THE MIDDLE INCOME SQUEEZE

By Steve Glover

Middle income families have begun to complain that they can no longer afford to send their children to private colleges and universities. They attribute this to inadequate financial aid policies, which effectively limit expensive educations to two groups of students: those from upper income families who can readily afford the rising costs, and those from lower income families who qualify for need-based grants and scholarships. This paper will attempt to determine whether complaints about a middle income squeeze are justified.

Explaining the Middle Income Squeeze

In determining a given family's eligibility for financial aid, many colleges rely on the College Scholarship Service (CSS) need analysis system. But when it calculates the expected parental contribution, the CSS provides directly for a family's consumption costs by deducting the minimum standard allowance (MSA) from annual income. This allowance represents the cost of basic necessities for all family members. In addition to the MSA, families can employ for consumption purposes that portion of adjusted available income which they are not required to contribute towards the cost of their child's education. Assuming the MSA is sufficiently large, if CSS need analysis rules are applied, no family with a child in college will be left unable to afford basic necessities.

But if all families are able to maintain an acceptable standard of living under CSS rules, how can it be argued that financial aid policy has created a middle income squeeze? Why do families in certain income brackets complain that college costs represent a greater hardship to them than to their poorer or wealthier contemporaries?

Possibly, the increasing number of complaints can be attributed to the taxation structure developed by the CSS. It seems reasonable to assume that families at a given income level will find a tax burdensome only to the extent that they must reduce their own standard of living to meet it. They will not be concerned with their position relative to individuals at other income levels. This implies that if the taxation schedule is not designed so that reductions in the standard of living are equi-proportionate across income levels, it is quite possible that some families will find college costs more onerous than others. For example, consider a tax scheme which necessitates a 10 percent cut in the consumption expenditures of a low income family spending $10,000 a year, and a 20 percent cut in the expenditures of a middle income family spending $20,000 a year. The second family continues to enjoy a better standard of living than the first. But relative to its original position, the second family is hurt more than the first. Thus, it may react more strongly against imposition of the tax.

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It should be mentioned here that the CSS has never explicitly stated that the goal of its taxation schedule is to ensure equal percentage reductions in the standard of living across income levels. Furthermore, this discussion is not meant to imply that such a scheme is equitable. Rather, it is merely intended to point out that if reductions are not equi-proportionate, some families will feel more "squeezed" than others, regardless of whether that feeling is justified in a larger, society-wide sense. And because some educational administrators have repeatedly expressed concern about the possibility that certain students are being discouraged from attending private institutions, it would be helpful to determine whether financial need analysis might contribute to this phenomenon. Thus, the remainder of this paper will, first, discuss in general terms the conditions which must be met if the goal of the tax system is to insure equal percentage reductions in the family's standard of living across income levels. Then, it will attempt to determine whether or not CSS rates satisfy these conditions.

The Role of the Tax Scheme: A Theoretical Discussion

We begin with the assumption that, in general, as a family's disposable income (gross income minus federal, state and local taxes) rises, the percentage of disposable income employed for consumption purposes falls. Since the CSS relies extensively on this hypothesis, it provides a useful starting point. The relationship might be written as:

$$(1) \quad C = C(Y_d) + C_a \quad \text{such that} \quad \frac{dC}{dY_d} > 0 \quad \text{and} \quad \frac{d^2C}{dY_d^2} > 0$$

where C denotes consumption expenditures, Ca is a constant, and Yd equals disposable income. Or graphically, it can be depicted as in Figure 1. Note that both equation 1 and Figure 1 imply that the functional relationship between C and Yd is smooth. This assumption is convenient for analytical purposes, and should not affect our conclusions.

It is possible to justify a progressive income tax on the basis of the above hypothesis. Presumably, since the percentage of disposable income set aside for basic consumption expenditures falls as disposable income rises, relatively more income is available for other purposes as disposable income rises. But if we wish to ensure equi-proportionate reductions in the standard of living across income levels, then the progressive taxation rate schedule must be designed so that the ratio of after-tax income available for consumption expenditures to before-tax consumption expenditures is constant over all income levels (assuming the level of basic consumption expenditures is an accurate index for a family's standard of living). That is, it must be true that: (See Fig. 1 and Fig. 2)

$$(2) \quad \frac{(1-t)Y_d}{C} = k \quad \text{for all } Y_d$$

where t is the rate of taxation and is a function of Yd, and k is a constant.

FIGURE 1

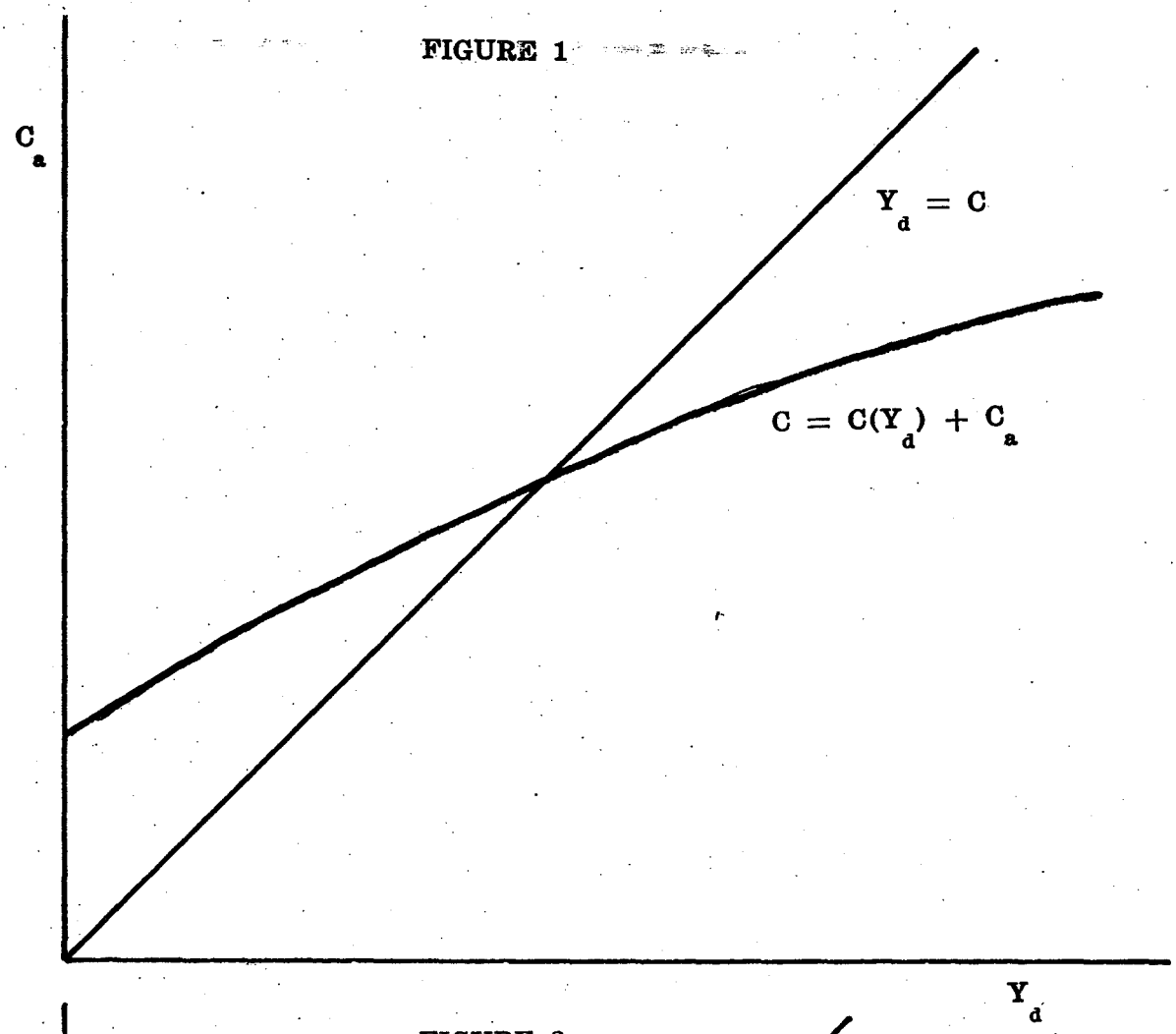
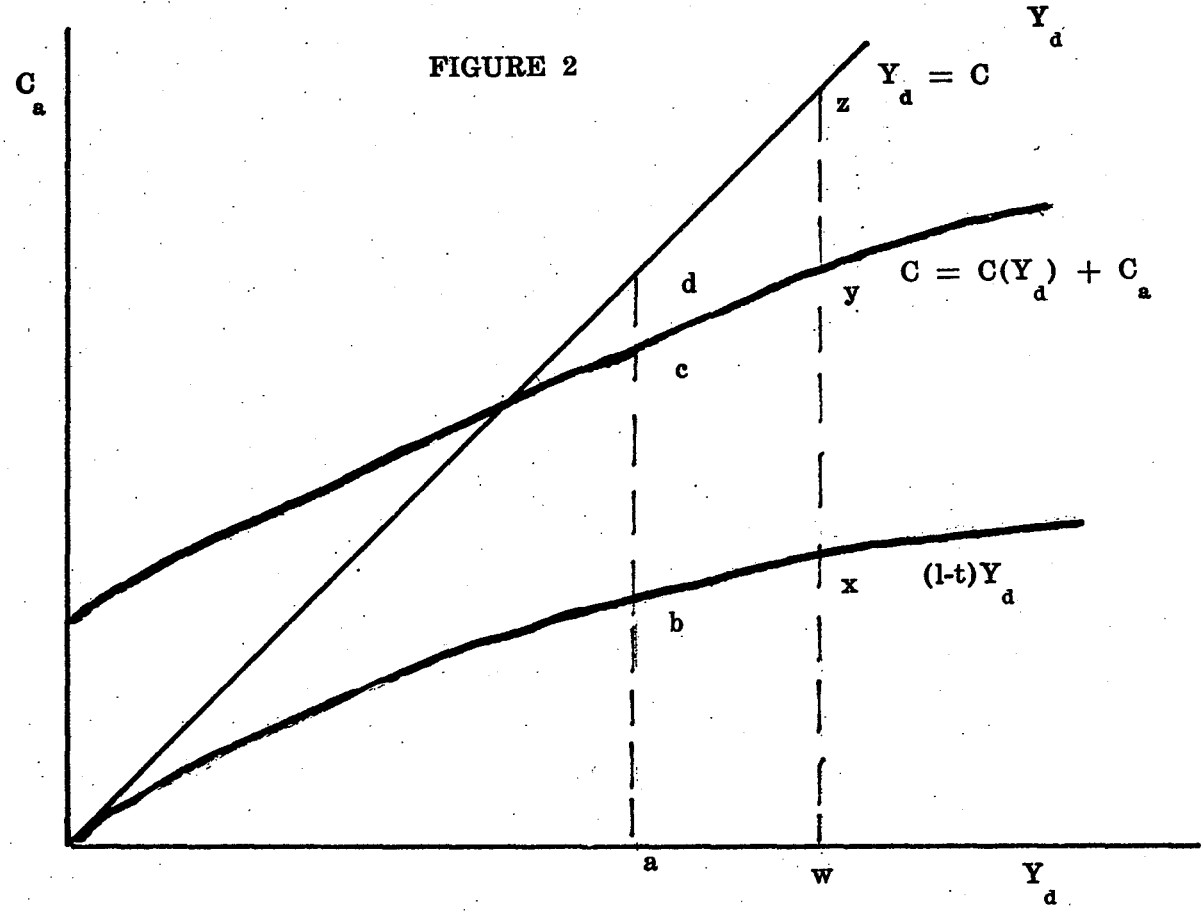


FIGURE 2



To see how this works, examine Figure 2, which depicts a before-tax consumption expenditures curve, and an after-tax disposable income curve. Before sending a child to college, a family with disposable income a allocates ac for basic consumption expenditures. When its child enters college, it pays a tax equivalent to db, and is left with ab for basic consumption expenditures. Similarly, a family with disposable income w has consumption costs equal to wy before taxation; after paying a tax equal to xz, it can spend wx for consumption purposes.

Now if $ab/bc = wx/wy$, and provided current consumption expenditures define a family's standard of living, then both families are left equally well-off relative to their original standard of living. However, if $ab/ac > wx/wy$, then the first family is left relatively well-off; if $ab/ac < wx/wy$, the second family is left relatively well-off. If the goal of the tax scheme is to ensure that proportionate reductions in the standard of living is equal across income levels, then in the first case the tax structure is overly progressive; in the second case, it is not progressive enough.

An Analysis of CSS Tax Rates

We can now proceed to a direct examination of the CSS tax structure. By its own admission, the CSS justifies its rates in the middle and upper income brackets more in terms of pragmatics than consumption habits. Thus, even if it were making an explicit attempt to ensure that percentage reductions in the standard of living are equal across income levels, it might not have succeeded. To determine whether this is the case, a set of average budgets for families at various income levels was calculated. The basic data source was the 1960-61 Bureau of Labor Statistics *Survey of Consumer Expenditures,* which reported the average level of consumption expenditures for three, four, five, and six member families in ten income brackets. These figures were inflated to 1976 levels using the Consumer Price Index. Some interpolation was performed in order to provide data for families at particular income levels.

Note that these calculations rely on the assumption that family spending patterns have not altered over the past fifteen years. This may or may not be the case, alhough it seems likely that the changes which have occurred are relatively small. (The BLS still uses these data as the basis for the Consumer Price Index). Also, because the appropriate information was not available, the figures were not adjusted to take into account the higher consumption budgets of families in the age group normally associated with postbaccalaureate students.

Following computation of before-tax spending levels, the amount of income left to a family for consumption expenditures after application of CSS rules was calculated. It was assumed that each family was sending one child to a school costing $6300 a year, and that no other dependents were attending post-secondary institutions. Also, only those families required to make a positive contribution to college costs were considered. Finally, it was assumed that no families were required to contribute out of their assets, and that no families were eligible for employment or unusual circumstances allowances.

Then, the ratio of after-tax income available for consumption purposes to before-tax current consumption expenditures was computed. Results for various income levels are reported in Table 1. Provided current consumption expendi-

tures define a family's standard of living, then the proportionate reduction in the standard of living stays virtually constant (falling between 10 and 13 percent) for families earning below $25,000. Between $25,000 and $35,000, the reduction increases sharply, generally to 17 or 20 percent.

TABLE 1

RATIO OF AFTER CSS TAX INCOME AVAILABLE FOR CONSUMPTION PURPOSES TO BEFORE CSS TAX CONSUMPTION EXPENDITURES: VARIOUS INCOME LEVELS

Gross Income (dollars)	Family of 3	Family of 4	Family of 5	Family of 6
7,500	0.87 (0.13) [a]			
10,000	0.87 (0.13)	0.87 (0.13)	0.89 (0.11)	
15,000	0.87 (0.13)	0.86 (0.14)	0.89 (0.11)	0.91 (0.09)
20,000	0.88 (0.12)	0.87 (0.13)	0.90 (0.10)	0.91 (0.09)
25,000	0.84 (0.16)	0.83 (0.17)	0.85 (0.15)	0.88 (0.12)
30,000	0.82 (0.18)	0.82 (0.18)	0.83 (0.17)	0.84 (0.16)
35,000	0.86 (0.14)	0.85 (0.15)	0.86 (0.14)	0.82 (0.18)
40,000	0.93 (0.07)	0.87 (0.13)	0.88 (0.12)	0.84 (0.16)
45,000	1.05 (-0.05)	1.02 (-0.02)	0.89 (0.11)	0.85 (0.15)
50,000	1.18 (-0.18)	1.12 (-0.12)	0.90 (0.10)	0.95 (0.05)

[a] Figures in parentheses represent ratio of before-tax consumption minus total after-tax income, to be before-tax consumption. To the extent that consumption expenditures define a family's standard of living, and if all after-tax income available for consumption is used for that purpose, these figures denote the percentage reduction in the family's standard of living.

SOURCE: Computed using information provided by the *Survey of Consumer Expenditures,* 1960-61, and *CSS Need Analysis: Theory and Computation Procedures,* Tables A through F, 1975. See text for description of computation procedures.

Above $35,000, the percentage reduction begins to fall again, until at $50,000, it is below original levels. (In fact, in certain cases, we see that families earning $50,000 are left with more income than they would ordinarily spend for consumption purposes). These observations hold for families of from three to six members, although the income level at which the reduction in the standard of living increases tends to rise with family size.

In any case, the figures in Table 1 would seem to provide evidence for a middle income squeeze – where that squeeze is defined as the result of a progressive CSS taxation rate schedule which causes larger proportionate reductions in standards

of living for some families than others, when they send their children to schools costing more than $6000 or so. In particular, this squeeze affects (roughly) the $25,000 to $35,000 bracket; families in this range must reduce their consumption expenditures by a larger percentage than slightly poorer or wealthier contemporaries.

Note that the endpoints of the affected income range are not meant to be precise. Depending on their size and consumption habits, families from higher or lower income brackets may also suffer relatively large percentage reductions in their standard of living. For example, as Table I shows, families with six children earning $45,000 a year may be included in the "squeezed" bracket. And if a family earning $20,000 a year spends much more than an average it will also experience a relatively large percentage reduction in its standard of living. Nonetheless, the $25,000 to $35,000 bracket probably includes most of the families hardest hit by financial aid policy.

Conclusions

Complaints about a middle income squeeze may be attributable to a progressive CSS taxation rate schedule which causes larger proportionate reductions in the standard of living for some families than others, when they send their children to expensive schools. If College Scholarship Service membership feel that this is undesirable, then the CSS tax structure might be redesigned so that percentage reductions in the standard of living are equalized across income levels. Obviously with the role which has been assumed in maintaining national consensus on financial need assessment by the Coalition for the Coordination of Financial Aid, that body too would have to acquiesce in change. The results of adjustments in taxing rates would also have to meet the benchmark requirements set by the Commissioner of Education for the approval of need analysis systems.