FORMAL AND NONFORMAL EDUCATION
IN EDUCATIONAL DEVELOPMENT:

Some Issues Examined

by

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PREFACE

It is fashionable these days to stress the virtues of nonformal education in the learning systems of developing countries. The questions are many and complex: Is nonformal education most useful as an extension of or substitute for formal education? Is there a valid distinction between formal schooling and organized nonformal education and training programs? Are nonformal programs less costly than formal schooling, and do they have higher benefit-to-cost ratios? And what is the appropriate mix of both kinds of programs in the development process?

In this paper, Francisco Swett makes a critical examination of these and other questions. The major thrust of his paper is that the case for nonformal education is based primarily on the evidence of shortcomings in formal education, and that the virtues and cost-effectiveness of nonformal education programs are still more speculative than proven.

Mr. Swett has been making studies of nonformal education for the past three years. He has been a graduate student in Public and International Affairs at the Woodrow Wilson School, a staff associate in the International Council for Education Development, and currently a staff member of the Program of International Education Finance in the School of Education at the University of California at Berkeley. The views examined are insightful and provocative. They are, of course, the views of Mr. Swett and not necessarily those of the Woodrow Wilson School Research Program in Economic Development.

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Woodrow Wilson School
Princeton University

February 28, 1975
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INTRODUCTION

While the decade of the sixties was characterized as an era of high hopes and speedy remedies to the problems of development, the present decade is characterized by revisionism and a critical examination of previously endorsed development policies. This revisionism has become particularly acute in the field of education where the mildest cure recommended is a thorough revision of school systems, and the most radical ones prescribe the deschooling of society.

This revisionism has been brought in part by the failure of the schools, as institutions, to deliver educational services on an egalitarian basis and at affordable social costs. One of the cures offered to deal with this deficiency has been a set of policy recommendations to broaden the base of educational development - in particular strengthening nonformal education.

Nonformal education comprises the array of education experiences that take place outside the formal school system in activities organized with specific learning objectives for determined clienteles. Its proponents argue that nonformal education, due to its inherent flexibility and adaptation, can deliver educational services efficiently. To put it in different words, nonformal education is more "productive" than the schools because it can attend the learning needs of its clientele at lower social costs than the schools can. Higher productivity is thus at the heart of the argument for strengthening nonformal education.

The issues are, of course, far from resolved. Research in the field of nonformal education is still in its infancy and most conclusions already advanced reflect rather the "gut feelings" and biases of investigators than induction from empirical evidence. This is not to demean the efforts of pioneers but rather to emphasize the limitations of the evidence that already exists.
Accordingly, my objective is to examine critically the fundamental assumptions on which the efficiency and effectiveness arguments for nonformal education are based. The goal that I pursue is to clarify the issue of whether the expansion of the nonformal education apparatus represents a viable and desirable set of alternatives. Viable refers to the economic and political feasibility of reallocating vast amounts of educational funds away from the schools. Desirable, in turn, refers to the adequacy (and alleged superiority) of programs of nonformal education to deliver educational services.

The paper is divided in three parts. Part one deals with what I call the traditional path of educational development based on the expansion of the school system and pursuing the goal of universal primary education. I examine what the accomplishments, pitfalls, and failures of this strategy have been, and try to explain why, in light of the track record of the schools, the debate for broader based educational development has arisen. The second part of the paper presents the alternatives that have been offered for educational development. These alternatives and recommendations are all based on a critical set of assumptions that justify the superiority of the alternatives in relation to the traditional position. Consequently, the focus on this section is on an appraisal of these assumptions and on an examination of their tenability. The third part of the paper presents the policy implications for educational development that emanate from the previous discussion. From this discussion a set of guidelines is presented suggesting ways how a more optimal utilization of educational resources may be achieved.
THE TRADITIONAL PATH OF EDUCATIONAL DEVELOPMENT

"The general goal of providing as much education as possible for all children is now commonly accepted by Governments. In the less developed school systems this is usually formulated in terms of a drive to achieve universal primary education, on the assumption that a sufficient period of primary schooling (usually five to six years) will ensure a literate population in the next generation."

U. N. International Survey of Programmes of Social Development, 1959

The quote illustrates quite well what I have chosen to call the traditional strategy of educational development - the quest for universal primary education. The policies were first formulated in the fifties and later became an integral part of the policy proposals for the First Development Decade - the 1960's. Since these principles were formulated, the schools have become the most ubiquitous institutions for learning in every country in the world. Today, formal education is undoubtedly one of the largest, if not the single largest, service industry in the Third World.

A. Accomplishments of the Schools

What have been the accomplishments of the schools? In order to explore this question, one must keep in mind that at the heart of educational expansion are goals such as social development and modernization, economic growth, political stability and the strengthening of democracy, among others. All of these objectives have, in their time, been considered unmitigated goods, and education, formal schooling rather, the catalyst for achieving all these ends.

Therefore, taking as given this unmitigated-good criterion, one way of looking at the accomplishments of the schools is to see how the scope of schooling has grown. Tables 1 and 2 show that most poor countries have
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<td>154</td>
<td>251</td>
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<td>134</td>
<td>161</td>
<td>179</td>
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<td></td>
<td>1969</td>
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<td>164</td>
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### TABLE 2 - School Enrollment Ratios for the First, Second and Third Levels of Education for a Group of Countries

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<th>COUNTRY</th>
<th>YEARS</th>
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<th>SECOND LEVEL</th>
<th>THIRD LEVEL</th>
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<td>46</td>
<td>8</td>
<td>0.79</td>
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<td></td>
<td>1965</td>
<td>68</td>
<td>7</td>
<td>0.82</td>
</tr>
<tr>
<td></td>
<td>1968</td>
<td>70</td>
<td>9</td>
<td>0.98</td>
</tr>
<tr>
<td>Botswana</td>
<td>1960</td>
<td>42</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1965</td>
<td>69</td>
<td>3</td>
<td>-</td>
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<tr>
<td></td>
<td>1969</td>
<td>73</td>
<td>7</td>
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<tr>
<td>Ivory Coast</td>
<td>1960</td>
<td>45</td>
<td>2</td>
<td>0.10</td>
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<td>1965</td>
<td>60</td>
<td>6</td>
<td>0.43</td>
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<td></td>
<td>1969</td>
<td>72</td>
<td>10</td>
<td>1.02</td>
</tr>
<tr>
<td>Kenya</td>
<td>1960</td>
<td>49</td>
<td>3</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>1965</td>
<td>53</td>
<td>4</td>
<td>0.36</td>
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<td></td>
<td>1969</td>
<td>60</td>
<td>8</td>
<td>0.67</td>
</tr>
<tr>
<td>El Salvador</td>
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<td>13</td>
<td>1.09</td>
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<td>1965</td>
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<td>1969</td>
<td>84</td>
<td>23</td>
<td>2.96</td>
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<tr>
<td>Brazil</td>
<td>1960</td>
<td>100</td>
<td>11</td>
<td>1.58</td>
</tr>
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<td></td>
<td>1965</td>
<td>115</td>
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<td></td>
<td>1969</td>
<td>123</td>
<td>25</td>
<td>4.36</td>
</tr>
<tr>
<td>Ecuador</td>
<td>1960</td>
<td>83</td>
<td>12</td>
<td>2.55</td>
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<td></td>
<td>1965</td>
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<td>3.58</td>
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<td>95</td>
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<td>6.46</td>
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<tr>
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<td>60</td>
<td>6</td>
<td>0.53</td>
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<td></td>
<td>1965</td>
<td>69</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1969</td>
<td>70</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Iran</td>
<td>1960</td>
<td>40</td>
<td>11</td>
<td>1.20</td>
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<td></td>
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<td>53</td>
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<td>1.55</td>
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<td></td>
<td>1969</td>
<td>62</td>
<td>24</td>
<td>2.90</td>
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<tr>
<td>Korea</td>
<td>1960</td>
<td>96</td>
<td>27</td>
<td>4.70</td>
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<td></td>
<td>1969</td>
<td>104</td>
<td>38</td>
<td>7.19</td>
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undergone a significant expansion of schooling. The expansion has been real in the sense that an ever larger proportion of the school-age population has been able to attend school despite a fast growing population base. The expansion has taken place at all levels of schooling and has been particularly marked in secondary and higher education as a result of the ever increasing number of first level graduates who have chosen to continue their studies.

An additional result of the expansion of schooling has been a steady lowering of the illiteracy rate among the adult population aged 15 and over. In Africa, around 1960, the illiteracy rate was 81 percent, and by 1970 was down to 73.7 percent. In Asia likewise the figures declined from 55.2 percent to 46.8 percent; and in Latin America the rate went down from 32.5 percent to 23.6 percent. These figures, however, should be interpreted with a great deal of care. First of all the definitions used by most countries to determine who is literate (an affirmative answer to the question: can you read or write a paragraph in any language?) are not very helpful analytically and reflect in no way the capacity to make effective use of literacy by individuals - i.e., functional literacy. Second, the figures reported are rates and not real numbers. As a result of the expansion in the population between 1960 and 1970 the reported number of illiterates in Asia went up from 542-million people to 579-million; in Africa that figure rose from 124-million to 194-million; and only in Latin America did it experience a slight decline from 40-million to 38.6-million. Thus, illiteracy remains a major problem, unsolved despite the expansion of the formal schools.

Underlying the expansion of formal education has been the notion that schooling is causally related to economic development through a more productive labor force. The schools, in other words, are assumed to be institutions where human capital formation takes place.

At the heart of human capital theory is the notion that schooling is
an investment as well as a consumption good. As a consumption good the demand for schooling is made in function of what we may loosely call "the love of learning." Schooling, however, is also a form of investment whose value, to the recipient, is perceived in terms of the net present value of income accruing to the attainment of higher stages of schooling. 

Leaving aside the very important question of whether the schools "create" human capital or simply certify the perpetuation of differential rents (a question that is hotly debated in academic circles, see Schultz 1963, Dore 1973, Blaug 1973, Bhagwati 1973), the age-earning profiles (see examples for Bogota and Mexico on Charts 1 and 2) provide at least three incontrovertible facts:

a) All earning profiles follow a hyperbolic path from a relatively low earning level at the beginning of the individual's productive life, to a peak in middle age, and a tapering off or decline in later age.

b) The age-earning profiles of more educated individuals are invariably higher than those of less educated individuals. The paths of the profiles usually cross only once due to the fact that more educated individuals enter the labor force at a later age than those who are less educated.

c) The "starting points" of the profiles of more educated individuals are higher, and the rate of growth (the steepness) of the profile is higher, than those who are less educated.

The connection between these facts and economic development is made via the theory of investment as it applies to schooling. As noted earlier, from the individual point of view schooling is, in part, an investment good whose demand is determined by the net present value of income accruing to the achievement of incrementally higher levels of schooling. Individuals will thus invest in schooling up to the point where the perceived benefits outweigh the costs (largely foregone earnings, plus fees, tuition, and the costs of instructional materials).
Males and Females: Hourly Wage by Schooling and Age

Workers and Self-Employed Workers: Bogota, 1963-66

(In Pesos of 1966)

Chart 1

Source: Deaton (1965)
From a social point of view the costs include, in addition to the foregone earnings of the individuals who receive schooling, all the costs - recurrent and capital - associated with the running of the system. Conceptually there is no reason why social investment in education should be treated differently from any other kind of investment. Thus, investment in education should be carried to the point where the marginal benefits to additional schooling just equal the marginal costs of providing schooling. In theory, the application of investment criteria should allow the decision-maker to a) weigh the returns of schooling against the returns to alternative social investments, b) weigh the returns to private and social investment in different forms of schooling, c) compare the returns to schooling in one country at different points in time.5

In practice, however, the application of investment criteria to education is riddled with problems of measurement and specification (Simmons 1971, and 1974b; Harbison 1973; Merret 1960; Hammond 1966; Bhalla 1973). Due to this limitation, the rate of return studies carried out have generally been confined to option b) above. Table 3 below provides the result of rate of return studies as reported by Psacharopoulos (1972), and Ramos (1973). The rates of return obtained give rise to two different sets of observations: a) the different returns to different levels of schooling, and b) the differential between the private and social rates of return to schooling.

In almost every case the benefits to primary schooling are highest, followed closely by those accruing to secondary schooling. The returns to university are almost invariably the lowest. This consistent pattern has led critics (Bowles, 1971; Carney, 1973) to charge that there is underinvestment in primary schooling and overinvestment in the universities - a situation which neatly agrees with the distribution of economic and political power in most poor countries. Actually the conclusion does not necessarily follow from the
TABLE 3: Social and Private Rates of Return by Educational Level

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Primary</th>
<th>Social Secondary</th>
<th>Higher</th>
<th>Primary</th>
<th>Social Secondary</th>
<th>Higher</th>
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<td>13.6</td>
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<td>-</td>
<td>11.7</td>
<td>14.0</td>
<td>-</td>
<td>16.3</td>
<td>19.7</td>
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<tr>
<td>Puerto Rico</td>
<td>1960</td>
<td>20.9</td>
<td>23.8</td>
<td>16.0</td>
<td>a</td>
<td>24.4</td>
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<td></td>
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<td></td>
<td>20.0</td>
<td>15.0</td>
<td>12.15</td>
<td>24.0</td>
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<tr>
<td>Mexico</td>
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<td>32.0</td>
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<td>29.0</td>
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<td>Venezuela</td>
<td>1957</td>
<td>82.0</td>
<td>17.0</td>
<td>23.0</td>
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<td>29.0</td>
<td>27.0</td>
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<tr>
<td>Colombia</td>
<td>1966</td>
<td>40.0</td>
<td>24.0</td>
<td>8.0</td>
<td>b</td>
<td>32.0</td>
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<td>20.0</td>
<td>30.0</td>
<td>19.0</td>
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<tr>
<td>*(for men)</td>
<td>1968</td>
<td>15.3</td>
<td>26.5</td>
<td>2.9</td>
<td>18.4</td>
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<td>*(for women)</td>
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<td>Brazil</td>
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<td>Israel</td>
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<td>16.5</td>
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<td>14.3</td>
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<td>18.5</td>
<td>11.0</td>
<td>11.0</td>
<td>26.5</td>
<td>13.0</td>
<td>14.0</td>
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<td>W. Nigeria</td>
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<td>17.0</td>
<td>30.0</td>
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<td>34.0</td>
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<td>Ghana</td>
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<td>13.0</td>
<td>16.5</td>
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<td>21.7</td>
<td>22.9</td>
<td>8.8</td>
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<td>35.2</td>
<td>27.4</td>
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Sources: Psacharopoulos 1972; Woodhall 1972 (**); Ramos 1971 (* *)

Notes: a) over 100.0
      b) over 50.0
      - not available
Differentials in the returns to different categories of schooling may prevail in situations where universal primary schooling has already been reached - as, for instance, in some metropolitan areas of Latin America. The returns to higher forms of schooling may be depressed for two reasons. First, the costs of production and delivery of university education are very much higher due to the fact that labor costs are higher (university professors generally enjoy greater scarcity value than primary or secondary school teachers) and that capital and equipment costs may also be very much higher. Second, although we do not know for sure whether opportunities for achieving economies of scale exist at the university level, the restricted size of this sector biases the cost structure upwards. Significantly, Chart 5 (p. 21-22) shows that, in general, the lower the level of educational development of a country (or, more specifically, the greater the difference in size between the primary, secondary, and university sectors) the greater the spread in unit costs between higher and primary schooling. This may indicate the presence of economies of scale that could be achieved by expanding the universities.

But not only are the returns to schooling different across levels - the private rates of return are also invariably higher than the social rates. This difference arises because access to schooling is heavily subsidized in most countries. Private costs are much below social costs. The impact of this differential is that it strengthens the private demand for education beyond the point that would otherwise be considered optimal. In practice the excessive demand for schooling may result in, say, graduate unemployment. Blaug et al. (1969) who have studied this phenomenon in India interpret one of the causes of unemployment as being precisely this differential. Using urban data for 1966 they computed the social returns to higher education at 12.7 percent before adjustment, and at 7.4 percent or 8.9 percent after adjusting for
wastage, growth and ability (using alternative values of the ability coefficient of .66 and .50). The private returns on the other hand were of 14.3 percent. The differential, according to their interpretation, acted to jack up demand for higher forms of schooling thus increasing the supply of graduates beyond the point where they could be put into productive employment. Similar situations have been reported by the ILO World Employment Studies (Colombia 1970; Ceylon 1971; Kenya 1972; Iran 1973).

To the extent that schooling is an investment whose economic returns can be measured then it is a factor in economic growth and should be identifiable in the aggregate production function of the economy. To measure the contribution of education to economic growth economists use what is commonly referred to as the "residual" approach. The residual is that part of the growth account which is not explained by the underlying production function. In other words, the residual is given by the difference between total factor productivity and the rate of growth accounted by the productivity of labor and capital.

Economists have been doing this kind of exercise for a long while now. Starting with the Solow (1957), Hassel (1960) and Denison (1962) studies of the American economy, a number of studies have applied the method to a number of poor countries including Greece (Bowles, 1969), Mexico (Carnoy, 1964), Chile (Harberger and Selowsky, 1966; Carnoy, 1967), Colombia (Selowsky, 1965), Kenya (Thias and Carnoy, 1972), and Panama (Harberger, 1972). In all cases the results have been significant. In a typical result Harberger and Selowsky found that during the period 1940-1962 in Chile the contributions of investment in physical capital, the growth of the labor force and improved quality of the labor force explained 1.71 percent of an estimated annual rate of growth of 3.58 percent, thus leaving the residual to account for 1.87 percent - or over 50 percent of the observed rate of growth.
Yet none of these studies have been able to isolate the schooling variable other than, as Blaug puts it, "as a labor augmenting variable." The models have not been able to take account of the interdependencies of education with other inputs into the production process such as improved technology, or even more mundane practices such as more efficient management. Also most of the studies have postulated a Cobb-Douglas production function and worked under the stringent assumptions of homogeneity and linearity -- conditions which do not prevail in the real world.

Still, economic growth has taken place in the poor countries and this growth has been accompanied by the expansion of schooling. How much the schools have contributed to this process is not known with any degree of certainty but this in no way denies the fact that the schools may have made a key contribution to growth - particularly in view of the observed social returns to schooling.

3. Limitations and Failures of the Traditional Model

Notwithstanding the accomplishments under the traditional model of educational development, the schools are still far from achieving the ideals and objectives which justified their significant expansion in the first place. These failures and pitfalls may be examined from different perspectives: a) the distribution of schooling opportunities across the population, b) the costs of providing school services, and c) the importance of schools as learning institutions.

The Distribution of Schooling

Schooling, like everything else, is very unevenly distributed in the poor countries. To the extent that particular groups within a society and particular regions of countries predominate over the rest they secure access to schooling. Thus we find that urban-metropolitan areas receive the bulk
Chart 3

Apparent Retention of the Primary School System in Latin America: Urban and Rural Areas

Urban Cohorts

Source: Estimated from OAS (América en Cifras 1970, Situación Cultural), table 501.40
Source: OAS (op. cit.), table 501-40
Urban Cohorts

Rural Cohorts

Ecuador 1960-65

Panama 1964-1969

Source: OAS (op. cit.), table 501-40
CHART 4

Urban Cohorts

Rural Cohorts

Mexico, 1963-69

Costa Rica 1964-69

Source: OAS (op. cit.), table 501-40
of educational resources at the expense of the rural backlands which are
generally more populated. Moreover, it is not only that schools in the rural
areas are few, far between and financially malnourished but also that the
quality of the services they deliver is not even barely adequate to meet the
learning needs of the school population. Chesswas (1972) concludes in a
study on rural primary education in poor countries that a) teaching quality
is low (as a result of the teacher's own poor training background, low socio-
economic status and general lack of motivation), b) teaching methodology is
poor, unimaginative, and uninspiring - not conducive to encouraging critical
thinking and use of imagination, and c) the content of the curriculum is
divorced from the socio-economic environment of the user. As a result of this
deficiency and the poverty that prevails in the rural areas, the schools suffer
from high wastage rates - particularly desertion. Evidence available for
urban and rural cohort flows in several countries of Latin America shows that
in every case desertion is very much stronger in the rural than in the urban
areas. The proportion of children who start and finish primary in the rural
areas is in one case (Bolivia) as low as 5 percent, and only in two cases
(Panama and Costa Rica) is this proportion of approximately 40 percent (see
charts 3 and 4 above). Another way of looking at this differential is to
point out that, on average, rural children in a number of Latin American
countries attend schools for 3.47 years while urban children log an average
of 5.29 years in schools (UNESCO, 1971, Table 2.7).

Still a more compelling way to show the distribution of schooling
across the population is by means of Gini coefficients. Table 4 taken
from Barkin (1971) shows that the Gini's for schooling in Mexico for the period
1950-1970 are of a higher order of magnitude (implying less equality of dis-
tribution) than the Gini coefficients for income distribution. Moreover,
there are significant differentials in the distribution of schooling by years
TABLE 4: Distribution of Income and of Resources Devoted to Education: Mexico, 1950-1963

<table>
<thead>
<tr>
<th>YEAR</th>
<th>GINI of INCOME</th>
<th>DISTRIBUTION OF EDUCATION BY YEARS OF Education</th>
<th>Educational Resources</th>
<th>Returns to Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>.50</td>
<td>.61 4</td>
<td>.83 4</td>
<td>.88 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b).65</td>
<td>b).82</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>c).58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1960</td>
<td>.64</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1963</td>
<td>.55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>.58 6</td>
<td>a).55 15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: D. Barkin (1971) - Table 1.


2. Obtained by using information on the costs of education estimated by Carnoy (19).

3. Calculated on the basis of information on the returns to education computed by Keasing, "The Role of Skills and Education in the Economics of Growth and Development" (mimeo).

4. Refers to the population over 25 in 1950. The assumptions made to interpolate the census data were: population 1-6 had attained 2 years of schooling, group 6-9: 8 years, group 10-12: 11 years, group 13-29: 17 years.

5. Assuming 3,8,11, and 17 years of educational attainment for interpolating census data,
   a) population over 15 years of age
   b) population over 30 years of age
   c) population classified as economically active
of schooling, the resources allocated to the schools, and the returns to schooling. The evidence shows that the distribution by years of schooling is more egalitarian than the distribution of educational resources across different levels of schooling, which is in turn more egalitarian than the distribution of the returns to education. Frederick Harbison (1971) has arrived at a similar conclusion concerning the dualism of educational development. Using a taxonomic analysis for ranking, classification and comparison of countries and regions, and specifying the derivation of eight indices-indicators of development he concludes: If Mexico's case be extrapolated, highly urbanized regions behave as if they were developed countries within an underdeveloped group. For example, the Distrito Federal falls outside the c.m.d. (critical minimum distance) in every index. The widest range for the measure of development occurs in the educational enrollment index while the narrowest occurs in the cultural index." 12*

The Costs of Schooling

While the coverage and scope of schools has been found to be limited and maldistributed, the amount of resources allocated by poor countries to these institutions has been growing steadily during the recent past. Given the resource constraints faced by these countries (constraints that have, in some cases, become binding in the last year) it is becoming increasingly hard to accept the notion that the present path of educational development can continue uninterrupted. In many countries the resources allocated to education have been growing faster than national income, and elementary arithmetic tells us that this cannot continue for long. Also, the scarcity of resources means not only that there are competing uses for these resources, but that those resources that are allocated to education should be used in a most efficient manner - obtaining the highest social returns given a fixed resource base.
TABLE 5: Public Expenditure on Education at Current Market Prices

<table>
<thead>
<tr>
<th>COUNTRY/YEARS</th>
<th>CURRENT EXPENDITURE (000,000)</th>
<th>CAPITAL EXPENDITURE (000,000)</th>
<th>TEACHER'S SALARIES AS PERCENTAGE OF CURRENT EXPEND.</th>
<th>EXPENDITURES AS PERCENTAGE OF G.N.P.</th>
<th>EXPENDITURES AS PERCENTAGE OF BUDGET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ivory Coast (CFA Franc)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1960</td>
<td>4453.0</td>
<td>1347.</td>
<td>-</td>
<td>4.2</td>
<td>15.1</td>
</tr>
<tr>
<td>1965</td>
<td>9205.0</td>
<td>2253.9</td>
<td>-</td>
<td>5.0</td>
<td>20.4</td>
</tr>
<tr>
<td>1969</td>
<td>18635.0</td>
<td>1520.0</td>
<td>51</td>
<td>6.4</td>
<td>27.7</td>
</tr>
<tr>
<td>1970</td>
<td>21318.4</td>
<td>4759.0</td>
<td>57</td>
<td>-</td>
<td>22.5</td>
</tr>
<tr>
<td>Korea (Won)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1961</td>
<td>7448.1</td>
<td>2145.8</td>
<td>70</td>
<td>3.2</td>
<td>-</td>
</tr>
<tr>
<td>1965</td>
<td>13183.5</td>
<td>1439.1</td>
<td>78</td>
<td>1.8</td>
<td>17.2</td>
</tr>
<tr>
<td>1969</td>
<td>46069.7</td>
<td>10253.1</td>
<td>78</td>
<td>3.6</td>
<td>21.2</td>
</tr>
<tr>
<td>1970</td>
<td>73809.6</td>
<td>21881.7</td>
<td>80</td>
<td>3.8</td>
<td>21.4</td>
</tr>
<tr>
<td>Thailand (Baht)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1959</td>
<td>1129.9</td>
<td>104.1</td>
<td>79</td>
<td>2.5</td>
<td>-</td>
</tr>
<tr>
<td>1965</td>
<td>2069.7</td>
<td>420.2</td>
<td>75</td>
<td>3.1</td>
<td>17.3</td>
</tr>
<tr>
<td>1969</td>
<td>2443.9</td>
<td>935.1</td>
<td>78</td>
<td>3.3</td>
<td>15.9</td>
</tr>
<tr>
<td>1970</td>
<td>3461.6</td>
<td>1270.9</td>
<td>65</td>
<td>-</td>
<td>16.7</td>
</tr>
<tr>
<td>Costa Rica (Colon)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1960</td>
<td>112.5</td>
<td>4.3</td>
<td>73</td>
<td>4.2</td>
<td>29.6</td>
</tr>
<tr>
<td>1965</td>
<td>174.4</td>
<td>26.7</td>
<td>73</td>
<td>5.2</td>
<td>33.1</td>
</tr>
<tr>
<td>1968</td>
<td>244.9</td>
<td>18.5</td>
<td>71</td>
<td>5.9</td>
<td>33.4</td>
</tr>
<tr>
<td>1969</td>
<td>331.5</td>
<td>27.9</td>
<td>75</td>
<td>6.5</td>
<td>35.2</td>
</tr>
<tr>
<td>Ecuador (Sucre)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1960</td>
<td>313.1</td>
<td>51.0</td>
<td>53</td>
<td>2.6</td>
<td>-</td>
</tr>
<tr>
<td>1965</td>
<td>526.4</td>
<td>83.7</td>
<td>59</td>
<td>3.0</td>
<td>-</td>
</tr>
<tr>
<td>1969</td>
<td>853.9</td>
<td>200.9</td>
<td>79</td>
<td>3.9</td>
<td>21.8</td>
</tr>
<tr>
<td>1970</td>
<td>1133.5</td>
<td>311.5</td>
<td>76</td>
<td>4.5</td>
<td>23.2</td>
</tr>
</tbody>
</table>

Source: UNESCO, *Statistical Yearbook 1972*, Table 5.1
Chart 5: Expenditure on Education by Level and Type of Schooling (Unit Costs)

Costa Rica (1960-1965)

Source: UNESCO Statistical Yearbook 1971
That schooling is a very expensive enterprise is demonstrated on Table 5 and Chart 5. Anywhere from 3 percent to 6 percent of GNP and from 15 percent to 30 percent of government budgets are allocated to the schools. Moreover, schooling, a highly labor-intensive industry, has an inflationary bias built into its production function. Current expenditures make up approximately 75 percent to 90 percent of total expenditure on schooling, and teacher salaries, in turn, make up between 50 percent and 75 percent of operating costs. In all the examples presented we find that current expenditures have at least tripled in the span of 10 years. To name a specific example, in Venezuela teacher's salaries went from 181.4 million bolivares in 1963 to 300.4 million in 1965 to 433 million in 1971. 13*

The perspectives for slowing down the spiraling costs of schooling appear to be nonexistent under the present technology. Most poor countries have high rates of population growth which imply an ever widening base of population under 20 years of age which under the present model of educational development should be provided with universal primary education. Chau (1972) has done a series of studies on the sensitivity of primary school costs to alternative paths of population growth during the period 1968-1989 in Ceylon, Tunisia, Colombia and Tanzania. His findings, presented on Tables 6 and 7, show the coefficients of increase in costs of providing schooling under the present model will range from 2.586 for the low population assumption for Ceylon to 8.416 for the high population assumption for Tanzania. The recurrent costs of first-level education as percentage of GDP would range from 1.88 percent for Ceylon under the low population assumption (lower than the 1.97 percent for 1968) to 5.62 percent for Tanzania and 5.27 percent for Tunisia under the high population assumption.

The variation across countries is explained by the state of educational development the countries have already attained and the effort they have to
TABLE 6: Coefficients of Increase by Factor and Total Increase Affecting Costs over the Period 1968-1989

<table>
<thead>
<tr>
<th></th>
<th>Ceylon</th>
<th>Tunisia</th>
<th>Colombia</th>
<th>Tanzania</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>I</td>
</tr>
<tr>
<td>Population Growth</td>
<td>0.981</td>
<td>1.350</td>
<td>1.641</td>
<td>1.169</td>
</tr>
<tr>
<td>Higher Intake Rate</td>
<td>0.906</td>
<td>0.906</td>
<td>0.906</td>
<td>1.149</td>
</tr>
<tr>
<td>Improved Retention Rate</td>
<td>1.301</td>
<td>1.222</td>
<td>1.176</td>
<td>1.112</td>
</tr>
<tr>
<td>Improved Qualification</td>
<td>1.109</td>
<td>1.109</td>
<td>1.109</td>
<td>1.085</td>
</tr>
<tr>
<td>Increase in Salaries</td>
<td>1.639</td>
<td>1.618</td>
<td>1.607</td>
<td>1.778</td>
</tr>
<tr>
<td>Change in Ratio Total Costs/Teacher Costs</td>
<td>1.067</td>
<td>1.069</td>
<td>1.071</td>
<td>0.938</td>
</tr>
<tr>
<td></td>
<td>7.451</td>
<td>8.008</td>
<td>8.416</td>
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</tr>
</tbody>
</table>

TOTAL INCREASE

Note: The total increase is, of course, equal to the product of the coefficients of increase attributable to each of the factors which influence the increase of total costs.

I  Low Population Assumption
II  Medium Population Assumption
III High Population Assumption

\(^1\) In the case of Tunisia there was a substantial increase in salaries (more than 25 percent) in 1970. This had to be taken into account in future projections. Because of this, salaries increase more quickly than the GDP per person of working age when calculated for the base year (1968).

Source: Châu (1972)
<table>
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<tr>
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<tr>
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<td>I</td>
<td>II</td>
<td>III</td>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td>Total Intake Rate</td>
<td>110.4</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>125.2</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>51.2</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>51.2</td>
<td>100.0</td>
<td>100.0</td>
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<tr>
<td>(percentage)</td>
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<tr>
<td>Intake Rate in Public</td>
<td>110.4</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>101.4</td>
<td>81.3</td>
<td>61.3</td>
<td>81.3</td>
<td>43.5</td>
<td>95.0</td>
<td>95.0</td>
<td>95.0</td>
<td>87.5</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Education (percentage)</td>
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<tr>
<td>Admission-age population</td>
<td>5.26</td>
<td>3.03</td>
<td>4.12</td>
<td>4.97</td>
<td>6.37</td>
<td>4.41</td>
<td>5.34</td>
<td>6.31</td>
<td>5.56</td>
<td>5.58</td>
<td>6.03</td>
<td>6.46</td>
<td>6.43</td>
<td>3.80</td>
<td>5.20</td>
</tr>
<tr>
<td>as percentage of working</td>
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</tr>
<tr>
<td>Average length of first</td>
<td>6.4</td>
<td>7.2</td>
<td>7.2</td>
<td>7.2</td>
<td>3.50</td>
<td>5.05</td>
<td>5.05</td>
<td>5.05</td>
<td>5.30</td>
<td>6.60</td>
<td>6.60</td>
<td>6.60</td>
<td>7.0</td>
<td>7.20</td>
<td>7.20</td>
</tr>
<tr>
<td>level schooling</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>Total enrollment/new</td>
<td>5.74</td>
<td>7.67</td>
<td>7.01</td>
<td>6.75</td>
<td>3.36</td>
<td>4.88</td>
<td>4.80</td>
<td>4.64</td>
<td>4.91</td>
<td>5.47</td>
<td>5.42</td>
<td>5.37</td>
<td>6.33</td>
<td>7.04</td>
<td>6.60</td>
</tr>
<tr>
<td>entries ratio</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td>Pupil teacher ratio</td>
<td>33.2:1</td>
<td>28:1</td>
<td>28:1</td>
<td>28:1</td>
<td>38.9:1</td>
<td>35:1</td>
<td>35:1</td>
<td>35:1</td>
<td>49.3:1</td>
<td>37.1:1</td>
<td>37.2:1</td>
<td>37.4:1</td>
<td>52.2:1</td>
<td>42.4:1</td>
<td>42.6:1</td>
</tr>
<tr>
<td>Average teacher's salary</td>
<td>1.74</td>
<td>1.93</td>
<td>1.93</td>
<td>1.93</td>
<td>1.75</td>
<td>2.75</td>
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<td>2.64</td>
<td>5.43</td>
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<td>5.65</td>
<td>3.62</td>
<td>4.72</td>
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<td>person of working age</td>
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<td>Total recurrent costs</td>
<td>112.7</td>
<td>120.3</td>
<td>120.5</td>
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<td>107.5</td>
<td>107.5</td>
<td>107.5</td>
<td>107.5</td>
<td>130.8</td>
<td>112.7</td>
<td>112.8</td>
<td>112.9</td>
<td>114.4</td>
<td>108.2</td>
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<td>as percentage of teacher costs</td>
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<td>Recurrent costs of first</td>
<td>1.97</td>
<td>1.88</td>
<td>2.40</td>
<td>2.80</td>
<td>1.05</td>
<td>1.48</td>
<td>1.79</td>
<td>1.94</td>
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<td>5.04</td>
<td>5.35</td>
<td>5.62</td>
<td>2.75</td>
<td>3.23</td>
<td>4.12</td>
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<td>level education as percentage of GDP</td>
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<td>I Low Population Assumption; II Medium Population Assumption; III High Population Assumption</td>
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<td>Source: Chau (1972)</td>
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</table>
make to reach the goal of universal primary education, and by the demographic projections which differ across countries. In addition, the sensitivity of the parameters to alternative values of the variables chosen shows that improvement in the quality of the system through higher intake and retention rates will have a major impact on the projected costs of schooling. A similar observation applies to improvements in the pupil-teacher ratio, higher teacher qualifications, and increases in salaries (which Châu and his colleagues conservatively assume would increase at about the rate of growth of national income).

To summarize, the issue of the costs of schooling can be put as follows: a) the poor countries, strapped for resources as they are, are devoting large and increasing amounts to the schools; b) given the competing social objectives perceived by governments in the poor countries it is difficult that the resources allocated to the schools can grow much faster than the present rates; c) under the present model of educational development, and with unchanging technology, most poor countries can expect to see their schooling costs grow at rates likely to be higher than the growth in national income and this situation is likely to lead many poor countries into binding constraints for further educational development; and d) attempts to improve the quality and the absorption capacity of the primary schools will put further upward pressure on the costs of formal education, beyond the costs that will accrue from the growth in the population base.

Schooling and Learning Outcomes

The schools are in business to aid in the provision of knowledge and cognitive skills, and they have been traditionally recognized as the primary institutions for learning. Recent research, however, has cast doubt on the effectiveness of the schools as learning agents. Simmons (1974a) who has done an extensive review of the literature puts forth the implications of educational research as follows:
a) Research has not identified a variant of the existing system that is consistently related to students' educational outcomes. To put it differently, nothing has been found that consistently and unambiguously makes a difference in students' cognitive outcomes.

b) The educational practices that some studies find significantly related to outcome are found by other studies to be non-significant.

c) There is little knowledge of what student outcomes would be were there no schools at all.

c) Increasing expenditures on the traditional model, with unchanged technology, is not likely to improve outcomes substantially.

e) A major reallocation of educational resources could take place without significantly affecting educational outcomes.

f) The smaller the school system the more innovative and adaptive and responsive the schools are to educational and social needs, and,

g) Improvements in students' outcomes may require sweeping changes in the organization, structure, and conduct of educational experiences.

The findings and conclusions of the research points in the direction of the primacy of the learning environment outside the school system. Factors such as nutrition practices in early childhood and diet (which influence the development of the human brain), the attitudes of the parents with respect to the education of the children, the personality of the students, and just mere chance are judged to be more important in determining educational outcomes than variations in the school environment.

What is interesting about the research is that the results generally obtained under different approaches all converge in the direction of decreasing the importance of the schools. Input-output studies, based, so far, on the specification of linear production functions of schooling, have concluded that school resources are not significant, but individual background factors are significant in affecting educational outcomes. Other approaches such as the process and organizational approaches which stress the interaction of students and teachers and the organizational set-up of the school system, have come to
similar conclusions: there is no significant variation in outcomes attached to teaching variables and instructional methods; and the school system, which places emphasis on centralization, bureaucratization and bigness is generally impervious to the social needs that education must serve. Research based on the experiential approach, which emphasizes the importance of the process by which the school affects students own regard, finds that the schools are dictatorial and lay stress on conformism thereby stifling individual initiative and creativity.

The research findings have to be taken with a grain of salt, however. Simmons himself notes that educational research is seriously deficient in its scope, size and focus. Moreover the research has been largely concentrated in developed countries and it is not always safe to make inferential leaps to the poor countries. In particular the research does not deal with variables that are of strategic importance to determine the learning outcomes in the poor countries. These include the effects of early malnutrition on brain development, the poverty of the environment (unequally distributed within countries) which influences the shape and scope of school supply and demand, problems of logistics such as transportation and distance to and from schools, health and sanitation problems and their effect on the demand for schooling, cultural mores and taboos, and racial and language differences. Thus, since the studies are specified at national level they miss the large variance that exists in the schooling system, within countries. They also overlook the socio-economic differences that prevail in dualistic societies — differences which may introduce fundamental biases in the likely learning outcomes notwithstanding any impact that schools may have.

Finally, as Schiefalbein (1973) observes, the research is not unanimous in minimizing the importance of schools. Research undertaken in Brazil, Colombia, Chile, Puerto Rico, and Venezuela (Wolf 1971; Drysdale 1972;
Schiefelbein and Farrel 1973 - ; Carnoy 1971; Garcia et al. 1973) shows that school variables are important in explaining the variance in learning outcomes. Schiefelbein's own work in Chile and Wolf's work in Brazil show that textbooks have a significant impact on the quality of education. The regression results for Venezuela show that an increase in teaching salaries of 10 bolivares per month is associated with a 4 percent improvement in students language achievement, a 3 percent improvement in mathematical achievement, and no improvement in the ability to manipulate basic arithmetical operations.

What can be said to conclude this section? First of all there are a number of readily apparent accomplishments of the schools. The expansion of the schools has been associated with steady economic growth of the poor countries (though the causation problem here is of the most baffling chicken and egg kind). The school systems have expanded at real rates faster than the growth of the population and, despite the definitional problems involved, most countries have experienced a steady advance in the educational development indicators. 15*

On the other hand, the schools, reflecting the allocation of power and responsibility in society, have limited the effective provision of their services to minorities. In the process, critics charge, they have failed to promote the objectives of social welfare which are the basis on which educational development rests. Their ever increasing costs have made clear that they may become expensive luxuries which most poor countries cannot afford. Finally, and this may be the ultimate blow to traditional educationalists, their importance in the learning process has been scrutinized closely and has been found wanting - though, as pointed out, the issue is by no means settled.
II ALTERNATIVES: BROADER-BASED MODELS OF EDUCATIONAL DEVELOPMENT

The alternatives to the school-based model of educational development arise from two sets of circumstances. One is negative and stems from the failures of the schools which were examined in Part I. The other set is positive and arises from the recognition that education entails the acquisition of knowledge and skills, not necessarily bound by the limited learning experiences offered by the schools.

Within this more inclusive framework, the range of educational experiences is considerably expanded. Education is no longer equated with schooling. It includes, in addition, the range of organized programs designed to meet the learning needs of specific clienteles outside the formal system - what is called nonformal education. More importantly, it includes the learning stimuli that individuals are exposed to in their daily living - or informal education.

It is well to note at this point that, conceptually, education is a unit and that the compartmentalization into formal, nonformal and informal is made for analytical convenience. The choice between formal and nonformal modes is not as between black and white. Nonformal education can replace the formal system in those areas where the former may have a clear advantage, but, in addition, it may complement the formal system (as in, for instance, the preparation of children for attending the schools, or the provision of life-long experiences). In practice, however, the expansion of nonformal programs entails a real choice for poor countries to make. The changes suggested in the strategies proposed (see, for instance, Coombs et al. 1974; Michigan State University early reports on nonformal education, 1972; and University of Massachusetts, 1971) are not marginal in nature. They entail a major overhaul of the system with the schools, as we know them now, losing part, or all, of
their pre-eminence. This point, not surprisingly, is a delicate one since the change in strategies entails political opposition from the established order. Up to now not one poor country that follows some variant of the democracy-capitalism mode of development, save perhaps Ethiopia, has acted decisively and effectively to change the traditional school model. And this is a tribute to the capacity of the vested interests to stall change. 16*

That nonformal education offers a multitude of avenues and methods to deliver educational services is demonstrated below on Table 8. Nonformal education programs cover the three broad sectors of economic activity: agriculture, industry, and the services. The programs may be community based or they may originate within the government sector. They may be designed to provide job related skills, or to instill attitudinal change to the users. They may use a wide array of delivery systems ranging from conventional teaching, to making extensive use of the mass media (e.g., radio programs) or the printed media (educational newspapers and comics), and even make use of electronic media. Unlike the schools which cater to a "narrow" age-specific audience, the programs of nonformal education may span a wide range of users going all the way from pre-schoolers to elderly people. Similarly, programs of nonformal education may be aimed at different target areas of learning which go beyond the three R's that primary schools emphasize for the most part. Together, this set of circumstances makes the definitional problem an acute one in nonformal education. 17*

All these characteristics ascribed to nonformal education tie in rather well with the "new conception of development" that lays stress on distributive justice rather than growth. According to this view, to the extent that education is an input into the processes of economic growth and social development it should maximize the growth potential of the economy but, more importantly, it should promote social change. To put it in more
Table 8 The Range of Programs of Nonformal Education

By Function

Agricultural Extension
- Extension Services
- Farm Management Training
- Nonformal Training
- Integrated Programs
- Marketing
- Youth Clubs

Business and Industrial Training
- Training on the Job
- Training off the Job
- Apprenticeship Training
- Relational Instruction
- Cooperative Work Training
- Military Education

Community-Based Learning (Regional)
- Street Academies
- Work Experiences
- "Urban Academies" (Citywide)
- Cooperative Education
- Vocational
- Family-Centered Alternatives
- Rural Education
- Open Universities
- Refuges
- Peer Learning

Attitude-Changing Programs
- Leadership Training
- Remedial Instruction
- Constructive and Recuperative
- Outward Bound
- Guerrilla Theater
- Ethnic Theater
- Life and Survival Skills
- Animation

Communication Media
- Audio-Visual: General
- Films and Film Strips
- Radio and TV
- Video Taping

By Delivery Systems

Printed Media and Other Technology Centers
- Book Development Programs
- Rural Journalism
- Correspondence Course
- Mobile Training Units
- Satellite Computers
- Individualized Approaches and Conventional Family

By Target Areas

Adult Education: Youth Programs
- Rural Development
- Rural Education: Vocational Education: Health; Nutrition; Family Planning; Hunger
- Rural Development: Urban Migration
- Cooperatives

Source: RID, 1971; University of Massachusetts, 1971; Zimetman, 1973; Cermak, 1974
concrete terms, the new conception of development stresses that at the heart of the problem of educational development there is a question of allocating the scarce resources into the most efficient mode of delivery of educational services to achieve the goals of redistributing economic and social power while minimizing the loss of economic growth (Adelman and Morris 1972; Keessing (mimeo); Papanek 1973; Pen 1971; Princeton/Brookings 1973).

The proponents of this view are quick to point out that the school-based model of educational development is inconsistent with objectives (Bowles 1971; Bhagwati 1973). Under these circumstances, the expansion of nonformal education has emerged as a desirable set of policies for strengthening the development of human resources on a more egalitarian basis than that achieved through the traditional model. Pressed to make a convincing case, the proponents of nonformal education have emphasized a number of characteristics of nonformal education which, they note, make this mode of educational development a desirable path to take. All these arguments somehow converge to the view that nonformal education has higher productivity than the traditional school model. Productivity is defined in the broadest possible terms to imply the ability of these programs to promote educational outcomes by making an efficient (optimal even) use of the educational inputs to promote radical social change. Nonformal education's alleged superiority is thus based on a set of characteristics which include:

1) short-term courses with operational objectives (and the advantage these imply for planning manpower requirements)

2) multitude of delivery systems which can make effective use of community resources

3) multitude of cost-saving devices which make nonformal programs a more attractive proposition than the rigidly structured formal systems including:

a) the use of borrowed facilities
b) the use of volunteers, part-time teachers, and paraprofessionals
c) the extensive use of mass media, mobile training centers, correspondence courses and other means for reaching mass audiences

d) the emphasis on on-the-job training techniques.

In the rest of this section I shall concentrate on the examination of these characteristics. The analysis starts by setting forth the caveats necessary for comparison. This is followed by a discussion of the limitation of benefit cost analysis for evaluating nonformal education. The next section surveys the actual studies that have been made of nonformal programs, or of comparisons between formal and nonformal modes. The rest of the section takes up the comparison proper, including a discussion of cost aspects of nonformal education and other areas that have to do with broadly-defined productivity, namely: quality aspects in nonformal education, organizational setup and the ability to reach low-end poverty groups, and the likely outcomes resulting from the "centralization" of nonformal education. Lastly, attention is focused on the allocation of resources within nonformal education.

A. Comparison of Formal and Nonformal Modes - Caveats

It is in the nature of any comparison that bananas should be measured against bananas and apples against apples, otherwise the comparison is not valid. In comparing formal against nonformal education one runs the risk of counting together apples and bananas. To secure a reasonable basis for comparison one has to look, on the one hand, at the objectives of the program and, on the other, at the methodology or the mix of inputs. Comparison of objectives may look deceptively simple but it can lead to mistaken conclusions. For instance, one may decide that a literacy program is more effective than a four year program of elementary schooling which is designed to impart similar skills. Yet the objectives of these two alternatives are not at all alike (other than, perhaps, the assumption that at the end of the program individuals will be literate). The literacy program is designed to teach literacy to a
predominantly adult clientele that has most likely not had previous access to schooling, and there is a premium on achieving the goal in the very short run. The school, on the other hand, is designed to teach literacy, and other things, to children or youths who are assumed to continue their formal schooling and who will have a different use to make of the skills they receive - say, for instance, learn to read material that will strengthen their capacity to deal in conceptual categories as opposed to learning how to read a manual of instruction of proper harvesting practices. The proper level of comparison in this example would be in the alternatives presented to the decision-maker. Should society push for strengthening and expanding the literacy programs, or should more resources be invested in the primary schools, or what combination of these two will lead to constrained optimization?

The problems associated with setting up appropriate criteria for comparison between formal and nonformal education are fundamental since the specification of these criteria is at the heart of any systematic decision-making. Yet as Rivlin (1971) notes, systems analysis, which has been rather extensively applied in the United States for gauging the effectiveness of social programs, has not helped to elucidate the criteria needed for comparing the benefits of alternative programs, or to design ways to produce more effective social services. In the poor countries where the state of the art is considerably more primitive, and where the resources are lacking to mount social experiments, the situation is far more precarious. On the one hand, government functionaries and decision-makers are loath to base their decisions on the basis of systematic approaches. On the other hand, the analysts qualified to carry out this sort of studies are very scarce and they are quite often outsiders who thread very thin political lines.
B. On Benefit-Cost Analysis: Limitations in the Applications to Nonformal Education

Of special importance for discerning the alternatives available to decision-makers are the techniques of benefit-cost and cost-effectiveness analysis. These techniques have been widely applied in the economics of investment in human resources (see, for example, the bibliography by Wood and Campbell, 1971) in the rich countries. Yet before reporting on the results obtained so far, it is convenient to examine the particular characteristics of nonformal education that complicate and limit the effectiveness of benefit-cost analysis.

Hunter (1974) notes that the difficulties of applying benefit-cost analysis to nonformal education overshadow those that arise in the treatment of formal education. For one, he points out, the input-output relationship is not clear and the analyst is denied the practice of dividing total costs by some unit of input to obtain an average cost per unit of output. What is, after all, the output of nonformal education when the programs are not standardized as they generally are in formal education? Moreover, the clientele of any program of nonformal education may be so varied (including say, illiterates, with skilled workers) that, again, it may not be possible to arrive at a rate of return that is reasonably valid for the entire group. Since the distribution of programs by duration also has great variance the analyst may be at a loss to try to set standards for measurement and comparison.

The analyst is also faced with phenomenal problems of joint costs and joint product. An aggregate earnings model of the type developed by Simons (1974b), see page 42, would take into account such factors as family background, personality, schooling, work experience and effective use of skills possessed to arrive at a determination of earnings. We can appreciate the acuteness of the aggregation problem and how to disentangle nonformal
education from it.

Another limitation arises from the measurement of opportunity costs. In formal education it is possible to arrive at an estimate of opportunity cost by looking at the earnings of reasonably comparable control groups. In nonformal education, however, this is not always the case as the users of a program may be a highly heterogeneous group that may span a wide range of opportunity costs. This observation ties in with the difficulty that the analyst may face in finding a valid control group. Thus it may very well be impossible to appraise the benefits of the program on users of such diverse background and status.

Additional problems arise from the specification of the consumption and investment aspects of the programs. Some would be undertaken solely for investment purposes (as is on-the-job training), in others the consumption component may be dominant. Moreover, problems of measurement may arise from the presence of non-pecuniary externalities, the extent of non-monetary remuneration, and the specification of non-economic benefits which benefit-cost analysis is not equipped to handle.

Finally, one very fundamental problem arises from the general equilibrium framework implied in the strategy of expansion of nonformal education. The economic evaluation of a project is carried within the framework of partial equilibrium analysis which assumes factor prices of inputs and outcomes as fixed. Yet, if any major expansion of these programs is undertaken this means that the relevant supply and demand characteristics of the factors change and that it is no longer valid to hold them as fixed. Failure to consider this limitation of benefit-cost analysis can lead to very erroneous results. A good example of this is that reported by Arrigazzi (1972) concerning a major expansion of vocational education in Chile. The group in charge of the study arrived at a rate of return figure of 50 percent
For the expansion of IMCAP's vocational courses, the assumptions concerning the effectiveness and efficiency of the programs with regard to the placement of graduates in higher paying jobs were most optimistic. Of particular interest, however, was the assumption that the wage differential between workers who had the training and the control group would remain large. This was based on the fact that the expansion was made in spite of the fact that the expansion was non-trivial. IMCAP was supposed to train 30,000 of the 43,000 trainees required annually. This doubling of the attained in previous IMCAP programs. Realistically, the expansion in the number of skilled workers would put downward pressure on the wages they could command in the labor market - thus lowering the benefits attributable to the training program.
work a review of the literature and methodology for evaluation. Other research efforts have been focused on the effectiveness of alternative instructional media (Jamison et al. 1974) including traditional instruction, instructional radio, instructional television, programmed instruction, and computer assisted instruction. Work has also been carried out concerning the combinations of training and experience required to become a tool and die maker and other higher level occupations, with samples from Belgium and Argentina (Maton 1969). Simmons (1971 and 1974b) has done work on the relative benefits of formal and informal education for workers in the shoe industry in Tunisia. Application of benefit-cost analysis for youth training and employment schemes has been made by Costa (1973) with case studies presented from the National Youth Service in Kenya and Youth Settlement Schemes in Sri Lanka; with references also made to the Tunisian national training-cum-production service, the alternative military service in the French overseas departments of Guadeloupe, Martinique, Guiana, and Reunion, and the army vocational training centers command in Peru. In the agricultural field an evaluation study has been made of the National Extension Services in Latin America (Rice 1971), from the point of view of the productivity of American-provided credit and technical assistance. Some of the most notorious (i.e., showcase) agricultural development projects, in particular the ones funded with foreign aid, have also been subjected to evaluation (in some cases to systematic benefit-cost analysis). Examples of these include evaluation of the Plan Puebla in Mexico (Brumberg 1972 unpub.; Cano and Winkelman 1971; Myren 1971; staff 1973), the Programme on Agricultural Credit and Cooperation in Afghanistan (PACCA), the Chilalo Agricultural Development Unit in Ethiopia (CADU) (staff 1972 and Nekby 1970), and the Gezira Project in the Sudan (Gaitskell 1959, Khalil 1970). All of these projects, it should be noted, are integrated schemes of agricultural development (i.e., providing the range of services: credit,
marketing, extension, etc., which are generally associated with boosting agricultural productivity) and should be distinguished from the more narrowly conceived extension and training programs in agriculture.

What are generally the findings in the literature? The Zymelman study which reviews comparative studies of formal vocational schooling with on-the-job (OJT) training, vocational schools with general secondary schools, formal vocational schools, and non-school vocational programs, comes to the conclusion "there is no conclusive evidence that shows one type of training to be superior to another in terms of cost-effectiveness criteria," (p. 16).

It should be added that a) of the 55 studies mentioned only a handful were carried out in poor countries (Brazil, Chile, and India), and b) the conclusions and recommendations which the authors of some of the studies reach are unwarranted, and they do not provide a systematic treatment of alternatives. 21*

The studies in the American literature deal basically with the economic implications of programs for training and retraining the unemployed. Their main conclusions are along the following lines:

a) Vocational education is not socially very profitable (particularly if compared to general education). This is due to the high costs of vocational programs and the narrow benefits obtained as reflected in wage differentials (Corazzini 1966, 1967, 1968; Tausig 1968)

b) Given the criteria of resource scarcity, speed of training, recognition, and admission standards, the alternative of part-time courses would appear to be the most logical choice. Day-release, block-release, and accelerated training courses meet the criteria of speed, acceptability, and economy (Drouet 1968)

c) Benefits and costs are sensitive to the length of the course: the longer the course the lower the private benefits. Benefits accruing to the government in medium and long-term training (200 - 1900 hours/enrollee) are also low or negative particularly since, on occasion, the cash position of the government is worsened as a result of the program. (Hardin and Borus 1971)
d) while the economic efficiency of training programs is of paramount importance, the decision-maker should not expect that programs aimed at the poor will always be the most efficient alternative. Such concerns as the distribution of economic wealth and the mechanics of redistribution should also have primacy (Somers and Weisbrod, mimeo).

In the area of effectiveness of alternative instructional media the findings are also not clear cut (Jamison et al. 1974). Comparison of traditional instruction, instructional radio, instructional television, programmed instruction, and computer-assisted instruction yields no clear ranking of effectiveness. A number of studies, however, show that instructional radio coupled with appropriate printed material is almost as effective as traditional instruction. Instructional TV, on the other hand, if used to simulate traditional instruction, is found to be as effective in affecting learning outcomes as traditional instruction.

In theory, nonformal education could make use of technologies, which like instructional radio or instructional TV, lower the cost (and thereby reach a higher level of cost-effectiveness) of delivering educational services. In practice, however, nonformal education programs have rarely made use of the media to lower costs, and in those cases where use of the media has been made the results have by no means pointed in a definitive direction of greater efficiency (Coombs 1974, ch. 10). Moreover, the logistics of mounting a mass media program in nonformal education for the rural areas can be overwhelming. The difficulties lie not so much in reaching rural users through the radio, but in implementing the supportive services such as printed materials, radio groups and monitors, and ensuring the design of appropriate curricula.

Simmons' work has concentrated on the specification and testing of what he calls an improved model for the determination of earnings (1971 and 1974b). The traditional human capital model makes earnings a function of age and schooling. More recent models, Simmons notes, have added intelligence
and socio-economic status. His model, however, goes beyond these rough measures and adds parental background, personality, schooling, work experience and use of literacy to determine earnings. Simmons admits, however, that this is still a simplification of the factors contributing to earnings because it does not measure worker motivation and intelligence, it treats informal learning inadequately, and it overlooks the more purely physical and physiological fitness aspects that determine whether an individual can perform a task or not.

Simmons tested his model with a random sample of 339 workers drawn from the Tunisian shoe industry -- "this industry was chosen because it is potentially representative of an industry found in most developing countries, and because the wages of many of the workers are based on a piece rate, thus approximating a measure of the marginal productivity of labor." He first tested the standard human capital model which makes earnings (Y) a function of age (A) and schooling. The regression equation results were as follows:

\[
Y = 498 + 17A = 26 \quad S \quad R^2 = .10
\]

(coefficients significant at the P<.01 level)

The coefficient of determination, however, explains only 10 percent of the variance in earnings. Specifying the "improved" model which makes earnings a function of work experience, schooling, socio-economic background, attitude and behavior, Simmons' results were as follows:

Dependent variable: earnings/day

<table>
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<th>Independent variables:</th>
<th>( B )</th>
<th>( t )</th>
<th>( F )</th>
</tr>
</thead>
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<tr>
<td>Work experience</td>
<td>140</td>
<td>.42</td>
<td>67</td>
</tr>
<tr>
<td>Use of cognitive skills at work</td>
<td>221</td>
<td>.16</td>
<td>12</td>
</tr>
<tr>
<td>Primary schooling</td>
<td>25</td>
<td>.16</td>
<td>9</td>
</tr>
<tr>
<td>Improve self</td>
<td>-174</td>
<td>-.09</td>
<td>4</td>
</tr>
<tr>
<td>Save money</td>
<td>190</td>
<td>.11</td>
<td>5</td>
</tr>
<tr>
<td>Born in village</td>
<td>111</td>
<td>-.11</td>
<td>5</td>
</tr>
<tr>
<td>Married</td>
<td>105</td>
<td>.19</td>
<td>12</td>
</tr>
</tbody>
</table>

Constant 305

\( R^2 = .31 \)

F Ratio 21

N Obs. 339
The results are interesting in that they demonstrate the importance of experience in the determination of earnings - as opposed to the students having had access to primary schooling. Simmons' results are certainly commonsensical but they are of limited use in that they refer to one specific industry where the ability to use one's hands is crucial. Although the explanation of the variance goes up to .31 the fit is still rather weak. The model does not disentangle informal education from institutional mechanisms of "seniority" which biases the earnings of older workers upwards or the influence of other cultural and ethnic factors in the determination of earnings. Simmons also does not take up the issue of what "mix" of formal and nonformal, or informal education may result in the maximization of earnings.

This, of course, is a very difficult subject to tackle, if not impossible. The only example of work that deals with trade-offs between formal and informal education is that of Maton (1969) which is cited by Mannan (1974). According to Maton there are seven possible combinations of formal and informal training (on-the-job learning in this case) to become a fully experienced tool and die maker. His findings show that an individual may at one end choose to have no formal training but may attain the objective of becoming a fully experienced tool and die maker with the equivalent of 13 years on the job. At the other end, an individual with six years of formal training would need only one year of experience to become fully qualified. Maton established similar trade-off curves for specific occupations ranging from skilled workers to junior technicians and assistant engineers with samples obtained from Belgium and Argentina. The results show that as the occupations demand more specialized skills the trade-offs become increasingly favorable to having more formal training and less job experience to reach a particular status. Thus, in Belgium, a skilled worker may reach that status with the equivalent of 11.9 years of job experience if he has no formal
TABLE 9 - Combinations of Training and Experience Required to Gain Occupational Qualification

A. **Fully Experienced Tool and Die Maker**

<table>
<thead>
<tr>
<th>Number of Combinations</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of Formal Training (F)</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Years of on-the-job Experience (Y)</td>
<td>13</td>
<td>10</td>
<td>7</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

B. **Assistant Engineers**

<table>
<thead>
<tr>
<th>BEITZEL</th>
<th>ARGENTINA</th>
</tr>
</thead>
<tbody>
<tr>
<td>E= 0 Y= 20.1</td>
<td>E= 0 Y= 17.2</td>
</tr>
<tr>
<td>3</td>
<td>16.0</td>
</tr>
<tr>
<td>6</td>
<td>6.3</td>
</tr>
<tr>
<td>9</td>
<td>1.4</td>
</tr>
</tbody>
</table>

C. **Junior Technicians**

<table>
<thead>
<tr>
<th>E= 0 Y= 13.4</th>
<th>E= 0 Y= 11.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>8.9</td>
</tr>
<tr>
<td>6</td>
<td>3.1</td>
</tr>
<tr>
<td>9</td>
<td>2.0</td>
</tr>
</tbody>
</table>

D. **Skilled Workers**

<table>
<thead>
<tr>
<th>E= 0 Y= 11.9</th>
<th>E= 0 Y= 13.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>5.7</td>
</tr>
<tr>
<td>6</td>
<td>2.6</td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Mannan 1974, p. 85*

training, but would need 20 years of experience to reach the status of engineer. At the other end he could accomplish that goal with 9 years of formal training and 1.4 years of experience. (see Table 9)

With respect to the literature on agriculture and agricultural extension this is very substantial to say the least. Therefore, the comments that follow should be interpreted more as general observations distilled after reading case studies on a number of agricultural development projects and extension services. One problem with these studies is that they do not isolate the education component from other elements of development projects such as provision of improved seeds and fertilizer which increase the productivity of participants.

Perhaps one of the projects that has been most systematically analyzed is Plan Puebla located in Puebla, Mexico. The main objective of this project is to develop a methodology to help farmers in low potential areas to raise their standards of living by increasing their food production for consumption, fodder and sale. Under the financial auspices and technical guidance of the Rockefeller Foundation and CIMMYT (the International Maize and Wheat Improvement Center) the Puebla project has now been in operation for over 7 years. The work of Cano and Winkelman (1971) dealing with Puebla is a benefit-cost study of the project under the assumptions that the benefits derived from increases in production will continue only until 1976 and that only the participating farmers will receive the benefits. In other words, there is no spillover effect. The authors make a sensitivity analysis at two rates of interest and three different prices for corn. The interests are computed at 12 percent and 13 percent, the first being the subsidized rate provided by banks to small producers, and the second which approximates more closely the marginal productivity of capital in Mexico. The three prices specified are assumed to range from a low of US $49.50 (which assumes that
Puebla exports maize to the international market to a high of US $75.20 which is the Mexican support price and which the authors assume represents the social valuation of maize by the Mexican government. In between, the authors use a price of US $60.00 to indicate the alternative of Mexico importing maize for domestic consumption. The benefit-cost ratios computed under the alternative assumptions of the project providing fertilizer and seeds permanently, and initially only, are shown here.

<table>
<thead>
<tr>
<th>Prices</th>
<th>$49.50</th>
<th>$60.00</th>
<th>$75.20</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fertilizers and seeds provided by the project</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>interest rate=12%</td>
<td>1.18</td>
<td>1.45</td>
<td>1.84</td>
</tr>
<tr>
<td>interest rate=18%</td>
<td>1.13</td>
<td>1.40</td>
<td>1.78</td>
</tr>
<tr>
<td><strong>II</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fertilizers and seeds provided initially by the project</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>interest rate=12%</td>
<td>1.40</td>
<td>2.01</td>
<td>2.88</td>
</tr>
<tr>
<td>interest rate=18%</td>
<td>1.26</td>
<td>1.82</td>
<td>2.60</td>
</tr>
</tbody>
</table>

*Source:* Cano and Winkelman, op. cit.

We note that for this particular project the benefit-cost ratio is always above the critical value of one, despite the rather conservative assumptions that have been made. It should be pointed out, however, that Puebla is an unusual experiment which has a significant amount of high powered talent behind it, appropriate support and financing, an efficient organizational setup, and a highly motivated clientele (Brumberg 1972).

Other broad conclusions that can be derived from the literature on integrated rural development schemes are as follows. First, the total package of benefits emanating from these projects is the product of activities and inputs such as crop experimentation, animal production, the establishment of trade centers, the provision of credit, provision of water and irrigation mechanisms, the establishment of cooperatives, the training of farmers and farmer's wives and children, and the establishment of extension and education programs. Second, integrated rural development schemes have a mixed record when it comes to covering the full potential clientele they are designed to
reach; for the most part, however, they usually fall below potential. Third, despite the comprehensive nature of the services these projects are designed to provide, the coordinatory mechanism is not always very efficient with results such as, for instance, the provision of loans without adequate extension support to improve productivity. Fourth, the administrative mechanisms of these projects are generally well set up. Yet as a norm they often exercise a considerable amount of authority and control over the participants with little feedback from the latter. Fifth, and this is crucial, most of these projects have built-in instability insofar as their financing and management is dependent on foreign sources and expatriate staff. Often the provisions for transition from the foreigners to the locals are not adequate and as a result the risks of the project failing altogether are fairly high. Sixth, the significant improvements in production and productivity that result from some of these projects are mixed blessings when the price elasticity of demand for the project's output is quite low. Thus, as production increases farmers often end up with lower incomes. Seventh, the recruitment of extension workers usually presents a double-edged problem. On the one hand, it is doubtful that the manpower needs of these projects can best be served by recruiting individuals from the agricultural training schools because of poor motivation on the part of these individuals and their inadequate training. At the same time, the agricultural schools are quite often the only places where these projects can draw people from. Eighth, the courses offered to farmers are largely theoretical and almost never geared to the socio-economic background and needs of the users. The example of Puebla is indicative of how course content can affect farmer participation: these are geared to instill in the farmers the use of profit-maximizing techniques. Farmers, however, are understandably, not so much profit-maximizers as they are risk averters and as a result the courses emphasize techniques and methodologies
which entail risks (e.g., the use of new seed varieties) if for anything because they require extra care and inputs. If courses emphasized techniques designed to minimize risks, or if "adequate cushions" were made available to overcome some of the risks involved then it would be reasonable to expect that course effectiveness would go up. 22* 

As regards the extension programs proper, the literature is generally in agreement that extension services have, for the most part, made an infra-marginal contribution to increasing agricultural productivity. In Latin America, Rice (1971) has made a survey of the American-aided extension services. The benefits he sees accruing to these services are as follows:

a) The extension services have provided a training ground for professional agriculturists in the public and private sectors,
b) they have partially converted government bureaucracies to a new appreciation of the farmer and of their responsibilities to him,
c) they have improved the quality of life for many communities, farm wives, and rural youth,
d) they have contributed in a small way to the raising of farm productivity and income, and
e) they form a substantial organizational infrastructure that links the farmer with the government all the way from Guatemala to Chile - and this infrastructure could become the backbone of the structure for rural development in the region.

Rice, however, goes on to add that "the study results show that the cumulative effects of extension activity in 12 countries has not made a major contribution to whatever progress has occurred, and that whenever the density of agents has been increased for special extension projects, but without prior reinforcing changes in the economic environment the situation was not improved (p. 61)." He goes on to say that the results suggest that the benefit-cost ratio is low, but the ratio may be higher than one. This assertion has no empirical basis, though.

An example of a more efficient extension service than those found in Latin America is provided by the Office of Rural Development (ORD) in
South Korea. A case study of ORD by Ahmed (1972c) arrives at the following conclusions concerning the benefits of ORD. First, surveys of ORD users show that they have higher rates of adoption of new practices of production of barley, wheat, and rice, but the adoption patterns are not necessarily a function of farmer attendance to the courses. Second, ORD extensionists receive high marks in terms of their frequency of use as sources of information. The ORD clientele also makes use of other information channels available through the program such as bulletin boards and other reading materials, radio, specialized magazines, and peers who, like the volunteer leaders, have been involved in the program. Third, ORD participating farmers' output per hectare was approximately 40 percent higher and their inputs 10 percent more costly than the production and costs of non-participants. Ahmed warns, however, that no definite conclusions should be derived from these findings as the group of ORD participants consisted largely of leaders whose productivity was expected to be higher at any rate.

ORD also has problems which are common to extension agencies, and some of which have been mentioned earlier. The impact of the courses is at best marginal since they are only a part of the educational delivery package which is, in turn, a minor part of the total package of services provided by ORD. Ahmed also shows that the courses are often theoretical in nature and provide instruction in practices which do not make efficient use of the available resources. Also the bulk of the resources of the program are geared to rice production and the other activities including community development, youth projects, and income generation schemes are a bit more than appendices of the rice program. This situation arises because the policy set by the national government is that Korea should become self-sufficient in rice production notwithstanding the fact that this policy may not necessarily represent an optimal allocation of the country's resources. ORD also
exhibits rather poor coordination at the national level. Ahmed argues that there is no adequate mechanism to ensure that the programs of ORD are carried out in accordance with any consistent set of policies, and coordination among the different components of the program is missing. Finally, with respect to the organization and promotion of personnel, the system is organized in such a way that it discourages the permanence of skilled individuals in the field but rather encourages the promotion of field workers to headquarters in urban areas where their direct impact is practically nil.

One final interesting example dealing with the accomplishments and shortcomings of extension services is that provided by the International Rice Research Institute (IRRI) program for training extension leaders in the Philippines (Coombs and Ahmed 1972). The authors of the study note that it is very difficult to gauge the productivity of this program because of the difficulty in estimating the inputs that go into the program (since the program is not separately costed or budgeted) and because some of the inputs are supplied by other agencies. At any rate, with this program IRRI proposes not only to make extension agents capable of demonstrating rice production techniques to the farmer and to help him deal with plant diseases, but primarily to instill in the agents a deeper understanding of the newer techniques of rice production and a better vision of extension methods which can be more effective with farmers. The authors claim that direct observation of the program suggests that IRRI is accomplishing these objectives. At the same time, the authors make the counterargument that greater emphasis should be put on the issue of strengthening the extension services of cooperating nations. As it happens, little attention is given to such matters as individual farm planning and management, processing and marketing, and issues of the economics of rice production. The local extension services are weak in these respects and a lot could be gained by incorporating these subjects into
the curriculum of the program. One final point should be made is that until the time when the study was written (1972) IRRI had not undertaken tracer studies of program graduates thus there was no way of gauging the impact of the program on the local extension services to which the graduates were expected to return. The authors of the study made a survey of "graduates" of the program and they found a substantial wastage problem because about half of the trainees (who were given questionnaires) did not expect to be employed in extension or extension training in the future.

In general, it can be said that the research results reported here do not shed any path-breaking type of knowledge in the sense that they prove "revolutionary" hypotheses. They all converge on the point that there are alternatives to schooling which affect learning outcomes significantly. The studies which do provide some comparisons, moreover, are focused on what we may consider a very narrow area of nonformal education - namely, industrial training. This is not difficult to explain because the specification of models in this area is far easier than in say literacy programs or programs for community development. Their usefulness is therefore very circumscribed because in most poor countries the modern industrial sector is a small sector in the economy. And because, within the modern industrial sector, formal on-the-job training is not widely practiced.

The studies also rightly point out the deficiencies of vocational education. The design of vocational education schemes in poor countries is based on the belief that these schools fulfill a critical set of assumptions: a) that the system is designed to fulfill the "development" needs of the country in question, b) that the vocational schools are the most efficient vehicle for delivering this type of services, c) that the vocational schools can be integrated very well with other schools in the system (academic, technical, and agricultural), d) that the curriculum is optimal in that it
provides a set of critical skills, and a) that the skills supplied by these schools have effective demand in the economy. In practice, however, the vocational schools appear to have failed in all these respects. They undoubtedly constitute the "white elephant" of just about any school system. They are typically high cost operations (see Chart 5) where these high costs are largely determined by the very poor utilization of installed capacity. Not surprisingly, though, the weak demand stems from the fact that the teaching in these schools is of notorious poor quality and the content is not adapted to the needs of the labor market. The vocational schools undoubtedly introduce great inflexibility into the academic systems of poor countries. As Foster (1966) aptly puts it, their existence arises from a fallacious understanding of manpower needs in the development process.

D. On the Effectiveness and Efficiency of Nonformal Education

The findings in the literature do not provide us with a systematic basis for weighing the alternatives. That implies that this section must be carried out at a conceptual level. Still it is possible to examine the tenability of the assumptions on which the proponents of nonformal education base their claims of the higher productivity of nonformal education. Within the terms of reference of this paper my attention will be devoted to the issue of costs, quality in the delivery and in the outcomes of nonformal education, the capacity of nonformal education to provide learning opportunities on a more egalitarian basis than the schools, and the outcomes that may result from the institutionalization of nonformal education.

Two important points should be made at the outset. First, the work that has already been carried out in nonformal education has generally tended to compare the potential of nonformal education against the observed failures and inadequacies of the schools. The danger in this type of comparison is
that it results in the glorification of nonformal education - it always happens when the analyst compares the ideal against the actual.

The second point, raised earlier, refers to the non-marginality of the strategies proposed. At the present time nonformal education is undoubtedly a residual category in educational planning. This is not to say that a sizable amount of resources is not allocated to nonformal education but, in fact, no one knows for sure the size of these resources and their variance across regions and countries for no thorough national assessment exercises have been carried out anywhere. Since the strategies entail an expansion (both relative to the schools and absolute in size) of nonformal education, the alleged cost advantage of nonformal education may very well disappear.

A corollary to this observation is that it is naive to expect that somehow governments and the public in general in the poor countries are going to rally to the flag of nonformal education. To try to base a strategy of expansion of nonformal education on the extensive use of "unconventional resources" may in fact be unrealistic, particularly in the absence of major structural changes in society that would give a "new national consciousness" to the leadership.

One has to take with a great deal of skepticism the alleged greater cost-effectiveness of nonformal education. The use of unconventional resources can undoubtedly contribute to increasing the productivity of the system of education - in fact, better use of conventional resources would also contribute to that end. It may be possible for programs of nonformal education to make use of borrowed facilities, volunteers, part-time para-professionals, and on-the-job training and learning, but this advantage exists only insofar as the programs are marginal. Once the programs grow in scope it will no longer be possible to make extensive use of borrowed facilities. If these borrowed
facilities are schools or work plants the scheduling problems could become acute. Also, as the programs grow the existing facilities may no longer be adequate for an optimal delivery of services. If the program is in the agriculture sector, land may be needed to mount demonstration plots, if it is industry, workshops and machinery may have to be set up, if in health a dispensary or clinic may be necessary to provide practice to learners. When the programs grow in scope the need to fulfill these requirements may cause recurrent costs to rise exponentially. 23*

A similar situation arises with teaching costs. As we saw earlier, the fundamental reason why the schools are such an expensive undertaking is that they are labor-intensive service-type industries. We also saw that school costs are likely to continue rising as a result of the population pressure, the accelerator principle at work behind the pupil-teacher ratio, the desire to expand schooling opportunities to achieve universal coverage, and the need to improve quality in teaching and delivery.

Nonfomral education is subject to these same type of pressures. Although in theory nonformal education can make use of a multitude of delivery systems (Coombs 1974), in practice the delivery of most programs is quite conventional and labor intensive. There is a limit to the use of para-professionals and volunteers. The latter are by definition scarce and often more good-natured and well-intentioned than effective. Para-professionals may very well be straw men since they are also used extensively in the formal system in those areas where the certification requirements break down. In fact, it is often the case that the same people who teach in the formal schools moonlight as nonformal instructors (Swett 1973). 24* Any attempt to improve the quality of teaching in nonformal education will necessitate setting up training schemes that, though different in content and orientation, may not be much unlike those now available for regular teachers.
The argument is often made that due to the inherent flexibility in the design of nonformal programs, these can achieve higher productivity (than the regular schools) because they supply educational services that are in demand in the labor market (whether the protected or informal, urban or rural labor market is the one in question, the connection between education and work is a valid one). Thus, even if the costs of expanding nonformal education are comparable to those of maintaining a formal system, the intrinsic value of the former is greater than the latter. The reason for this alleged superiority is that nonformal programs pursue operational objectives. Nonformal programs therefore achieve a harmonization (equilibrium in the economist's lingo) between the supply of skills (as provided by the education sector) and the effective demand for these skills (as determined in the labor market). Unlike the vocational schools which are rigid and inflexible, nonformal education offers a whole array of programs which, presumably, can accommodate the requirements of the labor market.

This area undoubtedly presents one of the most interesting possibilities offered by nonformal education. Still, the flexibility and readiness principle is not one that can be applied without qualification. One must first distinguish between, on the one hand, the set of alternatives that exist within the entire sector of nonformal education and, on the other, the flexibility of a particular program or of the users of a program. Exogenous factors such as language barriers, geographical distance, cultural background, etc. may rob flexibility to a particular program or group of users. On a different level, the capacity of programs to respond flexibly to changing circumstances or different alternatives is a function of the availability of appropriate channels of information. That is to say, to the extent that the array of nonformal programs in question have access to the necessary information (and to the extent that they respond well to this information) they will be more or less
successful in gearing the content of their educational services to the requirements of the labor market. Besides, programs whose objectives and content become too specific run the risk of reducing the number of alternatives open to their graduates.

Finally, although we just do not know what the flexibility of response of nonformal programs is, one can reasonably assume that as these programs become more elaborate in their design some flexibility may be lost. Instructors may not be qualified to teach courses radically different from the ones they teach. The equipment available may be activity specific. And one could not expect the division of one program to willingly (or graciously) give up funds so that the operations of another division, which are in greater demand, may be expanded.

A crucial aspect that has to be taken into account for determining the effectiveness of an educational program is the quality of the outcomes of the program. Quality in education is a particularly elusive concept to evaluate if not to measure. It becomes particularly elusive if we try to evaluate quality in nonformal education as opposed to formal education.

In principle, quality can be measured by the use of tests which purportedly gauge the extent of learning outcomes. Higher scores in these tests are interpreted as signs of high quality in the particular educational programs - and low scores are a sign of low quality. This, however, does not settle the issue of evaluation of quality: are the tests, whether written or practical, appropriate for evaluating learning outcomes; are these outcomes comparable across different programs; and how can the outcomes of unconventional and unorthodox programs be measured by conventional criteria of aptitude?

Since the use of aptitude tests is of limited value to gauge the quality aspects of a program, the analyst must, per force, evaluate what I call external and structural factors. All educational programs, whether
formal or nonformal, act on the supply side by generating knowledge and skills. The presumption is that the skills and knowledge generated will find a demand in the marketplace. Thus, if there is a quality differential across programs the market will "award" higher returns to those graduates that come from the "better" programs.

The problem with this line of reasoning is that it assumes away the institutional, social, and political factors that determine the level of earnings. It would appear that the certification power of the schools is at a maximum here since, other things being equal, graduates from formal schools command higher earnings than graduates from any type of nonformal education. This is not surprising in view of the fact that nonformal education caters to clienteles that are usually educationally deprived: inhabitants in the rural areas and shantytowns, blue collar workers, the illiterate, etc. Comparison is also difficult within nonformal education because of the multitude of programs which go from the highly orthodox quasi-formal industrial apprenticeship programs to the unorthodox street and bush academies, or literacy campaigns based on the conscientização method. (See page 59, and footnote 27).

The structural factors have to do, generally, with the resources available to the program and the way these resources are deployed. In an ideal world a program would have ready access to all the resources it requires to carry out its objectives and would deploy them in an optimal manner to equate marginal benefits with marginal costs. Under these ideal conditions the program would not suffer from such structural deficiencies as wastage and desertion.

In the real world, of course, these conditions are not met - often not even in a remote way. Programs of nonformal education are, as a norm, strapped for resources. They can not hire qualified instructors because they are unable to pay the wages and salaries these command. They in fact can use
para-professionals and volunteers who often overcome their deficiencies with a more than adequate dose of enthusiasm and motivation. Yet, as pointed out earlier, there is a limit to the effective use of volunteers and para-professionals. Programs also face limitation in their ability to purchase other inputs and materials for the courses, and in acquiring the facilities necessary to carry out their functions. The limitations are similarly great on self-financing due to the poverty of the environment in which they operate. Access to credit and marketing channels is denied to most programs, thus it is difficult to run the operations other than on a hand-to-mouth basis which surely does not help to achieve efficiency.

The interplay of the constraints from the external and structural factors is reflected in high wastage rates. The lack of certification power depresses the social demand for nonformal education. The clientele of nonformal education, made up largely by deprived people, incurs opportunity costs which may be high depending on the amount of time they have to spend away from work, whether they have to pay fees or purchase materials, the distance they have to travel to the education center, whether they have to devote their efforts for communal production as opposed to individual production, etc. All these factors usually result in greater desertion from the program than if individuals' costs were minimal and the benefits were more apparent. The programs in Brazil I studied (Swett 1973) all suffered from serious desertion problems. Even MOKAL (the Brazilian Literacy Movement), a program which is an exception to the rule in that it operates on a large scale and has strong financial backing, usually lost about 50 percent of the students during a six month course. Attendance to the courses, and performance of the students improved when leaders in a couple of places decided to provide free meals, or established an eyeglass bank for those who suffered from poor eyesight. 26*
Problems related to quality also arise in the delivery of programs. If the content of the courses is geared to the learning needs of the users then effectiveness goes up. However, in planning program content in nonformal education, care has to be taken not to standardize the materials - the courses have to be specific to particular clienteles. This presents at least two problems. One, the program is condemned to operate on a local basis only, or on a restricted scale at any rate, thereby losing opportunities for achieving higher cost-effectiveness through economies of scale in the production of materials. Second, the selection of teachers and instructors who are qualified to teach the courses becomes most stringent. A case in point is the use of the conscientizacão method for teaching literacy. Mastery of the method requires that instructors should be radical philosophers and pedagogues of the most articulate kind. They have to be fully cognizant of the "reality of the environment" in which they teach, and they have to raise the consciousness of the peasants by their own example. One cannot help but wonder how many Paulo Freires can be found in the rural areas.

Another problem arises from the need to have adequate knowledge of what skills the subsistence sector in the rural areas, or the unprotected sector in the urban areas demand. Research in this field is still in its infancy and the manpower approach is simply too limited to plan in any systematic way the content of the programs. A common problem of nonformal programs is that they supply skills or knowledge which cannot be put to use in the areas where these programs originate. If the programs originate in the rural sector they end up adding to the impetus of migration thus, in a way, defeating their own purposes.

These problems are of course inevitable because education is only one of many inputs into the development process. To the extent that the environment is characterized by poverty, there is very little that education,
by itself, can do to promote higher living standards.

One last point remains to be mentioned. This is the institutionalization of nonformal education. There are advantages and disadvantages to institutionalization. When the program is institutionalized it loses part, or all, of its flexibility to accommodate to a changing environment; the structure of the program becomes rather impersonal, and some effectiveness is lost for dealing at the grass roots level. On the other hand, institutionalization often assures the continuity of the program, the loss in grass roots appeal may be overcome by increasing the scope of the program, and the impersonality need not reach extreme proportions if appropriate delegation of responsibility is made to individuals who are in daily charge of the operations of the program. The field of nonformal education is riddled with the corpses of programs that got started by an active and inspired leadership, and when this leadership left the program the effectiveness of the program declined until it eventually disappeared (Coombs 1974, chapter 12). The situation therefore presents a clear disadvantage for many programs that depend so heavily on the work of one man, woman or group.

To sum up, therefore, there is a set of crucial factors that are important in determining the overall quality of programs of nonformal education. Other things being equal, the effectiveness of programs of nonformal education is a direct function of the following:

a) the enthusiasm, dynamism, and initiative of leaders and organizers of the program, and their ability to delegate authority so as to ensure cohesion and continuity of the program,

b) the capacity of the program to raise the necessary funds to finance the operations of the program,

c) the extent of coordination that exists between the program, on the one hand, and the local community, (i.e., the involvement of the users in the planning of content of their own nonformal education),
d) the perception of the users concerning the benefits they are likely to receive from the programs, and

e) the appropriateness of the supporting services (i.e., the delivery of the programs)
- the qualifications of instructors (not certification necessarily)
- the adequacy of the reading materials, or the programs to the needs of the users - and their availability to users.

As we have seen, it is not clear that the problems faced by nonformal education in this respect are any less complicated than those faced by the schools. The main advantage of nonformal education in this respect is that, although its access to an adequate resource base is limited, most of its delivery systems can in theory tap other resources which the school system can not. To the extent that nonformal programs base their strategy from the ground-up, that is by strengthening their constituent at the local level, they can accomplish considerably more than the schools which are, by nature, limited in this respect. I shall now turn to the discussion of these issues.

In part one of this paper we examined the criticisms concerning the failure of the schools. These failures are three-pronged: a) that the scope of the schools is very limited and the distribution of schooling is highly skewed in favor of the urban-metropolitan areas, b) that the school system in the rural areas tends to break down completely due to high wastage rates, and c) that the content of the schools is divorced from the needs of the users. The school systems have become large bureaucracies interested in their own survival and preservation; most of their operations are notorious for their inefficiency and there is little hope for change. More importantly, the centralization of management has resulted in the most perverse kind of top-down planning which, given the allocation of political and economic power in society, has resulted in the strengthening of the patterns of unequal educational development; those areas and groups that are already better
endowed economically have received preferential access to the generous subsidies provided by the system while the areas that have been traditionally deprived have been almost totally neglected.

In contrast to this the planning of nonformal education, it is argued, can proceed from the bottom up. These types of programs can in principle reach low-end poverty groups by making extensive use of mobile learning units, community education centers, peer learning, and street and bush academies. All of these, needless to say, are very interesting schemes but unfortunately little is known about their effectiveness, and as to whether they can be reciprocated on a larger scale.

At this point a distinction must be made between those programs which are initiated at the local level and those which are sponsored by the government. The latter comprise residual categories in the Ministries of Education and other Ministries such as Agriculture, Public Welfare, etc., which carry out certain educational activities. Like the formal programs they tend to be institutionalized and exhibit varying degrees of flexibility and innovation. Within this category there are also privately sponsored programs which run the whole gamut of nonformal education from on-the-job training to community development -- their performance is also mixed. The advantage of this type of program over those that are locally initiated is that they have more ready access to sources of finance which means that they can operate on a larger scale than local programs. If managed efficiently and by people who are motivated they can have a significant impact on the provision of educational services. Moreover, in an age when the improvements in communication and information may increase the effectiveness of these programs they can, in principle, reach audiences that have been traditionally deprived. They can also reach higher levels of efficiency by taking advantage of economies of scale in the production of materials (textbooks, manuals,
machinery, fertilizer, medicines, etc.,) or programs (if the particular content of the courses can be mass-produced for broadcasting to remote audiences).

Moreover, there is no reason why a "hybrid" model cannot be developed. In this hybrid model it would be possible to have access to resources by attaching the program to a government agency while maintaining the autonomy of the program. The program then could fund locally-originated operations that subscribe to certain criteria for fulfilling the objectives of the program. Two of the most interesting and innovative programs I observed in Brazil (PIPMO, The Accelerated Manpower Training Program and LEA, The Brazilian Assistance Legion) were able to increase the range of their operations by funding local initiatives. The PIPMO program which sponsored projects in agriculture, industrial training, and health services provided financial support to pay instructors, to purchase materials for the courses, and scholarships in certain cases to defray the opportunity costs of trainees. Moreover, it was the only program I observed that made a concerted effort to evaluate its own impact by doing tracer studies of its graduates. One crucial ingredient in PIPMO's effectiveness was that the managers of the program at the national and local level were high-powered and were fully aware of what they wanted to accomplish with the program. PIPMO also had very high acceptance by the participants. 29*

All of these advantages listed are, of course, crucially dependent on the priority that the government or funding agency attaches to programs of this nature. Since in general the design of development is in favor of urbanization and industrialization, the alternative open to communities or groups that lack sufficient political clout is to implement their own programs. Here again, however, the communities that are already better off enjoy comparative advantage over those that suffer greater deprivation. This implies that the capacity to initiate and carry out bottom-up planning is relative to
the affluence of the community -- the more affluent the community the greater the potential for successfully carrying out programs of nonformal education.

E. On the Allocation of Resources within Nonformal Education

This last observation forces us to close the circle. If locally-originated planning and implementation of nonformal education favors those communities which are already better off, then the chances for achieving a more egalitarian production of nonformal education are also limited. This also implies that the initiatives for expanding nonformal education must come from the top down. Whether then nonformal education will reach low-end poverty groups is a function, primarily, of the political will of the government (which is itself a function of the distribution of power in society). Assuming that somehow the political will exists to expand these programs and that they are primarily geared to the most deprived groups in society then nonformal education can make use of its comparative advantage over the schools.

Needless to say, these are often unrealistic assumptions. Given severe resource scarcity no government can justify investing large amounts of resources in programs which are perceived by the public to be "social welfare" programs as opposed to "economically productive" programs. This is the reason why the thrust of official projects in nonformal education are in areas, and geared to audiences, that the government considers of high priority: industrial apprenticeship programs (for the protected market), literacy programs that operate in urban and semi-urban areas rather than in the rural areas proper, agricultural development projects that include some educational packages, and programs that make use of the mass media to reach predominantly urban audiences. Generally, the people who have access to these services are those who are upwardly mobile and who may have already had access to the formal schools. For them nonformal education serves the function of providing them with upward economic and social mobility. For those who are further down in the economic
scale these programs really do not have much to offer.

One last question remains to be raised. Aside from political considerations, what should be the allocation of resources within nonformal education? Surprisingly, this is a question that the studies that have been carried out in nonformal education have not faced. And yet any government that is interested in expanding this type of educational opportunities would per force have to make these kinds of choices. Given the array of programs to be considered, and the multiple purposes they serve, these of course would not be easy choices to make. Should industrial apprenticeship programs have priority over agricultural development programs, and the latter over family planning programs or should the order be reversed? Should young people receive priority over adults, and males over females, or vice versa?

These questions cannot be answered in this paper; and it would probably be an exercise in futility to try to answer them because each country is a special case. At any rate, the priorities of each country are usually stated in the Five Year National Development Plans (implicitly or explicitly). The choice among programs would then be made on the basis of these priorities. Nonformal education would then be planned according to the needs of the different sectors in the economy.

This, by the way, is how some government programs in nonformal education have got started. The approach usually has been the manpower requirements approach and programs have been designed to train X number of individuals according to some predetermined target. The approach, needless to say, has serious limitations if the plans are multi-sectorial and over a long period of time.

An alternative would be the use of benefit-cost analysis. To my knowledge, these techniques have not been used anywhere to make these kinds of decisions because they require a degree of sophistication that the presently
available techniques do not have. Some analysts (Chenery, Duloy et al. 1973) have suggested the use of distributive welfare weights and UNIDO has developed guidelines (1972) to apply welfare weights to benefit-cost techniques. The use of distributive weights, however, has been widely criticized as not being internally consistent (Harberger 1973) and the criticisms appear to be based on very solid ground. The problem is, we are back to square one - the decision to invest is made by the politicians, not only because the issues are political but because the specialists cannot provide the final answers.
III CONCLUSIONS AND POLICY IMPLICATIONS

The previous discussion has demonstrated that the set of assumptions on which the alleged high "productivity" of nonformal education has a tenuous basis on practice. The strategies proposed have seen the world through a flawed perspective: ideal constructs have been compared, and, as expected, have been found superior to the school-based models. Also, the studies have treated non-marginal decisions and strategies on a marginal basis with the result that all sorts of advantages (cost-wise, delivery-wise, development-wise, quality-wise, etc.) have been ascribed to nonformal education.

In practice, I have argued, nonformal education suffers from the same types of infirmities that affect the schools. Nonformal education programs use, as a norm, quite conventional and traditional, delivery approaches - i.e., they are labor-intensive. This means that these programs also have an inflationary bias built into their production function. On another aspect of broadly defined productivity the quality of the educational services nonformal education provides are not unequivocally better than, and may in some cases be inferior to, the types of services provided by the schools. Similarly, the planning of manpower requirements may gain some flexibility, but it is by no means solved by greater use of nonformal approaches.

One must also question the uncritical acceptance of the ability of nonformal programs to reach low-end poverty groups. This may come as a major disappointment to those who believe in the power of these programs to redress the wrongs of the growth-based model of development. The fact of the matter is that there is simply no clear indication that nonformal education reaches low-end poverty groups. True, it may reach groups that have been deprived by the schools; groups that are lower in the socio-economic ladder than those
who do have access to the schools. The nonformal program's main achievement, in other words, is in effecting some trickle-down - but is this not a model everyone wants to get away from?

Finally, one must note that there are real, and possibly painful, trade-offs accruing from the institutionalization of nonformal education. One real danger is that institutionalization may turn gold into lead. Those programs that are most admired in the literature because they seem to be doing "just the right thing" are usually those that are highly independent, autonomous, catering to small clienteles, and highly unorthodox. Institutionalization could put an end to these virtues, but at the same time it may be the only way that these programs can be expected to grow in scope and have an impact over a wider audience.

These observations should not be interpreted as a rejection of nonformal education. The conceptual apparatus on which nonformal education rests is respectable and even elegant. The problems that the early studies appear to have assumed away have to do with the application of first-rate concepts in a fourth-best world. For this reason I argue in the paragraphs that follow that, first, pursuit of the traditional model in most poor countries is no longer practical, and second, that nonformal modes should be incorporated in educational development strategies to achieve higher levels of efficiency in the deployment of educational resources.

In Section One of this paper I explored the track record of the schools. The arguments raised concerning the failure of the schools are, in my view, compelling. They demonstrate that most poor countries are still a very long way off from achieving universal primary education. The widespread use of enrollment rates taken at face value to indicate the scope of the schools is positively misleading. One should not only look at the stock of education (i.e., the proportion of school-age population reported to be in
school) but rather, one should pay more careful attention to the distribution of schooling opportunities and to the flow of students through the system. Charts 3 and 4 (pages 15 and 16a, b, and c) demonstrate quite well what this flow looks like. Charts 6 and 7 (pp. 70, 71) show the age-specific flow of enrollment in a number of Latin American countries and provide estimates for the region demonstrating, with equal persuasion, how limited the scope of the schools really is. The peak in enrollment, which is reached at ages 8, 9, and 10, is followed by a precipitous decline at, or about, age 12. The charts are, however, not entirely adequate for they do not show the average duration of an individual's schooling experience which I noted earlier (page 17), is quite low in Latin America. In Africa and Asia, of course, these figures are even lower.

Another aspect to be considered in rejecting the unmitigated pursuit of the traditional model comes out when we consider the question: are the poor countries getting their money's worth for their effort? The poor countries are undoubtedly allocating vast amounts of resources to the upkeep of their school systems. The prospects are that greater efforts will be needed in the future to achieve the objectives of the traditional model. It is almost equally clear that a good number of these countries will be unable to pay the school bill as competing uses for these resources arise. Given the limitations of the present model and the mounting evidence that challenges the primacy of the schools as learning institutions, the question would have to be answered negatively. Thus, new ways must be found to deploy more effectively the resources that are available.

In the context of the arguments advanced in this paper, I must try to discern the kinds of alternative modes of educational development that one can realistically expect poor countries may be willing to undertake. First, however, I wish to note some caveats and also some reasons why circumstances
Chart 6 - Age-Specific Enrollment Rates in a Number of Latin American Countries, c. 1969

- Primary School Normative Age Brackets

Individual Age Groups

Source: UNESCO (1971) - table 4.1
may now favor more active consideration of alternatives by a number of poor countries.

1) Education (formal or nonformal) is secondary in the scale of political priorities of most countries - and the decision must be political in nature. The circumstances that would propel education to the political forefront would entail major revolutionary changes that would alter significantly the balance of political power. Then education would become a major weapon for the dissemination of government propaganda in order to preserve the altered balance of power; on the other hand,

ii) among the set of subsidiary pressures that point in the direction of a realignment of priorities in the design of development within the established order, and hence greater acceptance of alternative modes of educational delivery, we may note the following:

a) the stagnation of the rural areas has resulted in very weak agricultural sectors that cannot produce the food output necessary to feed a growing population,

b) the design of industrialization as the major engine for economic growth has fallen far below the initial expectations,

c) the uneven pace of development has also resulted in the undeterred growth of cities. If the uneven pace continues the pressures on urbanization will not be mitigated.

d) in a number of countries, governments of populist tendencies have taken the reins of power. It is conceivable that they may be more favorably inclined to undertake policies which favor groups that have hitherto been generally ignored, and

e) the design of schooling systems under the traditional model is in part a result of the demonstration effect. Consequently, the rise in nationalism that is now taking place in many countries may require countries to act more decisively to solve their own problems.

Notwithstanding these factors one should not overemphasize the power of education, by itself, to effect social change - that is, to help deprived groups in society lift themselves by their bootstraps. For this to take place a more subtle connection exists between economic growth, political realignment of power, and social change. This is not the place to go into the details of this connection, but I wish to explore for a moment the connection between economic growth and informal education.
The reason for insisting on informal education (as opposed to the organized forms of education) is that the research undertaken in the field of education consistently points in the direction of the primacy of the "learning environment." The learning environment is a figurative expression to indicate the degree of access that individuals have to information that affects their behavior. Other things being equal, in an economically buoyant environment individuals are more exposed to more of these stimuli. The learning opportunities become more abundant because: a) job circumstances begin to change and these changes are both qualitative and quantitative; job tasks become more complex and the awareness of the complexity of the tasks involved means that individuals acquire a sense of mastery over the environment in which they operate; b) these advances are also reflected in the technology of production which coupled with a more skilled labor force increase overall productivity; c) the flow of communication improves due to greater availability of printed material and improved receptivity of mass media; and d) most importantly, education within the family becomes more effective as family and community members are able to exchange information that is more comprehensive and substantive in scope and complexity.

Returning to the original question concerning the deployment of resources in organized forms of education we must per force "muddle through" the alternatives. After all, as Simmons reports (see page 26, 27), research has not identified variants of the existing system that are consistently related to educational outcomes. Nor is there any knowledge as to what student outcomes would be if there were no schools at all. Under these circumstances one cannot advocate the deschooling of society in the absence of feasible alternatives. The abandonment of the schools, besides being a practical and political impossibility, does not ipso facto entail an improvement in the educational delivery system or in educational outcomes.
There is, on the other hand, no reason why the choice between formal and nonformal education needs to be an either/or proposition. After all, one of the functions of nonformal education is to complement the schools as a major component of lifelong learning systems. Also, the schools can concentrate on the academic aspects of education by emphasizing the mastery of abstract concepts and critical thinking, while nonformal education can concentrate more on the operational aspects of learning, e.g., the mastery of work-related skills. Formal education can, thus, pursue the lines of its comparative advantage; the design of these systems can aim to the attainment of economies of scale in the production of teaching materials and of curricula which are amenable to standardization. Nonformal programs on the other hand can aim their educational services to serving the learning needs of specific groups.

These arguments have so far hinted at the issue of specificity of the curricula without providing a recommendation one way or the other. The issues here are two pronged. On the one hand, a major argument against the schools has been that their curricula have been divorced from the socio-economic status and needs of the users. On the other, there is opposition, for instance, to the ideas of "ruralization of curricula" on grounds that this would condemn the rural users to the deprivation of the rural areas without offering appropriate alternatives. Perhaps a more telling example concerns the vocationalization of the schools. As we saw earlier, most vocational schools have ended in little more than unmitigated disasters insofar as the content of their curricula has been divorced from the needs of the labor market.

As with most other issues, both sides of the argument have some validity. Two ways may be offered out of this box. First, any attempt to "ruralize" the curricula without at the same time improving the economic status of the rural areas will result in failure. To the extent that migration
out of the rural areas is a function of perceived income differentials between urban and rural areas, education, by itself, will accomplish very little in stemming the tide, much less reversing it. If however, the development efforts redress in part the balance between rural and urban areas, then the "ruralization" of curricula will be a crucial input for providing an educated labor force. Second, as the example of the vocational schools demonstrates, formal education (as well as nonformal) acts on the supply side. The schools, and also some of the nonformal programs, are locked into certain institutional patterns which considerably lessen their capacity to respond fast to changing circumstances. To the extent that this situation prevails, then the undue specification of curricula will not be in the best interests of achieving higher efficiency.

The final issue to be dealt with here is the specific ways how the deployment of educational resources may be made more effectively. Since each one of these ways raises all kinds of questions and implications that cannot be adequately examined here they will be presented more in the form of policy suggestions requiring further research.

First, poor countries should undertake an exploration of the cost-effectiveness and overall productivity of alternative technologies for delivery of educational services. Among these we may include the extensive use of mass media: radio and TV, expansion of mobile resource centers, and greater use of correspondence courses.

Second, the school facilities could be used in double shifts. Better yet, some of these could become multi-purpose learning centers. There is no reason why the education programs should be aimed only at youth groups and an effort should be made to cater to diverse clienteles. Therefore, school facilities could double as formal institutions during the day and nonformal centers during the evening.
Third, since little is known about the stock of nonformal education programs that exist in most poor countries, a major effort should be made to inventory these programs. Identification of the programs should be coupled with a study of inter-program coordination to explore ways how a nonformal network may be designed for purposes of exchanging information on methodology and context.

Fourth, countries should explore the development of what I have elsewhere called "hybrid" models. One of these models may entail setting up central programs which have a substantial degree of administrative and financial autonomy. These programs, in turn, could set the guidelines and conditions under which they will promote and finance locally-initiated efforts.

Fifth, emanating from the previous observation is the recommendation that analysts should take a broader view of on-the-job training. At present, the concept of on-the-job training has been taken right out of the Western industrial context and transplanted intact to the poor country context. In the latter context the concept lacks practicability since formal on-the-job training is restricted to a minor portion of the industrial labor force, thus leaving out practically the entire informal or traditional market sector in the urban and rural areas. By taking a broader view of on-the-job training it would be possible to explore how this process works in the informal sectors and try to understand and implement ways how it could be made more systematic as well as how this scope could be expanded. Alternatively, if centralization were viewed as being in detriment to the effectiveness of on-the-job training, planners should examine the requirements needed to promote locally-initiated efforts (by providing funding or technical support) to increase the reach and effectiveness of these programs.

Sixth, the high costs of organized education are due largely to the fact that education is a labor intensive industry. Moreover, schooling is
subsidized and this is a fundamental reason for the differential between social and private costs and benefits. Since schooling opportunities are highly unequally distributed, one way to balance these distortions is to require those who have benefited from subsidized education to devote a given period of time to share their knowledge and skills. This plan could be provided as an alternative to military service in those countries where conscription is mandatory - and it could be considerably cheaper than maintaining an army. These youths could perform in formal or nonformal programs. In fact, in many cases, assigning them to nonformal education programs may be socially more profitable than assigning them to formal programs if the former can make fuller use of their technical skills and knowledge, and if their duration or scheduling minimize the private and social opportunity costs.

An important corollary to this recommendation is that requiring social service may actually broaden understanding, strengthen social cohesion and accelerate social change. This would take place if, as a result of the exchange that would take place in a program of this nature, the young, educated elites become sensitive, or even sympathetic to the needs and lack of opportunities of deprived groups.

The success of any or all of these policies depends on the capacity or desire of central government bodies to carry them out. The tasks, of course, are not easy insofar an education (defined in the broadest terms) cuts across ministerial or agency lines and requires a degree of coordination on the part of these agencies that has not been put into practice up to now. The complex nature of the problem of education also requires a level of analytical, management, administration, and policy-making expertise that a majority of governments in poor countries seem to lack. It may be possible, however, to have access to foreign technical aid which could help to
overcome this bottleneck.

One final conclusion concerns the role of benefit-cost and cost-effectiveness analyses as tools for decision-making. In my view, the area of human resource development is one of the most difficult and elusive areas for the application of benefit-cost analysis. This, however, does not mean that benefit-cost analysis cannot, much less should not, be applied to decision making. The analytical apparatus of benefit-cost has been applied in the past and has consistently provided the right kinds of signals concerning the direction investment in education should take. Similarly, cost-effectiveness analysis, the use of which appears more amenable and not as demanding as that of benefit-cost analysis, should be used more regularly in programming educational investments. Methodologies for the application of cost-effectiveness analysis to industrial on-the-job training have now been developed (Zymalman 1973), and it does not appear to be an impossible task to adapt these methodologies to other kinds of nonformal programs.

What has to be kept in mind in the application of these techniques is that they are highly specialized and technical tools which provide answers to specific (not all) questions. They help the decision-maker by providing him or her with information on one particular aspect of the problem at hand. The ultimate decision, however, is a composite of systematic thinking, political feasibility, practicability, and the individual perception, borne out of experience and know-how, of the decision maker.
FOOTNOTES

1. Cf. UNESCO, Statistical Yearbook, 1971 Table 1.3, p. 29

2. Cf. ibid.


4. Reading the literature I found that similar observations are provided by Blaug (1970; p. 27). He states that the profiles reveal three striking characteristics:

1) All profiles, irrespective of the years of schooling or level of education attained, increase with age up to a maximum point somewhere after the age of forty and then level off, or in some cases even decline.

2) The higher the educational attainment the steeper the rise in earnings throughout the early phases of working life and usually, although not invariably, the higher the starting salary.

3) The higher the educational attainment, the later the year at which maximum earnings are reached and the higher retirement earnings.


6. For further elaboration of this point see Arnold Harberger "On Allocating Resources to Education" presented at a conference on the economics of education IBEID, October 1973. Papers and Proceedings edited by John Simmons Investment in Education for Developing Countries: National Strategy Options October 1973c.


8. For a discussion of this point see Blaug (1970) chapter 3 subsection on international comparisons of income, literacy rates and student enrollments pp. 61-70. Also Blaug (1973) chapter 2 on the puzzling economic value of education, pp. 15-25 where the author takes up the economic, sociological, and psychological explanations of the value of education and attempts to provide a synthesis.

9. Elsewhere (Swett 1974) I have developed what I call an eclectic theory of education and income distribution. In this theory, which purports to explain the production and distribution of education, I note that the extent of a country's educational development is determined by the equilibrium of the aggregate supply of and demand for education. Taking
the demand side of education which shapes the supply of education the argument is made that education is a highly profitable private investment. At the individual level the investment component of education is determined by the individual benefit cost calculus which associates higher levels of schooling with higher values of lifetime incomes. At the group level, following the same line of reasoning, the investment component of education will partly determine the extent of a group's demand for education. The group, let us say the middle class, will be interested in advancing its own economic interests and will be able to do it most effectively through collective action. To the extent that the group has some kind of monopoly power to influence the actions of the government it will be more successful in attaining the allocation of resources in its favor. The extent of a group's monopoly power over governmental decision-making will be positively correlated with that group's economic power.

This explains why in a socially dualistic society (as in most poor countries) the groups with greatest economic and political power will have preferential access to higher forms of schooling. The poorer strata of society, in particular the rural poor who have the least political muscle, will not be in a position to bid the resources of education in their favor.

This framework also explains why when a socialist type government (e.g., a la Cuba) takes over power it usually radically changes the structure of education. Such types of a government will seek to make education not only massive and particularly aimed at the poorer strata of society but it will also cut down on the supply of higher forms of education at the same time that it increases the scope of primary or primary-type schools. The content of education will also be transformed to accentuate the propaganda message which will help the government to consolidate its power position, altering the balance of power in society against the elite and the middle class, and in favor of the (previously) dispossessed.

10. The Chesswas study, an IIEP internal working paper is based on a survey of rural schooling in Guatemala, Bolivia, Nigeria, Ghana, Uganda, and Zaire. The subjects dealt with in the study are quantitative and qualitative aspects of rural schooling, and the relation of primary education to the local socio-economic infrastructure. The conclusions reached in the study generally support the arguments raised in this paper. One major area of disagreement, however, concerns Chesswas' assertion that a great proportion of educational resources are allocated to the rural areas (greater than to the urban areas). While this may be true in global terms for Africa, it is not true for Latin America (a point which Chesswas admits). Such allocation is to be expected in the African countries which are largely rural. Still, a more useful way of looking at this issue is to examine what the allocation is on a per capita basis. Such presentation would undoubtedly show that the urban areas do, in fact, receive the lion's share of the resources devoted to schooling - (For Latin America see, for instance, OAS America en Cifras, Situacion Cultural - Educacion y Otros Aspectos Culturales, Washington, OAS/IASI, 1971).
11. Gini coefficients are the most widely used summary measure of concentration. They measure the relationship of the distance between the 45° diagonal (which when the cumulative number of recipients is plotted against the cumulative proportion of, say, income they receive, signals perfect equality) and the actual Lorenz curve, to the entire area of the triangle. If there is perfect equality the value of the Gini coefficient is 0.0. If, on the other hand, there is perfect inequality (i.e., one recipient gets all of the income) the value of the Gini is 1.0. Thus the greater the inequality the closer the value of the index to 1.0. For an analytical discussion see M. Bronfenbrenner, Income Distribution Theory, Chicago, Aldine 1971.


14. Ernesto Schiebelhein (1973) finds that the Jenck's type research findings (i.e. using the input-output method) which have received so much attention in the United States must be interpreted in the light of their own limitations. First, Jenck's analysis is based on cross-section data, not on time series. Second, no more than one third of the variance in educational achievement is explained by the variables measured in the study. Third, Jenck's definition of success is very narrow: "getting a job that pays as much as others get" and this, Schiebelhein notes, has little relevance in cases where the main goal is to reach certain minimal levels of life.

15. Cf. Harbison (1973), see especially chapters 4, 6, 7 and 8. Correlation and regression analysis for four time periods; a re-examination of the Harbison-Myers index of human resource development; relationship between expansion of education and rate of economic growth; and conclusions and caveats.

16. This assertion can be interpreted in light of my earlier arguments raised in footnote 9 concerning the political economy of schooling in the poor countries. On the other hand, it must be noted that the governments in poor countries are slowly catching on to the idea of diversification of educational development. While action, as always, is lagging behind words, it is still the case that, for instance, a number of Latin American countries are now undertaking significant educational reforms (Brazil, Peru, Honduras and Costa Rica are notable examples) which incorporate elements of nonformal modes.

17. For a discussion of the definitional problem in nonformal education see Michigan State University, Program of Studies in Nonformal Education Discussion Paper No. 2, East Lansing, MSU, 1973. Coombs' definition is operational in nature: "Nonformal education is defined as any type of
organized educational activity, outside the formal school system -
functioning separately or as an important part of a larger activity -
whose objective is to serve specific clienteles and identifiable learn-
ing objectives. (UNICEF Report)

18. See, for instance, Coombs (1974) pp. 13-16; subsections on the nature of
rural development and education's role, and educational needs for rural
development.

19. I am indebted to Bernard Wilder of AID for calling my attention to this
particular point.

20. In the determination of the rate of return to the project the assumptions
made by the World Bank Mission were as follows: (Arrigazzi 1972)

a) effective termination rate of all trainees was 100 percent; the
skills of the trainees would be effectively improved.
b) employers would recognize the skills and the promotion mechanism
would show complete recognition.
c) employment rate for all trainees was 100 percent; the estimated
duration of employment for each trainee would be 20 years.
d) the trainees' earnings would begin in the second year after finishing
the course. At that point individual earnings would increase and
remain at that level for the balance of the individual's working life.
e) the differential lifetime earnings should be pared down by one-sixth
to account for a reduction in the work-week from six to five days.
f) a further discount of one-sixth should be made to account for the
fact that individuals would have eventually acquired those skills
through on-the-job learning.

21. Zymelman notes that for the most part the studies he analyzes do not
support their conclusions in a systematic way. After having read some of
this literature myself I cannot help but agreeing with Zymelman on this
point. Some studies, for instance, reach conclusions that are not
acceptable from a cost-effectiveness angle. In other cases no attempt
at cost-benefit analysis is made and the closest the authors get to any
systematic treatment is a description of accounting costs of different
programs. Or else, no effort is made to remove the biases from the
samples. Finally, in still other cases (particularly those studies
having to do with vocational schools) the authors confuse external effi-
ciency (the asymmetry between what the schools teach on the one hand and
what the labor market requires, on the other) with internal productivity
of the programs with the result that the policies recommended are ground-
less and based on no systematic treatment of the alternatives available.

22. Some of these issues are discussed by Coombs et al. 1974; the reference
is Swett 1973 unpublished internal ICED memo on cost-benefit aspects of
agricultural development projects.

23. One also has to contend with the natural desire of programs to purchase
more expensive inputs as they expand in size and scope. A case in point
is the Campaign for Community Schools (CNEC) program I was able to
observe in Pernambuco, Brazil. The unit costs in this program (which
was largely designed to provide middle school level equivalency to
students who could not otherwise attend the ginásios) were one-third of the unit costs of ginásios (middle level schools). This advantage was due largely to the fact that CNEC made extensive use of volunteers and borrowed facilities. However, with the expansion of the program, the managers of CNEC were aiming for a) "improving" the quality of instruction through the use of a "certified" teaching force, and b) moving into their own quarters to "improve" the delivery of the programs. These two "improvements" would have undoubtedly wiped out the cost advantage that CNEC had over the ginásios. Cf. Swett (1973; unpublished).

24. These observations are also made on the basis of my personal experience with programs of nonformal education in Brazil and in Central America.

25. For a discussion of opposing views concerning the education employment connection the readers are directed to read the papers by Mark Blaug and Martin Carnoy in Simmons ed. (1973c).

26. Cf. Swett (1973; unpublished) - The need to provide these extra services points to the constraints imposed on programs of education by the environment (what I call external factors elsewhere). On the one hand the productivity of the programs is affected by the interplay of external factors such as high desertion rates (brought about by high opportunity costs), transportation problems, the inability of the clientele to take full advantage of the learning services provided (e.g., if malnutrition in early infancy has affected the development of the brain), etc. On the other hand, the provision of most of these services may fall entirely outside the scope of programs of education, or would also increase the costs of these programs beyond what is economically feasible.

27. See, for instance, Freire's Pedagogy of the Oppressed, Herder, New York, 1972. In a capsule, the methodology involves the following steps:

- Once an area has been chosen and an initial knowledge of the area has been gained, the investigators must meet with a number of local folks to clarify the objectives of the investigator's presence in the area. This initial phase is also fundamental to establish rapport and mutual trust.
- There follows the decoding stage when the investigators observe moments in the life of the area, including the behavior, language, customs of the local folks. This investigation must include a valid universe of the existential experience of the area so that the investigators may obtain a correct view of the place.
- Afterwards there must be evaluation meetings to discuss the individuals' experience and their perception of the living code. This phase of the process is highly dynamic and constantly changing. As Freire puts it "the more the group divides and reintegrates the whole, the more closely they approach the nuclei of the principal and secondary contradictions which involve the inhabitants of the area."
- Once the contradictions have been apprehended, the investigators must select some of the contradictions to incorporate them into the thematic investigation. Freire points out that the codifications
must meet two fundamental requirements: they must represent situations familiar to the subjects of study and the thematic nucleus must remain ambivalent: neither too explicit nor too mysterious.

As this process is accomplished, the decoding stage ensues. Participants must be made aware of their "perception of their previous perception." By achieving this awareness, says Freire, they come to perceive reality differently; their terms of reference begin to change. The individuals who before could only feel their needs are now all to perceive the cause of their needs.

28. This assertion holds insofar as the programs have as their objective rural development. The benefits they provide are location-specific. Therefore, to the extent that they supply skills and knowledge which do not have effective demand in the rural areas they may actually increase the outflow of people out of the rural areas. In a more general sense, however, migration is the mechanism whereby one factor of production (labor in this case) flows to the sector where the highest private (and conceivably, though there is ample room for controversy here, social) returns are attained. For further elaboration of this point see the work of M. Todaro, also A. Harberger's "On the Social Opportunity Cost of Labor" reprinted in Harberger's Project Evaluation Chicago, Aldine, 1972.

REFERENCES AND BIBLIOGRAPHY*


* Actual references in the text are indicated with an asterisk.


47. * __________, Rural Primary Education in Developing Countries: A Study of Particular Quantitative and Qualitative Aspects, Paris, IIEP, 1972.


63. Drummond, Ian, "Labour Markets and Educational Planning," in the Canadian Labour Market: Readings in Manpower Economics, Kuper, A., Melz, N., eds., Toronto: Centre for Industrial Relations, University of Toronto, 1968.


149. __________, "The Effect of Unemployment and Growth on the Rate of Return to Education: The Case of Colombia," (mimeo), 1965.


