4700	1000	3700	3600	100	2038	1400	-1200
16,565-27,465	4800	1300	3500	3500	0	2128	1500	-1500
27,466-41,143	4900	2100	2800	3000	-200	2144	1400	-1600
>41,143	5800	2900	2900	3400	-500	1770	1200	-1600
Panel 4								
Working Students Without Work-Study Aid								
≤10,180	4500	800	3700	2700	1000	2333	1700	-700
10,181-16,564	4500	900	3600	2700	900	2997	2300	-1400
16,565-27,465	4600	1300	3300	2400	900	2381	1800	-800
27,466-41,143	4700	1900	2800	2200	600	2378	1800	-1200
>41,143	6900	3400	3500	2200	1300	2279	1500	-200

NOTE: Numbers have been rounded to the nearest $100. Column 6A is adjusted gross income. Column 6B is the same minus student contribution. Column 2 contains the sum of student and parental contribution as computed using Uniform Methodology.

* Negative values indicate the extent to which students were unable to meet the expected earnings contribution which averages about $700 but, in fact, varies institution by institution.

** Negative values indicate that unmet need is more than offset, that students have a financial cushion over and above estimated costs in Column 1.

(Table 1). The effect of work-study aid is less dramatic simply because the amount that can be earned under work-study programs falls short of the amount that is earned in other types of jobs. It is important to note, however, that the effects of work-study aid are muted by the fact that substantial numbers of working and nonworking students who are need-based aid recipients do not receive work-study funds. This is the case for 60 percent of working aid recipients and 40 percent of nonworking aid recipients. Why these differences in participation occur, aside from the limited availability of work-study funds, is not known. It is, however, reasonable to believe that students who already have or know of good work opportunities are less likely to opt for lower-paying work-study positions.

Distributional Effects

The use of averages throughout the analysis conceals variations in the extent to which the unmet need of individual students is reduced and in some cases eliminated by earnings that more than offset unmet need. This led us to examine how the distribution of unmet need shifts as we move from the traditional concept of unmet need to our concept of adjusted unmet need. The extent of these shifts is revealed in Table 3 for need-based aid recipients; we take into account only earnings from work, ignoring work-study earnings and their effects.

The top panel of Table 3 shows the distribution on unmet need for non-working need-based financial aid recipients whereas the second panel shows the distribution for those who do work. These

Table 3

Percentage Distribution by Amount of Unmet Need for Full-Time Undergraduates in Public Four-Year Institutions Who Receive Need-Based Aid: Dependent Students Only, 1983-84

Income	Unmet Need				"Overmet" Need			Percentage with Positive Unmet Need
	2000+	1000-1999	1-999	Zero	-1--999	-1000--1999	-2000+	
	(1)	(2)	(3)					(Cols. 1-3)
Panel 1								
Nonworking Recipients								
≤10,180	15.1	21.4	37.7	3.2	14.1	5.0	3.6	74.2
10,181-16,564	16.6	23.7	28.1	1.7	21.2	5.8	2.8	68.4
16,565-27,465	14.1	22.0	32.0	2.0	17.0	8.9	4.0	68.1
27,466-41,143	12.7	20.2	35.5	1.7	14.9	6.7	8.2	68.4
>41,143	9.9	16.3	41.1	7.2	3.9	9.5	12.1	67.3
Panel 2								
Working Recipients Unadjusted Unmet Need								
≤10,180	15.6	24.6	30.9	1.8	18.5	6.9	1.7	71.1
10,181-16,564	14.5	19.9	32.3	2.8	21.4	6.7	2.4	66.7
16,565-27,465	14.8	19.0	32.7	1.3	18.8	8.3	5.2	66.5
27,466-41,143	11.8	14.9	34.0	3.8	20.8	6.9	7.7	60.7
>41,143	20.5	18.4	21.9	5.0	17.5	3.8	13.0	60.8
Panel 3								
Working Recipients Adjusted Unmet Need								
≤10,180	5.9	11.8	18.8	0	22.5	13.3	27.6	36.5
10,181-16,564	3.8	9.5	16.7	0	22.2	14.1	33.6	30.0
16,565-27,465	7.1	8.3	16.7	0	19.7	17.7	30.3	32.1
27,466-41,143	3.8	5.4	16.3	0	25.1	17.5	31.9	25.5
>41,143	11.6	16.0	10.4	0	18.4	21.6	22.1	38.0

two distributions demonstrate that unmet need levels are quite similar, as indicated by the respective columns of percentage figures. The real story emerges from a comparison of the second and third panels which reveal how the distribution of unmet need changes as we move from the concept of unmet need to adjusted unmet need. We can think of this change as shifting the distribution of unmet need to the right, thereby reducing the average amount of unmet need for dependent students. As a result of this shift, approximately one-third of dependent students with unmet need move to a position of having no unmet need. This leaves about 30 percent of working students with adjusted unmet need in contrast to over 60 percent using the conventional definition. Perhaps even more important, the percentage of recipients with $2,000 or more unmet need drops by almost two-thirds (from about 15 to 5 percent on average) and those with $1,000 or more unmet need drops by more than 50 percent (from about 35 percent to 15 percent). Of course, need-based aid recipients who do not work remain unaffected.

Effects on Gender and Minorities

What is the impact of this approach on different types of students? We can answer this question by examining the data in Tables 4 which shows the financial situation for need-based aid recipients using both definitions of unmet need.

We find in Table 4 for dependent need-based aid recipients that the shift from the concept of unmet need to adjusted unmet need for the most part reaches unmet need for males and females, has a strong effect for nonminorities, but has little effect for

Table 4

Unmet Need and Adjusted Unmet Need for Full-Time Undergraduates in Public Four-Year Institutions Who Receive Need-Based Aid, by Gender, Minority Status, and Family Income: Dependent Students Only, 1983-84

	Gender		Minority Status	
Income	Male	Female	Minority	Non-Minority
Panel 1				
Working Recipients Unmet Need				
<10,180	581	770	781	668
10,181-16,564	559	741	975	555
16,565-27,465	635	460	401	527
27,466-41,143	159	398	601	160
>41,143	464	509	1371	239
Panel 2				
Working Recipients Adjusted Unmet Need				
<10,180	137	562	658	239
10,181-16,564	-308	426	768	-176
16,565-27,465	83	-6	278	-154
27,466-41,143	-637	-138	201	-630
>41,143	113	-155	1062	-310

minority students. The reasons why minorities do less well under the adjusted unmet need definition is attributable, we suspect, to their lower average earnings which reflect in part a lower rate of employment combined with a lower average wage rate (Stampen & Fenske, 1984) and more limited summer work opportunities. It also seems quite likely that the lower employment rate may be indicative of the greater need for many minority students to devote more time to their studies because of having attended lower quality elementary and secondary schools. Obviously, there is need for further exploration of the reasons for these differences.

Implications for Estimates of Unmet Need

The inclusion of work earnings not only affects average levels of unmet need but also affects the aggregate amount of unmet need. Thus, this approach yields somewhat different estimates of the additional dollars required to fill the unmet need gap for students in public four-year colleges and universities. Undoubtedly, the same picture would emerge for private institutions.

Our results, derived from the information in Table 1 and similar tables, are aggregated and summarized for dependent students in Table 5. Line 1 reports total financial aid awarded, while lines 2a and 2b show total unmet need before and after adjustment for earnings from work. Aggregate unmet need in line 2a is positive and would require a 19 percent increase (column 3a) in total financial aid awards to completely eliminate all unmet need. Adjusted unmet need is zero and hence no increase is needed.

Table 5

Percentage Increased in Aggregate Student Financial Aid Funds Needed to Completely Eliminate Unmet Financial Need and Adjusted Unmet Need (in millions of dollars

Category	Need-Based	Other Need-Based	Total
1. Total Financial Aid Awarded	2,058	460	2,518
2a. Total Unmet Need	385	213	598
2b. Total Adjusted Unmet Need	0	-112	-
Percentage Change Needed to Eliminate			
3a. Unmet Need	+19	+46	+24
3b. Adjusted Unmet Need	0	-	-
Gross Values			
4a. Total Unmet Need	1,037	279	1,316
4b. Total Adjusted Unmet Need	873	238	1,111
Percentage Increase Needed to Eliminate			
5a. Unmet Need	+50	+61	+52
5b. Adjusted Unmet Need	+42	+52	+44

Source: Calculated as described in text.

These results are misleading because they ignore the distributions of unmet need and of adjusted unmet need. The results in lines 2a and 2b assume that, as earnings are incorporated into the analysis, the overmet need of some students offsets the unmet need of others. Because there is no mechanism for transferring dollars from students with overmet need to other students with undermet need, the percentage increases in lines 3a and 3b are quite misleading.

To remedy this, we must recalculate the required increase in financial aid resources needed to bring everyone with unmet need up to a zero level of unmet need. Hence, we must aggregate the unmet need of those who have need and use this as a denominator for our calculation. The results are shown in lines 4a and 4b for dependent students. Immediately noticeable are the much higher levels of unmet need on both an adjusted and unadjusted basis (compare with lines 2a and 2b above). The resulting percentage increases are substantially greater, rising to 50 percent for need-based dependent students using the unmet need concept and to 42 percent using the adjusted unmet need concept.

These results are intriguing in revealing the substantial shortfall in financial aid funds to offset the unmet need that exists for three-quarters of all undergraduate students in public four-year institutions. Inclusion of student earnings in calculating unmet need reduces the number of students with unmet need by about 20 percent, reflecting the fact that many students do not work and their earnings are not that substantial.

Summary and Conclusions

The results from this paper show that the financial aid system awards relatively similar amounts of financial aid to students irrespective of whether they augment their resources through work for need-based financial aid recipients who are dependent students. Thus, students who do not work continue to display substantial unmet need, while those who do work emerge with more than enough resources to finance their college expenses. The situation is made even worse for nonworking dependent students who do not receive work-study funds. And those working students who also have work-study jobs emerge with an even larger financial cushion.

The results can be viewed in several different ways. One would hold that most dependent aided students will exhibit unmet financial need after the award of financial aid and thus all students must choose whether they want to work to reduce, offset, or more than offset their unmet need. Thus, we observe the impact of student choice in that they decide to allocate their time and effort. The policy implications are less obvious. Perhaps more students should be encouraged to seek jobs. And more work-study positions might be made available to offset the "rationing" that occurs in deciding who gets work-study aid.

Another view is that it is not simply a matter of choosing whether or not to work. Many students might want to work but the available jobs are too few to meet the need, with the result that employers hire the numbers of students they can and then turn away the others. Thus, some students will end up with substantial unmet need for reasons that have little to do with their financial

situation or their ability to meet college costs. Again, the availability of additional work-study jobs would help the situation.

Still another view is that regardless of whether you subscribe to the first or the second position laid out above, the ability of students from lower income families to find ways to offset their unmet need is probably considerably lower than for students from higher income families. This suggests an inequity in the distribution of financial aid which, if targeted toward students with the least ability to work, would ease the somewhat greater financial pressures they experience.

These three views represent alternative ways of dealing with the inequities that result from the interplay of financial aid awards, unmet need, and work activity. But, we can take a somewhat broader view as we think more systematically about the implications of these results. Here are several proposals that seem to follow from our analyses.

1. Include actual or expected student earnings in the calculation of estimated financial need. Whether 100 percent of earnings or some lesser amount should be included would have to be studied. Student earnings are so prevalent and often so substantial that they should be considered a part of expected student contributions, beyond the minimum levels now included.

2. Increase the appropriation for work-study jobs so that students who want to (and may need to) work can do so to augment their financial resources. This would reduce the inequities between students who work and those who don't work.

3. Shift the allocation of financial aid away from grants and loans toward work-study jobs so that the much discussed benefits of work-study aid can manifest themselves (Astin, 1975a).

4. Consider work-study awards along with Pell grants to be the "floor" of support provided the most needy students. Decrease as far as possible reliance on loans. The overall aim should be to place low income students on an equal footing with aid recipients who work outside the system and also with higher income nonaided students.

5. Target guidelines for awarding need-based aid so as to "tax" parental and student income at a more progressive rate while at the same time maintaining the same aggregate amount of financial aid. This would reduce unmet need for students from lower income families.

Notes

1. We recognize that it is often possible for students to take out additional loans to meet unmet need. This, however, is a matter of choice for them and involves subsequent repayment. Some students opt instead to work to meet these unmet needs.

2. Our discussion here highlights contributions from student earnings; we recognize that numerous other considerations enter into the determination of total resources and hence financial need.

3. Although minimum expected contribution figures are generally inputed for dependents by the institution awarding student aid, it is important to note that the variance across all recipients in the actual size of the expected contribution is large. Expected contributions varies least among need-based dependent students, ranging from $600-$700 for both working and nonworking aid recipients. Need-based independent students, however, are expected to contribute much more, from $1800 to $5500 for both working and nonworking recipients.

Need-based aid recipients who are dependents are able to contribute from $200 to $4700 for working students who have work-study funds but only $200 to $300 for working and nonworking students in general. If adjusted gross income does not rise at the same rate as expected contributions for individual aid recipients, the average student will show a negative earnings figure, as in the case of the non-working student. These figures represent the ranges of student expected contributions from the SARDB, 1983-84.

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