EDUCATIONAL SERVICES AND THE PROPOSED GRANTS SCHEME: A PRELIMINARY APPRAISAL

by E.P. DELIA

THE Students Representative Council (SRC), Royal University of Malta, are actively rallying support for the immediate introduction of a grant scheme at the University. A published *Memorandum* (SRC, 1975) professes the urgent necessity for a subsidy in cash to university students; proposes a model 'financial benefit – household income' correlated assistance plan, based on results from a survey about students' needs and expenses while at university; and promises research on the personal demand patterns and related costs of students in the other post-secondary educational institutions in Malta, namely, the M.C.A.S.T. and Trade Schools.

The arguments for the creation of a grants system could be briefly synthesized under three headings:

(i) EQUAL OPPORTUNITY FOR ALL

Tuition in public educational institutions is provided at zero price; however, maintenance costs over the period of study are real and have to be borne by the student, or, better, by the parents. Therefore, if opportunities for following the course of one's choice are to be equal for all, a student-to-be should be assisted by an annual direct subsidy. This grant should reflect the financial support a student could expect to get from his parents, the prevailing living standard and, consequently, costs. Unequal treatment to persons in different circumstances is equitable.

(ii) INVESTMENT IN MAN

Tertiary education should be encouraged by Public Authorities because it creates 'human capital' and produces 'externalities' or 'spill-over effects' in consumption and production. A healthy, skilled and adaptable community signifies a larger and diversified productive potential than one which is predominantly illiterate, unskilled or sick. If wisely administered a higher sectoral and aggregate output could better the living standards of all, both of those active in production and of those who are impeded from di-

rect participation in output because of ill-health or age. Education forms a 'better' social man. The benefits of enjoying a more intellectually stimulating life are not exclusively restricted to the recipient but through ideas and ways of self-expression are passed on to others around.

(iii) INDEPENDENCE FROM PARENTAL FINANCIAL SUPPORT

Students attending university should be freed from parental financial support. The SRC believes in this form of partial independence, yet they are not keen to insist upon it.[1]

The *quality* of instruction and the possibilities for self-expression should not suffer throughout the period a student passes in an educational institution. If the intake of students increases and/or if new courses are started it is tacitly understood that the additional lecturing staff, and the library and laboratory facilities are accordingly adjusted. Optimal ratios between staff-student, staff-research time and output, student-self involvement in academic and social life, student-research output, though not explicitly discussed, are presumably assumed throughout the *Memorandum*. Extending facilities should not result in the deterioration of the commodity offered.

This paper is primarily a 'searching' article. It accepts the *Memorandum* as representative of one well-informed pressure group and attempts to highlight and discuss very briefly some of relevant considerations connected with the provision of educational facilities and the means of financing them. Most of the hypotheses presented in discussions about education in Malta have not been subjected to rigorous research; consequently the pointing out of research lacunae and the speculative nature of certain assertions

[1] The reason for relegating to a relatively minor status the 'partial self-independence' argument could be that, once the grant system is in operation, a qualified self-independence would probably follow as a result; this would depend on every particular student-home relationship.

Moreover, it is truly unwise to get in conflict with other pressure groups whose aim is the defence of family unity. Energy could best be utilised in harnessing support for the scheme rather than exhausted on debating about relationships between the individual and the family unit. Anyway, it is realistic to adopt the persuasive 'moral' argument of helping those in need – the majority would be prone to agree, although disagreement could arise about the optimal way to do it, given the time limit, the community's resources and the socially determined commitments and priorities.

frequently made in connection with tertiary education is an obligation which this paper partly meets in passim.

Certain characteristics of the market for educational services and the linkages between this market and the labour market are first introduced and succintly commented upon. The question of personal opportunity costs in tertiary education is, in turn, raised and illustrated. Finally, some 'ambiguous' features of the proposed grant system are pointed out.

1. Pricing, Public Provision and Educational Services

The demand for educational services is a *derived* demand. A person is willing to hire such services for his own use, or for the benefit of his dependents, because he feels confident that psychic and/or financial rewards follow formal educational training. Formal education is primarily a means to an end: better living standards replete with mental and physical stimuli and the faculty to respond to them.

Individual preference patterns are not sufficient to obtain a commodity; willingness to pay must be translated into the ability to do so. It is known that the income and wealth distribution in any one year in a country is positively skewed.[2] Therefore, the resources available to a section of the community would not allow the consumption of goods and services above those essential for nutrition and for a minimum provision of shelter and clothing. The rigorous application of one law of the private market – failure to pay excludes a person from the consumption of a service – leads to underconsumption of educational services and, consequently, underinvestment in physical facilities and human resources that assist in the production of such services, from what could be considered socially optimal amounts.

An economic case, couched in terms of long-term optimal resource allocation and the maximisation of social benefits, could be made for the public or State *provision* of formal educational services: education produces 'external' benefits and, by definition, the private market would fail to charge for the social, non-private, gains. Stated differently, the actual cost-benefit ratio to

[2] The term 'country' is assumed conterminous with sovereign boundaries.

An estimate of the static dispersion pattern of pretax basic pay rates in Malta, surely, a very limited definition of 'income', is given in E.P. Delia 'Dispersion of pre-tax basic payrates in Malta' – forthcoming in 'Economic and Social Studies' – Department of Economics, R.U.M.

society is lower than the cost-benefit ratio obtained from solely including private costs and private benefit. Educational services should be extended further than the private market would suggest if the true social costs are to be equated at the margin with the true social benefits, thus maximising returns to a given volume of inputs.

The State's intervention in the market for education is also called for because of the possibility of individual myopic behaviour arising out of the non-simultaneity of the payment for a good and the satisfaction of its consumption. It is the parent who pays tuition fees but it is the son or daughter who benefits, in the greater part, from schooling. To rectify any distortion in family budgeting in which expenditure for education could be underallocated, the State's corrective policies are justified. Public intervention could assume the form of legislation enforcing compulsory education and the imposition of fines upon a parent or guardian for failure to meet the minimum obligations specified by law.

Public provision, however, does not automatically imply public production (i.e. control of educational institutions by the State) or education at zero price (i.e. 'free') for all. Of course, it may be optimal to administer a publicly produced, zero price educational system under certain conditions, perhaps resulting in a significant saving-up of time by beneficiaries and man-hours and stationery in administration. Saving of resources, however, should not be outrightly assumed. It should be the object of analysis, the result of research, and not an assumption accepted unquestioningly as a sort of an unrefutable fact of life.

The criterion of public provision suggests simply that those households whose income – command of resources per time period – is inadequate to consider, and afford, sending one, or more, of their members to a formal academic or technical course of study, should be subsidised in order to meet the cost. A subsidy could be direct or indirect. A direct allowance per period increases a household's income leaving the relative commodity price structure initially unchanged. Any effects on absolute and relative prices would follow from the induced changes in effective demand, thereby reflecting consumers' preferences, and also the supply conditions. The nominal purchasing power of a household is increased; if the overall price index remains fairly stable, the nominal increase could be taken for a real gain.

An indirect subsidy takes the form of supplying a good at a

lower price than it costs to produce. If the subsidy equals the production cost, the good is provided at zero price or, as commonly and erronously held, 'free'. In principle, zero-priced commodities are available for all – for those who are willing and able to pay for them and for those who, though willing, are not in a position to purchase them given their immediate commitments. Subsidising one commodity, leaving nominal incomes unchanged would modify in turn, a relative price structure, thus inducing changes in consumption patterns. If the subsidy amounts to a comparatively low change in real income, the direct effect on demand for the subsidised good would depend on the elasticity coefficient of the demand schedule.[3]

It must be emphasised that privately 'free' goods are not free for society; they are always costs that must be borne by someone. A transfer of resources occurs; but whereas in the case of the direct subsidy, the actual amount of resources transferred is known, in the instance of an indirect subsidy, the volume and distribution pattern cannot be known, unless a detailed knowledge of the consumption patterns of households is available. So whenever this second form of assistance is applied, the reasons for preferring such a redistribution mechanism to a direct subsidy should be explicitly stated. Publicly provided *and* produced services could be sold at an economic price, reflecting costs, while they would still be obtained at zero cost by those who are socially considered eligible to benefit from a subsidy scheme. A 'zero-price'[4] for some, but not for all, is bound to produce different attitudes towards costs from those prevailing in a 'free for all' environment, and help regulate expectations.

The importance of possessing a clear idea of the opportunity costs of resource transfer cannot be minimised. For, intergenerational welfare, however defined, as well as welfare distribution within one time period would depend upon decisions on resource allocation and use. The resources allotted for education services

[3] Economic theory shows that perfect competition produces optimal resource allocation and welfare maximisation. Tampering with the optimal relative price structure would, therefore, tend to reduce welfare. Since the real-world does not necessarily meet the conditions implied by the perfect competitive model, one cannot be sure whether distorting a given price structure would increase or reduce general welfare.

[4] In the case of Educational services, 'zero price' policies could be extended to include tuition fees, transport and residential expenses.

would depend on a series of factors including: the total resources, partly reflecting past decisions, available to a community; the processes through which educational services are to be created and distributed; the historical pattern of provision of such facilities; the distribution pattern of pre-tax, pre-subsidy household income; and the ideology of the political party in government.

Any decision taken affects the immediate and the long-term welfare of generations within a country; it cannot be expected that solutions are simple to obtain. Compromise on several issues would have to be reached. It is helpful, for a proper evaluation of any decision-making, that the upheld value-judgements should be unequivocally spelled out.

Unfortunately, decision-making is not facilitated by the knowledge that formal education produces 'externalities'. It is somewhat difficult to establish up to what level of 'schooling' does the social rate of return exceed the private rate of return. So long as marginal social benefit exceeds marginal private benefit, public subsidies of some kind are called for, the basic tenet being that those utilities or additions thereto, that are exclusively privately enjoyed should be wholly paid for by the consumer. A public subsidy, therefore, is justified when utilities following the consumption of a good are not entirely restricted to the purchaser.[5]

Should public provision be applied only to primary education, where instruction is concentrated upon the basics of self-expression and communication namely reading, writing and mathematics? Should the idea of external benefits be extended to secondary education, grammar technical or comprehensive? Does tertiary education produce externalities? If it does, are the spill over effects limited to general courses or are they also linked to professional courses? Do post-graduate studies result in externalities? To state that 'education produces external effects' is merely saying a truism. The argument would be half-baked.

It should be emphasised that economic theory suggests when private benefits equal social benefits, the person enjoying the incremental welfare should bear the costs that render possible the rise in utility. It is essential, therefore, to establish which type of educational services produce external effects, that is, situations where incremental social welfare exceeds incremental per-

[5] The notion of a 'pure' private good, with zero externalities, is a polar one. Pure private goods do not exist in reality.

sonal welfare.[6]

For example, if a man is preparing himself for a medical (legal) career, and, given the supply conditions of doctors (lawyers), the expected financial rewards[7] produce rates of return on the investment (income foregone, tuition fees and maintenance costs) that are higher than the prevailing rates on comparable risky investment, it could be argued that the benefits are predominantly of a private nature and that the person concerned should pay for learning his skill.[8]

Similarly, academic degree-correlated bonus on a job would reduce the payback period. The time required for the recoupment of the investment in one's self is a matter to be decided following an empirical investigation and not an issue to be solved theoretically. Research would incorporate the probability of not finding a job and incurring additional cost in time spent in search and waiting.

If the probability of finding a preferred job on course termination is unity, the projected flow of income, weighted by the probability value, would not be affected. But with a probability coefficient between 1 and 0 (i.e. $1 > p > 0$), the projected earnings flow would be reduced. A smaller value for probability implies a greater investment risk. The higher the risk, the greater would the unqualified pre-tax flow of earning would have to be if society is to attract the most suitable men for a job.

[6] An increase in a person's welfare, everybody else's remaining constant, means an increase in social welfare. It represents a so-called Pareto optimal situation. If social welfare increases by a larger amount than the increment in personal welfare, spillover effects are said to have followed from a person's increase in welfare following the consumption of a good or a service.

[7] Example is restricted to financial rewards and omits psychic returns because the latter are very hard to estimate and they introduce the thorny problem of interpersonal comparisons of welfare.

[8] Policies could be taken following study of a particular market for skills; means to increase (reduce) supply to meet demand, could always be found. Note, however, that the causes for pre-tax income differentials in an economy, and within a group, are often not easily identified. See:

- Reder M., 'A Partial Survey of the Theory of Income Size Distribution' in Soltow L. ed. 'Six Papers on the Size Distribution of Wealth and Income' (National Bureau of Economic Research – 1969) especially pages 214-229.
- Atkinson A.B. ed.: Wealth, Income and Inequality (Penguin Education: 1973 – Part Three).

The probability coefficient could be applied as a proxy for market demand for a given labour skill or aptitude. Supply of such labour inputs could be regulated after account is critically taken of both the medium run requirements, say for a decade, and the transitional phasing out programmes essential to avoid bottlenecks or avoidable surplus. Such human capital and skill projections can never be easy to achieve and frustration for the transitional students would, probably, never be eliminated. Factor markets operate with a lag in response to changes in final goods market; knowledge is not available in time for some students to change half way through a course of studies; and supply of services, including the educational, would fail to react as they ought to, under a zero price system. Decisions to modify the intake of students entitled to benefit from specific courses would have to be taken by public administrators in a seemingly arbitrary fashion.

If the investment motive for following a course loses its attraction, a student may decide to carry on with his original plans for the psychic returns that a particular course is expected to offer. Society, through its education leaders, would have to decide whether the provision of such a service is justified or not once pricing is ruled out as a rationing device. This dichotomy in motivation for study could be shown as follows:

$$E_t \rightarrow C_t; C_n, \ldots, C_f; Y_m, \ldots, Y_r.$$

where E = Time spent at an Educational institution, pre-primary, primary, secondary and post-secondary.
C = Psychic rewards, including the satisfactions obtained from the status associated with a job.
Y = differential flow of earnings per period.
t = years spent at a formal educational institution.
n = years after finishing formal education, assuming, to simplify, no formal on-the-job training.
$f \leqslant d$ = age when mental faculties stop functioning; this could happen before death (d).
m = time when a job is taken.
r = age of retirement from work.

The time dedicated to formal self-formation produces satisfaction while studying (C_t) (or dissatisfaction in the case of the boy or girl who attend school because he or she is compelled to do so), future psychic rewards (burdens) ΣC_n at times difficult to dissociate from good (ill) health and, hence, financial costs non-

incurred (incurred), and, flow of income higher than it would have been if educational training were not undertaken.

If the expected differential earning flow fails to materialise, the rewards to the individual would be psychic, summed up by $\sum_{n=t+1}^{f} C_n$ which should now be taken to include the 'negative' reward or burden arising out of the disappointment following a malinvestment decision. If a person knows in advance that the probability of finding a job following a particular course of studies is nil, and insists on pursuing his plan it could be plausibly argued that no investment motives are involved. Expected $\Sigma Y_m = 0$; study is being followed for its own sake – 'Ars gratia artis'.

Primary education in a developed economy is followed for the sake of making a better man out of an individual. However, Secondary education and, almost certainly, tertiary education, cannot be unqualifyingly considered as being so pursued. A financial objective would be prominent in the decision calculus of the students who continue attending these institutions after the legal school-leaving age is reached; for the longer the duration of full-time study, the higher the costs become.

At the tertiary educational level income foregone forms the major component of total costs. A 'zero price' tuition reduces the explicit expenses bill; a grant system, linked to 'free' tuition, contributes towards the reduction of implicit cost. A grant system universally introduced throughout all institutions within one educational sector, could be assumed neutral in the long run, that is, it should not influence a student's decision to follow a course of his own choice from those being offered. However, it might influence decision to continue post-graduate studies, and the basic choice whether to undertake post-secondary education. In the short run, a grant system may induce the marginal student to consider following professional courses; but, in the long run, the additional incentive offered by the grant need not be a determining factor, especially as a household income correlated cash grant possesses an in-built mechanism to reduce the financial attraction of the scheme. Provided that knowledge about factor market conditions is available in time and free, the intake of students for specific courses would be influenced and, in part, regulated by the fulfilled expectancies, or otherwise, of past diploma holders.

The induced changes in the factor-market conditions could foil the 'equality of opportunity' principle on which justification for a

grant scheme is based. The equality principle implies social mobility – tasks which are financially attractive in a time period should be open for all in the future. When factor supply increases, demand being fairly constant, standards expected from the incumbents are raised. Although, in theory, it could be assumed that the quasi-rent element is reduced in the income of factors whose supply is, for a time being, low compared to demand, in practice this need not be so. Instead of having changes in income regulating the flows of demand and supply, there occurs changes in standards expected – standards are raised when supply exceeds demand and lowered when factor shortage persists.

Emigration would reduce factor supply, and, to the extent it succeeds, it would act as a barrier to changes in income levels. But, in its absence, the meritocracy basis that 'equal opportunity for all' policy should give rise to would give way to nepotism. The laws of the market-mechanism operating through price changes would come into force at one time or another; if impeded continuously from doing so, other rationing devices would have to be implemented. A 'Friends' or 'Friends of Friends' criterion is simply one of them!

If a grant system is introduced within one institution, at a given level of education, it distorts the conditions upon which students could be expected to base their decisions. If a course of studies is given only at the unsubsidised institution, the students following such training would be being discriminated against. On the other hand, if courses are available, on fairly comparable terms, at the two institutions, students could be expected to enroll themselves in the one where a grant is available. This could result in the overburden of staff and facilities in the subsidised institution while produce underutilisation of the resource capacity in the 'student-losing' one, unless staff and facilities are fairly easily interchangable, that is unless the marginal rate of transformation of production between the two institutions is elastic. Misallocation of resources is inevitable and avoidable disutilities arise.

Of course, a partially-introduced grant system implies a lower financial burden for the Public Exchequer; fewer beneficiaries are involved. With a per capita grant for a base, the general introduction of an assistance scheme is unquestioningly more expensive to run, unless the per capita value is obtained in reverse: divide a lump sum by the number of beneficiaries. This would probably mean a lower contribution to those who are in greater need, and it would only partially meet the objective of reducing the burden of finances

from being an impediment to the pursuit of studies of one's choice.

Ideally, perhaps, such a grant scheme should be integrated within the framework of the State's general welfare programme. It is clear, therefore, that the introduction of a major means of income redistribution within a community cannot be lightly treated or analysed on its own. The streamlining of welfare programmes, whenever possible, and the elimination of inconsistencies arising between any two schemes are essential for the minimising of distortive effects on resource allocation within an economy.[9]

In summary, economic theory justifies State intervention in the provision of educational facilities in a mixed economy. However it is not easy to establish whether State subsidies should be extended to all levels of education. The criterion that 'private returns should be privately paid for' demands critical statistical research before it can be usefully applied. A universal grant system, implemented within the tertiary educational institutions, should minimise distortion of individual choice making, although it would be more financially burdensome for the State. It would also accentuate the motives for undertaking post-secondary education, namely, psychic rewards and financial returns. The latter do not depend solely on the quality of education and the student's efforts; rather they are the outcome of a set of forces commonly synthesised in the term labour market structure. A once-and-for-all solution is simply non-existent in the real world; solving one problem very often automatically means creating another.

II. Foregone Income, Aggregate Marginal Tax Rates and the Proposed Grant Scheme

Formal tertiary educational preparation is the output of a combination of inputs of time and effort supplied by the student himself, the quality and time of lecturing and supervision provided by the academic staff, and the input of facilities provided by a well-stocked library and, in the physical sciences, the relevant laboratory or field equipment.

Explicit financial costs for a student include tuition fees, and the expenditure on books, equipment, transport services, and 'self-maintenance' over the study period. Tuition and examination fees are nil under zero-price provision system; but books, transport services and 'self-maintenance' expenses are generally incurred by the student.

[9] See Delia E.P. 'Welfare Programme Reform and Income Supplements' (Economic and Social Studies – R.U.M. Vol. 3 1974).

It is estimated that on average a university student in Malta spends about £M200 annually, at 1974 prices, for his education.[10] This statistic excludes the opportunity cost, or income foregone, of tertiary education, assuming, of course, that the student is offered and accepts a job during the same period. On a weekly wage of £M14, the opportunity cost of a three year course at the university would be £M2184 or £M728 gross per annum, excluding any interest payments accruing during the period. Deducting income tax leaves £M2100.84,3 over the triennium, and £M1961.22,3 'take home' earnings after subtracting the national insurance contributions.[11]

The visible costs (i.e. £M200 annually) represent only 28.47% of income foregone, or 28.56% on the post-tax income estimate. The opportunity cost of tertiary education could be reduced if summer or week-end jobs are made available for students. In the absence of a grant system, occasional earnings contribute to finance 'self-maintenance' i.e. they contribute to the basic £M200 require-

[10] *Memorandum* pages 15-22, reproduces A.I.E.S.E.C. survey. No data are, so far, available about the estimated annual costs for students at the MCAST and the College of Education, now incorporated with the MCAST.

[11] At £M10 per week the income foregone over the three year period, excluding interest payments, amounts to £M1560 gross; £M1546.96,2 net of tax or £M1406.38, allowing for the national Insurance Contribution (equal to £M46.54 p.a. for an employee at 1975 rates).

If the student is unable to find regular employment, the opportunity costs would decline accordingly.

Expenditure on books is not included; comparisons between specific costs related to a job (as books are to education) cannot be made unless the alternative employment is indicated. Similarly 'self-maintenance costs' are assumed similar to both the student and the teenage worker.

A fundamental difference between income foregone and the grant appears in the treatment suggested under income tax laws. In the student's case the *Memorandum* proposes that the head of household should continue enjoying the tax-exempted allowance for his daughter or his son plus a tax-free grant i.e., £M160 + grant, inversely varying with imputed Income. Total tax-exempted income ranges between £M360 and £M210. In the case of the young worker, the child maintenance allowances are no longer credited to his father's income, while he pays income tax in his own right. Since income from occasional work by a student is probably not recorded in the parent's income tax return, the family would still benefit from the £M160 child maintenance exemption; this could represent a maximum saving of £M16 in tax, assuming marginal income just exceeds the tax-exempted level.

ment. With a grant scheme in operation and, for argument's sake, assuming the student is entitled to a maximum benefit, and works for eight weeks at £M14 weekly, the income foregone, from his personal point of view, is reduced to £M416 p.a. Reducing opportunity costs means decreasing the initial investment outlay that needs be recouped at a compound interest rate.

The concept of 'income foregone' leads directly to the issues of the *unit* eligible for State assistance and the fundamental purpose of Government welfare programmes. It is commonly accepted that the State should assist those citizens who are in 'need', however the 'needy' are defined. Usually, also, because of limited resource constraints, the unit for assistance is the household. It is held that households unable to provide a stipulated minimum of amenities essential for sound physical and mental health should be assisted, in kind or in cash, through different public welfare programmes to attain a socially desired living standard. The *Memorandum* recognises this, and, indeed, considers post-secondary education as 'a potential loss of income for the parents'.[12]

At the same time, a grant of £M50 is suggested for those students whose parent's income exceed £M1600 'equivalent';[13] a 'token subsidy' is, therefore, being recommended whether the household is in need or not.

The *Memorandum* would have suggested an outright grant of £M200 per student were it not that this implied a heavy financial burden on the Public Budget.[14] A student should be assisted *because he is continuing his education.* According to this idea, the criterion for State assistance is not a household's needs but personal status. Moreover, since the grant is to be paid in cash to the student,[15] it is his income which is of prime importance. There

[12] Paragraphs 5, 42.

[13] The derivation of 'income equivalence' is explained further below.

[14] Paragraph 27.

It is estimated that the grant scheme introduced to the University would cost £M150,000 at proposed rates and given the present income distribution of present students' parents as suggested by the AIESEC survey. This statistic was given at a press conference by the SRC in December 1975.

[15] Paragraph 34.

Raising the question of 'book tokens' vs 'cash', the *Memorandum* states: 'Our overriding reason, is, however, that the student should be treated as a responsible person and left free to spend the money given to his own circumstances and his own judgement of his needs'.

arises, consequently, an inconsistent attitude towards the unit eligible for aid. The student, for example, could cash in the money, spends it in the way he thinks fit (it is his money) and continue to be a burden on his family.

A grant system is one means of interhousehold (interpersonal) income redistribution. A basic £M200 grant to all students represents a partial refunding of income withdrawn in taxation, unless the grant is subjected to the 'clawing back' influence exerted by the marginal income tax rates, just as children's allowances and end-of-year (or mid-year) bonus are. Suppose that the head of the household, rather than the student is made to receive the grant on the understanding that he administers the funds in the educational interest of the student.[16] This supposition appears to fully agree with the proposed scheme of associating the value of a grant in inverse relation to the 'income' of the head of household and of proposing that the grant should be tax-free while the parent would still enjoy the benefit of child maintenance exemption. With the household for a unit, how do different units emerge, in terms of net income, once allowance is made for both the implicit marginal tax rates[17] embedded in the scheme, and for the explicit marginal income tax rates in Malta?

As observed above, the proposed scheme is inversely related to a household's 'income equivalent'[18] as estimated from the A.I.E.S.E.C. survey. The basis for income estimation is a four person household, married couple plus two dependents; for every dependent above two, £M200 is deducted from a family's income and for every dependent under two, £M200 is added. A student whose parent's income, thus defined, is under £M1000 would receive a grant of £M200; if income lies between £M1000 and £M1200, a grant of £M175 is received; for an income between £M1200-£M1400, the grant is £M125; between £M1400 and £M1600, the grant is £M100, and for income exceeding £M1600, grant equals £M50.

[16] Note that the idea of relating cash to a particular use goes against the basis for administering cash rather than vouchers. See fn. 15 above.

[17] The implicit marginal tax rate (IMTR) is Reduction in grant following an increase in a household's estimated income.

$$\text{i.e. } \frac{\partial G}{\partial Y} < 0 \qquad \text{where } G = \text{grant}, \quad Y = \text{Household Income.}$$

[18] This term is not actually used in the *Memorandum*.

The *Memorandum* suggests that the income scale be adjusted to absorb the cost-of-living increase in wages and salaries officially acknowledged by the Government. This proposal demonstrates an awareness about the true importance of the purchasing power of money. In the absence of suitable income deflators reflecting consumption patterns by locality and income group, the addition of the cost-of-living compensatory allowance to the basic scheme should serve as a proxy for price changes.

A comparison between different households, varying in terms of financial income, maintenance burden (family size), and income taxation, is given in Table 1. There is one element common to the five cases, namely the value of 'income equivalent', and the resultant eligibility to a grant of £M200.

Table 1

'INCOME EQUIVALENT' OF £M1140, OWN INCOME, FAMILY SIZE AND TAXATION (£M)

CASE	OWN INCOME	LESS NATIONAL INSURANCE CONTRIBUTION	TAX EXEMPTED ALLOWANCE	TAXABLE INCOME	NOMINAL TAX	DISPOSABLE POST-TAX INCOME
I	1140	1093.46	1100	–	–	1093.46
II	940	893.43	940	–	–	893.43
III	1340	1293.46	1230	63	6.3	1287.16
IV	1540	1493.46	1390	103	10.3	1483.16
V	1740	1693.46	1550	143	14.3	1679.16

Note: Case I: Married Couple (MC) + 2 Children (16+)
Case II: MC + 1 (16+)
Case III: MC + 3 (16+; 2 = 16–)
Case IV: MC + 4 (16+; 3 = 16–)
Case V: MC + 5 (16+; 4 = 16–).

(a) The value of £M1140 include the cost of living increase and a 'Christmas bonus' of £M36 for 1975.

(b) Different combinations of the age of children would, of course, lead to different tax-exempted allowance. Allowances are based on 1975 levels. Allowances for Medical Care expenditure and Life Insurance Policies are not included. Their inclusion would reduce, or eliminate completely, tax for Cases III, IV, V. If the grant value

is added to family's income, the head of household could purchase an insurance policy and benefit from the maximum allowance of £M200 allotted by law for such policies.

(c) If the head of household owns his house, the imputed rental value would be added to 'own income' for tax purposes. Liabilities and Maintenance Costs related to own house would be reduced.

(d) In the case of a self-employed head of family, National Insurance contributions in 1975 amounted to £M83.20 per annum.

Adjustments to the income regions within the scale follow only cost-of-living increase; any increments in salary or wage rates, of interest or rent would not be so considered. In Case 1, for example, the household would forfeit £M25 annually per dependent for the incremental marginal increase in own income. If the change in income exceeds £M25 per annum, the household would still be better off; but, in the case of two dependents each entitled to a £M200 grant, the change in own income would have to exceed £M50, otherwise aggregate income would be lower than before the marginal increase.

Income increases exceeding £M6.54 (Case I) and £M46.57 (Case II) place the household in the taxable region. Though taxable income could be reduced further by the inclusion of medical expenses, as pointed out in the note to Table 1 above. A clearer definition of the term 'income' is essential. For the same term stands for three different interpretations depending on the interpreter. The head of household would probably concentrate on the cash in hand; the Inland Revenue Department includes income in kind, hence the inclusion of the rental value of owner occupied houses; the *Memorandum* works in terms of, what we are defining, 'Income Equivalent', which differs considerably from 'cash in hand' or 'cash plus kind' values.

Salary or wage increases are acknowledged as additions to own income under the three above definitions. This implies that, over the duration of a course of studies the value of the grant received by the *student* declines as his *father*'s salary or wage increases. Precisely when the student wants to consider himself, quasi self-sufficient financially, he would find his own resources declining. This rather ambiguous situation should emphasise the necessity of deciding upon the unit of assistance.

Of course, this observation tacitly assumes that the head of household is not earning maximum salary or wage after sixteen years of service. Cases of job mobility, promotion, and revision of salary/wage scale are not uncommon in the real world; and so the argument may not be as rare as it may appear.[19]

The opportunity cost of an increase in own income in terms of the proposed scheme is summarised in the Implicit Marginal Tax Rate Schedule (IMTR). This is presented in Table 2, the upper limits of 'income equivalent' brackets are used for computations. The IMTR is at its lowest value when such limits are used.

Table 2

IMPLICIT MARGINAL TAX RATES IN THE PROPOSED GRANT SCHEME

'INCOME EQUIVALENT' Y_E	CHANGE IN INCOME ΔY	GRANT G	CHANGE IN GRANT ΔG	I.M.T.R.[(a)] $\frac{\Delta G}{\Delta Y}$ (%)
1000	–	200	–	–
1200	+200	175	−25	12.5
1400	+200	125	−50	25.0
1600	+200	100	−25	12.5
1600+		50	−50	Depends on Income

Note: (a) Sign of IMTR is reversed.

Within each bounded 'income equivalent' group, the marginal tax rate function is a rectangular hyperbola.

To be practical, one must include income tax considerations, pointed out in Table 1, with the opportunity cost of the grant scheme obtained in Table 2. A household consumption potential and, therefore, welfare,[20] depends on net income, that is, income

[19] Upward movement of interest rates on saved-up capital or in rental values on land or construction would have a similar effects on income as wage and salary scales.

[20] This statement assumes that Welfare is a function of a household's consumption. Welfare depends on other factors besides consumption; so the proposition should be taken as a crude assertion about the real world.

post-tax payment and post subsidy receipts. Income tax payment changes according to family size and age and to other circumstances. Table 3 integrates the marginal tax rates, explicit and implicit, for a four-member family, Married Couple plus two children over sixteen. The first five columns derive the marginal tax rates given the 1975 rates, Column 7 adds these to the IMTR obtained from Table 2, assuming that only one of the two children receives the grant. Table 3 illustrates what happens when a household's income increases; in the case of MC + 2, the term 'income' would be practically the same for income tax purposes and for eligibility to the grant scheme; this would not be the case for other family sizes.

Table 3

AGGREGATE MARGINAL TAX RATES: MC+2

(1) OWN INCOME Y	(2) CHANGE IN INCOME ΔY	(3) INCOME TAX T	(4) CHANGE IN TAX ΔT	(5) MTR $\frac{\Delta T}{\Delta Y}$ %	(6) IMTR[a] $\frac{\Delta G}{\Delta Y}$ %	(7) AGGREGATE MTR (%)
-1140	–	–	–	–	–	–
1141-1340	200	19.34,6	19.34,6	9.673	12.5	22.173
1341-1540	200	49.01,9	29.67,3	14.837	25.0	39.837
1541-1740	200	103.52,9	54.51,0	27.255	12.5	39.755

(a) Sign reversed.

It is observed that the incorporation of the IMTR turns the progressive marginal income tax schedule into an aggregate regressive system over the £M1341-1740 region. At best, if the post decimal point values are ignored, the aggregate tax schedule becomes proportional at the margin over the said income region, namely 39%. A household whose income increases from £M1340 to £M1540 pays £M29.67.3 in income tax and loses £M50 in grant assistance. For the next £M200 rise in income, income tax payment, based on a progressive schedule, rises by £M54.51, but the loss in grant assistance falls to £M25.

As structured, the proposed grant system is biased against certain income groups. If income taxation is to meet its objective of tax progression, the IMTR should be neutral, uniform for all income brackets. If the principle of tax progression is to be applied throughout the tax and subsidy schedules the IMTR would have to rise with income increments. It seems that it is best to construct a 'neutral' grant schedule, thus minimising the disincentive effects of loss in subsidies following increase in own income.

It should be understandable, at this stage, that attempting to establish the net effects of formal educational services and the relative merits of their financing (one of the several forms of resource distribution) is no easy task. Platitudinous statements about imagined, desirable effects leave much to be accomplished. Justice to the multifold influences of educational services and financing systems cannot be properly made in a few pages, with practically no related research being available.

This paper identifies a few neglected factors connected with the pricing system and the education market; it pointed out that other criteria would have to be implemented so long as the demand for places in education institutions exceed supply, and so long as the supply of trained individuals exceed the demand for their services in the relevant factor markets.

This article, hopefully, demonstrated that a general approach to a problem should be preferred to a partial analysis. The comments about the proposed grant scheme should be viewed within this framework. A telescopic vision of a scheme of things is bound to lead to unwarranted, and probably regrettable, conclusions.