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THE EFFECT OF STUDENT INCOME SUPPORT ON ACADEMIC PERFORMANCE

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ABSTRACT

Student income support programmes indisputably lead to a higher welfare position of the beneficiaries. The area of reservation is that if the academic environment is lacking in some basic infrastructure and amenities, an increase in the rate at which students benefit from income support programmes will lead to a reduction in the time they allocate to studies, which may eventually lead to a fall in their academic performance. Improved student welfare and educational performance, and economy in government expenditure can be realized if the government combines the provision of student income support with the provision of basic learning facilities and capital development on campuses.

JEL classification: I12, I13

1. Introduction

INCOME support for students in Nigeria have constantly been used by the student leaders and politicians to score political points. The argument that they often put forward to justify such demands for, and the resulting release of funds to the students is that, there exists a positive correlation between student income and academic performance. This unqualified and unconditional prediction does not hold in all situations. Some of the necessary conditions to be met for this prediction to hold are discussed in this paper. Nevertheless, the government, at times, meets the students' demands through the approval and payments of bursary grants, scholarship funds and revolving loans. Since a large chunk of Nigeria's resources, at different tiers of government, goes into the payment of the various student income support schemes, it is pertinent to evaluate the theoretical basis for and effects of such programmes.

Studies on student income and performance tend to show that there is a positive collinearity between these variables (Umanah, 1992). However, experiences of and reports from examination bodies have shown that students are

Essentially, an increase in the wage rate tends to increase the supply of labour since it makes leisure more expensive — you can get more consumption by working more. But, at the same time, an increase in wage rate makes you potentially richer, and this presumably increases your demand for leisure. (Varian, 1992: 146)

This is so because as Becker (1965) observes, more time is required for enjoying the increased consumption resulting from the rise in income. The negative effect of a steady increase in wage rate on the supply of labour, is due to the overwhelming negative income effect over the substitution effect. Taking the Slutsky's equation of the Lagrangean (5) above, it means the derivative of leisure is the sum of a negative and a positive number, and its sign is ambiguous. An increase in wage rate therefore, can lead to an increase or decrease in the supply of labour, depending on whether its final effect on the demand for leisure is a decrease or an increase.

2.1 Application of the labour supply theory to student income

Before going into the analysis, it is necessary to state some basic assumptions about the analytical framework adopted throughout this work. These assumptions are:

- i. Students depend on some income support endowments throughout their period of studies.
- ii. There is some relationship between student income and their academic performance.
- iii. Both the students and their benefactors are rational economic agents that are seeking to optimize their economic goals. In particular,
 - a. the students will maximize their welfare as itemized by the utility derived from present consumption and from good performance in their examinations (which has a higher future utility than the current expenditure on and consumption of non-academic goods), and
 - b. we assume that the government maximizes its high social returns in every aspect of public expenditure, and maximizes its political image with the public, including the students.
- iv. The utility function used is admissible with all the conditions maintained.
- v. There is a very high positive correlation between the number of hours students put into studies, and their performance in every subject of study.

Based on these assumptions, a graphical tool is used to evaluate the different effects of income support on student academic performance.

Generally, we can explain the student study-income relationship under the theory of household behaviour in the supply of labour. The student has twenty-four hours at his disposal to distribute between studies and leisure. The study activities on which the student spends his time include attending lectures and tutorial classes, library work, practicals on the field and in laboratories, attending relevant public lectures and seminars, class or group discussions on subjects, personal preparatory studies, and doing the necessary assignments, tests and examinations. If the study environment is improved, the student will spend more of his time and money on each of these activities. Activities undertaken as leisure by the student include all other activities not intended to promote studies, but for personal comfort and/or ego. Student leisure comprises of attending social gatherings; spending time and money in hotels, bars and restaurants; participating in sporting activities and games; campus politics; sleep; non-academic readings, and other extracurricular activities.

By assumption, the student regards studies as activities that attract some financial rewards both in the short run (by way of money from parents and income support from government) and in the long run (the expected stream of future income and the so-called 'psychic' income). As such, the income support to the student are mainly as a reward for studies from which he stands to benefit in the future. Thus, the time that the student is willing to put into his studies depends on the level of income support and the expected income gains upon graduation. It also depends on the level of development of the study environment. The study environment factor comprises libraries, laboratories, classrooms, hostel facilities, bookshops, lecturers' welfare (such as good offices and satisfactory salaries), recreational facilities, transportation and communication services, medical and health facilities, waste management facilities, etc. The adequacy of these institutional facilities will lead to a maximum usage of student income for academic pursuits. The assumption is that all factors needed to predict the effects of income support on student academic performance are available in the right ratios, but this is not often so!

A typical student, therefore, has to arrange his preferences in the use of time in such a way that his satisfaction from leisure is maximized, and the income that will be expended on goods and services will also be maximized. The student's optimization problem is of the form:

$$\text{Max } U(Z, Y_c) \quad (1)$$

$$\text{such that } s + z = T \quad (2)$$

$$Y_c = px = A + \gamma s + \alpha R \quad (3)$$

where U = utility (satisfaction/welfare)

z = leisure

s = time used for studies

T = total time (in hours) available

Y_1 = student composite income spent on purchases of commodities

p = vector of exogenously determined commodity prices

v = vector of commodities

A = money income from other sources

γ = rate of income support

α = net ratio of institutional facilities available to the student

R = institutional facilities

Another way of stating the same problem is:

$$\text{Max } U(z, Y_c) \quad (1')$$

$$\text{such that } s + z = T \quad (2')$$

$$Y_1 = A + \gamma s \quad (4)$$

$$Y_2 = \sum \alpha_i R_i \quad (5)$$

$$Y_c = Y_1 + Y_2 \quad (6)$$

The linear expression, Y_2 , represents the sum of institutional facilities, R_i ($i = 1, 2, \dots, n$) enjoyed by the students and is exogenously determined and fixed at any particular time. Individual student on campus consumes a fraction, α_i , of the facility available. The higher the quantities of R_i , the higher the facility-student ratio, α_i , and the more the student will spend his time and income on studies. Consequently, if the teacher-student, classroom-, library-, laboratory facility-, hostel facility-, medical facility-student ratios are high, the student will enjoy his studies and will, therefore, put in more of his resources and time to studies. Since these facilities also have some monetary value and are supplied to aid the students in their studies, they shall be treated as fixed (real) income available to the student. The equilibrium conditions are derived by taking the partial derivatives of the Lagrangean function, \mathcal{L} , formed from the objective and constraint functions above.

The problem above is represented graphically in figure 1. In the diagram, the maximum time available to the student is OT which is shared between study and leisure. If all the time, OT is used by the student for leisure at the expense of his studies, then the student's academic performance will be very poor: this may lead to his/her withdrawal from school, and by inference, loss of income support.

Increase in time allocated to studies is necessary for an academic performance that is good enough to merit income support. The time allocated to studies is measured from T leftwards to the origin O . The closer T is to O , the greater the study time, and the better the performance.

The autonomous income sources of the student is represented by horizontal lines OA , OA' , and OY_2 , respectively. The sources of income comprise A in the equation above, that is, money income from sources other than the government which include, parental income support, gifts from friends and relations, etc. Y_2 comprises the institutional amenities and facilities which are treated here as the real income enjoyed by the student. The supply of these facilities are autonomously determined by the institution's authority. However, improvement in the provision of these sources of income ensures a higher welfare standard for the student, and vice versa.

The downward sloping budget lines are the income support-leisure constraints. Each slope indicates the income support rate to the student. It is the amount of money that the supporting authority is willing to offer the student in order that he may put in additional hours of study. The slope is mathematically expressed as $\delta Y / \delta Z$ — the ratio of change in income support to the change in time allocated to leisure. A negative slope indicates the trade-off between leisure and study-time on the one hand, and between leisure and income support on the other.

A change in the rate of income support will cause a rotation of the income support-leisure line, either inward or outward. An increase or decrease in the income support rate will cause an outward or inward rotation of the income support-leisure line. In the same vein, initial increases in student income support will lead to an increase in the supply of time (labour) to study and a corresponding reduction in leisure. This is shown in figure 1.

The indifference curves show how the student allocates his or her time between study and leisure (measured on the horizontal axis), in combination with all other commodities including money income (measured along the vertical axis). The student is at equilibrium level of combination when the ratio of marginal rate of substitution of leisure, Z , for other commodities, Y (that is, the slope of the indifference curve), is equal to the rate of income support (slope of income-support leisure line). This can be determined graphically at the point of tangency between the student welfare curve and the income support-leisure line, such as points, E_0 , E_1 , E_1' , and E_2 in figure 1.

From figure 1, the student will attain a higher level of welfare with higher income levels, be it autonomous income or income support. Again, an increase in student income will lead to an increase in the time allocated to studies, and ultimately, improve the students' academic performance. Increases in autonomous income of the student from A to A' and to Y_2 , given a fixed level

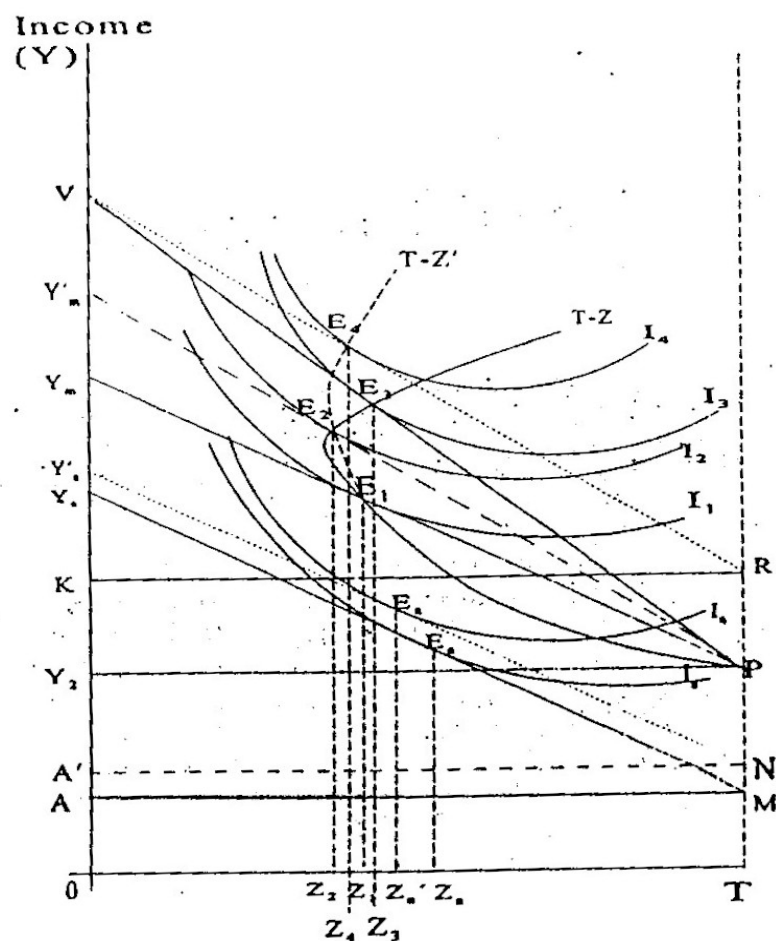


Figure 2. Student's Welfare Situation with Inadequate Institutional Facilities

The reduction in the allocation of time to study and the possibility of falling performance standards are realizable for two reasons. First, the fixity of the institutional facilities and the continuous depreciation of its stock, coupled with the ever-increasing student population, make the study environment unconducive to learning. That is, as the student receives the income support, he does not have the supportive academic amenities like laboratories, libraries, classrooms and hostels. Besides, it is more costly for the student to arrange for the provision of these services, if they are not provided by the government. This might discourage him from putting in more time to study. There is, therefore, a tendency for him to use his income on social activities such as attending or organising parties; playing or watching games; travelling; participating in club/cult activities, campus politics, and other extra-curricular activities. However, the student would surely dissipate the time and energy that could have been used for his studies if he decides to arrange for the provision of these facilities on his own, even if he does not mind the cost. The effect is that this inefficient supply (compared to the supposedly efficient public supply) is likely to increase the student's performance, though at a declining rate, while the student-time offer curve facing them will be gradual backward-bending $T-Z'$, rather than the more rapid $T-Z$ facing the study-averse students.

This situation can be averted by increasing the investment on these institutional facilities. It has been demonstrated in figure 2 that if the stock of these facilities is increased such that individual students have as much as OK from OY_2 per capita of installed facilities, then the student will put in additional time to study and will also attain higher levels of welfare I_4 . It should be noted that the Y -axis also measures the installed institutional facilities per capita and, as said earlier, these facilities necessarily form part of student real income. An increase in the supply of these facilities, say from OY_2 to OK , will result in a parallel shift of in the budget line outward, from PY_m to RV as in figure 2.

The second reason for the backward-bending nature of the student-time offer curve is that as his income increases, the student creates more time to spend and enjoy his money. Activities involving purchases and consumption require the use of time. As Eaton and Eaton (1988) observe, leisure activities often require the expenditure of income, and consumption requires the expenditure of time.

Two observations are also pertinent about the equilibrium point at E_4 . If the government spends an equivalent amount of money necessary to put the student full-income at OV , on the provision of institutional facilities and infrastructural amenities, then student welfare and learning habits (and by inference academic performance) would improve remarkably, rather than if an alternative policy measure (student income support programmes) is adopted. The government will

spend more of its revenue on income support programmes before the student can attain the level of welfare depicted on I_1 , although at the cost of continued reduction of study time and falling standards of academic performance. Another observation is that even though the student spends his income on other things and attains a higher level of welfare, $I_2 > I_1$, his revealed preference ranking shows he would prefer to put in more of his time to studying in an improved study environment, than being given income support with which to face the poor study environment, if given the opportunity. This is obvious from the remarkable reallocation of the student's time to study rather than to leisure, $TZ_4 > TZ_1$, and attainment of higher welfare standards, $I_4 > I_1$, at E_4 .

However, better results can be realized if the government combines the two policy options of providing income support to students as well as providing and maintaining of infrastructural amenities on campuses. This again is demonstrated in figure 2 by the shape of the student-time offer curve T-Z' compared to T-Z.

An econometric methodology can be adopted to derive the student-time offer curve. The work can also be implemented by using an empirical analysis. This analysis is expected to be developed in the future.

4. Conclusion

This analysis clearly shows that student income support schemes are useful in that they guarantee a higher level of welfare for the students whatever the case may be. Nevertheless, since the government, upon undertaking a social welfare programme like providing educational funding, has multiple goals of increasing the standard of education, sustaining the educational system, and even minimizing of government expenditure, it is necessary that it should select the right policy mix that will enhance the optimization of these goals. Therefore, there is a great need for the different tiers of government in Nigeria to look more seriously into the provision of infrastructural amenities in the colleges and universities, in combination with student income support programmes. The students and the society will achieve more if the government provides and maintains adequate learning facilities, along with the payment of income support to the students.

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