THE RISE AND DECLINE OF VOCATIONAL EDUCATION*

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In this paper, the expansion of and the relative emphasis on secondary vocational education is placed in a broad historical and cross-national perspective. First, the origins of technical-vocational education in both European and non-European systems are briefly outlined. Second, contemporary enrollment patterns in vocational education (1950–1975) are analyzed in light of the paper’s main empirical finding: the relative share of secondary vocational education has declined in almost every national educational system. Third, a number of causal factors are introduced to account for cross-national and temporal variation in the proportion of secondary vocational enrollments. Finally, the paper discusses why the structural shift away from vocational education is best understood in the framework of recent world-system theories of educational expansion.

INTRODUCTION

In recent years, scholars from a variety of disciplines have called attention to the forces which affect the expansion and differentiation of modern educational systems (Archer, 1982; Craig, 1981; Ramirez and Meyer, 1980). However, there are few comparative studies exploring why technical-vocational educational programs emerged as a distinct form of public schooling. What factors generated, sustained or hindered the growth of vocational education in different regions of the world? Did vocational education develop as a response to economic, class-based or ideological imperatives, or some combination of these? In this paper, we begin to address these questions by examining worldwide and regional enrollment patterns in vocational programs since 1950. We find that prevailing perspectives in the field of comparative education—whether technical-functional, neomarxian or social integrationist—have either neglected to consider or failed to predict a central tendency in contemporary educational systems: the pronounced shift away from dual-stream, segmented secondary school systems towards more undifferentiated and “comprehensive” ones. This shift is highlighted in the paper’s main finding: vocational education, as a share of secondary education, has declined in almost every educational system in the world. The aim of the paper is to place this finding in perspective by outlining the long-term historical development of vocational education and, more importantly, to provide tentative answers as to why the recent shift has occurred.

The paper is organized into five sections. The first section sketches the origins of vocational schooling in Europe and its later development in other parts of the world; the second summarizes three theoretical perspectives generally thought to account for the growth of vocational education programs. Sections three and four focus on contemporary enrollment patterns (1950–1975); the former section documents regional and gender differences in vocational enrollments and the latter reports a number of exploratory analyses which attempt to account for declining proportions of secondary vocational education. In the final section of the paper, the significance of the contemporary decline in secondary vocational education is discussed and an explanation as to why it may have occurred is offered.

1. THE ESTABLISHMENT OF PUBLIC VOCATIONAL EDUCATION

Two educational trends conditioned the institutionalization of secondary vocational education: first, the general expansion and differentiation of secondary schooling and second, the formalization and incorporation of particularistic vocational courses and apprenticeship programs into public schools.

In the 19th century, secondary “modern” schools in England, “higher burgher” schools (Realschulen) in Germany and the “modern” stream in French lycees all had one thing in

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common: their growth helped to differentiate post-primary education into two classes of schools—those providing traditional education in areas such as Latin, theology and classics and those emphasizing modern subjects such as science, mathematics and contemporary foreign languages (Ringer, 1979). Across Europe, as the distinction took hold, both forms of secondary schools underwent noticeable expansion. Recent studies view this expansion as a consequence of 1) the rising demand for educated labor due to industrialization; 2) traditional European elites who increasingly saw post-primary education as a means of both certification and mobility for their children's entrance into high status professional positions in law, theology, medicine and the like; and 3) middle class parents who wanted their children to gain educational credentials for access into civil service and managerial positions (Craig, 1981; Anderson, 1975; Ringer, 1979; Collins, 1979; Kaeble, 1981). A consequence of the growth of secondary ‘modern’ schools was to legitimize the formation of other non-elite, technical and vocational schools for working class children.

Before technical-vocational schools were established, the formative training of working class youth occurred outside the public school system. After completing a number of years of primary schooling—when it was available—working class children sought apprenticeship training in artisanal and industrial trades under the tutelage of a master craftsman or worker (Dunlop and Denman, 1912; Scott, 1914; Unwin, 1904). The character of apprenticeship frameworks, in contrast to schools, was both distinct and informal: few were differentiated by age or ability level and there was little emphasis on formal certification and credential conferral (Collins, 1977).

Throughout the 19th century, the authority and status of apprenticeship frameworks were undercut. Agencies which supported new, labor-intensive technologies initiated policies to control and standardize job training processes. Private industries, town councils and industrial associations—all examples of agencies of this type—organized and financed ‘schools’ offering technical-vocational courses designed to train young workers in new skills and supplement their knowledge in general subjects. Such early industrial school frameworks included the Mechanic Institutes of England and Scotland, trade and continuation schools in Germany and Switzerland, ‘practical schools of commerce and industry’ in France and commercial and craft schools in Austria (for detailed descriptions, see Cooley, 1912; Monroe, 1912; Sadler, 1908 and J. Taylor, 1914). These new forms of schooling, which combined on-the-job training with part-time educational instruction, weakened and, in some cases, replaced existing apprenticeships systems. It was also during this period that many industrial and trade courses that took on school-like features became incorporated into the public school system.

Vocational courses generally had powerful sponsors when they were introduced into public schools. On the one hand, support came from private factories and industries trying to minimize training costs and increase profits. On the other, political and economic support came from arms of the state oriented to internal economic development and external capitalist competition [e.g., the Ministry of Labor and Commerce (Prussia and France), the Board of Trade (England), the Ministry of Public Works (Austria). See Monroe, 1912; Supple, 1973;325-26]. The push for publicly funded vocational programs by private industry and state officials was in part based on the belief that public education, if directly linked to a nation's economy, could play a productive role in national development—a kind of pre-human capital theory of the beneficial effects of education. As proof of vocational education's potential effects, European and American officials looked to the role industrial schools had played in Germany's rising position in the world economy during the latter half of the 19th century:

... the modern nation holds that its power depends largely upon the extent of its resources and the skill with which these are developed ... The smaller the territory, the greater must be the skill in the development of national resources ... The world stands amazed at Germany's economic development and military strength and asks how all this has been brought about. Many answers have been given but opinion seems to be strong that industrial and technical education have had much to do in the attainment of this result. (Scott, 1914:80)

In short, it was [technical] education ... that these wise [German] counselors looked for the means whereby their nation should regain and enhance its position in Europe and the world. ... In no other way can the phenomenal advance of the German nation be explained ... (director of British Technology Institute quoted in Cooley, 1912:29ff)

Thus by the turn of the century, three forms of secondary schooling had taken root in Europe: first, a "traditional" form of highly selective institutions geared towards children of upper class background; second, a growing number of "modern" schools with generalized
secondary programs enabling middle class children some access to higher education and civil service positions; and third, a multiplicity of technical-vocational courses and industrial schools providing training for lower class youth in skilled trades and manual labor.

In the early decades of the 20th century, vocational education programs gained further support because states were under pressure to strengthen the political enfranchisement of middle and working class strata. As a result, leaders of European countries searched for and implemented politically acceptable policies such as introducing social security programs and expanding educational opportunities (Heidenheimer, 1973; 1981). Since vocational courses effectively integrated working class children into the public school system, they were seen as a sound and expedient political strategy.

The popularity of particular positions on how to best implement vocational programs varied from country to country. Yet the quickness in which technical-vocational education became a significant part of the educational systems of industrial nations by the end of the First World War is nonetheless surprising. England, France, Germany, Belgium, Switzerland, and the Netherlands all passed national legislation providing for publicly funded vocational instruction in either separate vocational schools or dual-stream secondary schools by the 1920’s (Gregoire, 1967:15–32). The Smith-Hughes Act of 1917 paved the way for the federal funding of vocational education in the United States (Kantor and Tyack, 1982). Between the World Wars, part-time trade and industrial schools based on the dominant German model were established in Eastern Europe (Grant, 1969:17–19) as well as in Brazil, Chile and other parts of Latin America (ILO, 1951). European nations expanded vocational education because they were convinced of its economic and political merits; later, based on European precedents, colonial territories followed and strengthened this educational policy (Blakemore and Cooksey, 1980).

After mid-century, independent developing nations began an unprecedented expansion of postprimary education. Many vocational training programs on the secondary level were introduced. In establishing public vocational education, states typically followed a set scenario. First, they would centralize existing vocational courses under the authority of public state ministries and then levy a special tax on industry and large commercial enterprises to aid and maintain new training schools. Subsequently, they would contract foreign technicians to implement and supervise vocational curricula and start training new technical teachers by granting scholarships to qualified individuals for study either within the country, when the necessary facilities existed, or abroad. Such educational blueprints for establishing systems of vocational education were exported to less-developed countries throughout the post-War period but, as we will see below, met with only limited success.

Educational specialists in transnational agencies such as the International Labour Office (ILO) and UNESCO played a significant role in the development of vocational education during the post-War period. For nearly 40 years, international and regional conferences sponsored by these agencies advocated vocational education programs within a differentiated system of secondary education (e.g., ILO, 1946; ILO, 1950; UNESCO, 1961a; UNESCO, 1970). This support was later translated into unusually high levels of funding by international development agencies. For example, in the mid-1960’s, the share of World Bank loans for vocational programs in developing countries was the same as for general ones (over 40 percent of total educational funding). By the late 1970’s, loan allocation had increased to a point where technical/vocational programs received over one-half of all funding (53 percent) while general programs received only one-third (Psacharopoulos, 1980:11). Undoubtedly, the support of international agencies helped many countries set up a dual secondary education system with separate tracks of general and vocational education.

In summary, despite cross-national variation in the introduction and expansion of technical-vocational programs, the historical record suggests that the first half of the 20th century witnessed a general, though variable rise in the number of vocational schools and the proportion of secondary vocational students. The introduction of vocational instruction in public schools followed closely the restructuring of national economies under industrial and corporate capitalism. By World War II, vocational education had become a central and legitimate element in the educational policies of development-oriented international agencies.

2. PERSPECTIVES ON THE RISE OF VOCATIONAL SCHOOLD

What accounts for the pronounced rise of vocational education during the early part of this century and its later institutionalization as a central tenet in the educational policy of prominent international agencies? Borrowing from the sociology and history of education literatures, we outline three perspectives generally thought to account for the historical growth of vocational education.
The first and most common perspective associates the rise in vocational education with technological changes generated by the industrial revolution. This “technical-functional” argument states that as the mechanization of production increased and the process of production itself became more centralized in larger factories, jobs became more specialized and complex and traditional modes of on-the-job training become inefficient. As a result, higher skilled positions gained in importance and skill requirements of older jobs were upgraded. Demands for skilled workers generated by industrialization in turn promoted the growth of education that could provide training and skills for a technically proficient labor force (Blaug, 1968; 1969; Machlup, 1970; Trow, 1961). Thus because economic requirements for skilled labor increased individual returns to investments in vocational education, the aggregate demand for this type of education grew (Schultz, 1961; Becker, 1964; Denison, 1964; Harbison and Myers, 1964).

A second explanation views the rise of vocational education as a natural outcome of expanding democratic societies bent on integrating and socializing new citizens. In this “integrationist” argument, the major precipitating factors are unchecked immigration and an expanding clientele of secondary pupils (usually from working class background) due to the broadening of compulsory education laws. Here, vocational education is seen as a means of training and integrating recently arrived immigrants as well as working class youth into the economy, while upholding basic moral commitments to equal educational opportunity (e.g., Kerschensteiner, 1911; J. Taylor, 1914; Cubberly, 1934). The rise of vocational education stemmed from its appeal to “progressive” educators and teachers who saw the need for practical curricular topics that were designed to kindle interest among “problematic” students, thereby keeping them in school and postponing their entry into the labor market. Thus in attempting to meet the needs of an increasingly heterogeneous student population, the decision of state policy-makers and educational administrators to expand vocational programs is seen as a rational strategy for furthering national integration.

A third perspective, explicitly critical of assumptions in the first two perspectives, views the rise of vocational schools as a class-based solution invented by capitalist businessmen and industrial managers to consolidate their power over the emerging corporate capitalist economies (Spring, 1972; Bowles and Gintis, 1976; Violas, 1978). The proponents of this “neo-marxist” perspective argue that industrialists played an active role in the establishment of vocational programs in many countries. They had direct interests in hiring loyal and disciplined workers who acknowledged their proper place in the division of labor. Publicly funded vocational education provided a relatively cheap, if only partial, means of turning out semi-educated workers sensitive to capitalist work values and instilled with a respect for manual labor. Additionally, the push for vocational education by industry neutralized the discretionary powers of skilled workers and union-controlled apprenticeship programs by placing the responsibility for job entry and job training in either public or managerial hands (Bowles and Gintis, 1976; Braverman, 1974).

The degree to which each of the above explanations throws light on the introduction and expansion of vocational programs clearly varies by country and region. Unfortunately, there are no studies that systematically evaluate their relative explanatory power in accounting for national and regional differences. Concerning the overall growth of vocational programs during the first half of this century, each perspective presents a reasonable, albeit partial explanation of this long-term trend. When applied to the contemporary (post World War II) period, there is little research that employs these perspectives to predict global patterns in the organization of secondary education in general, or trends in vocational enrollments in particular.1 Even from the limited point of view of industrialized European countries, caution should be used in committing these perspectives to predict an ever-increasing growth in vocational education despite the earlier historical trend upon which they were first brought to bear.2

These cautions and limitations notwithstanding, we can draw certain inferences from the above theoretical perspectives. The strategy of expanding vocational education during the early part of this century was aimed at meeting the demands for a technically proficient labor force, integrating children from lower socio-economic backgrounds and training a loyal and disciplined work force. Hence we think it fair to ask if developing countries

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1 The problem in fact is more basic: few scholars in the field of comparative education consider the historical growth of secondary vocational education as problematic much less hypothesize as to how cross-national variation in the growth and size of vocational systems might affect other societal institutions. For a first attempt to analyse the effect of vocational education on economic development over a wide range of counties, see Benavot (1982).

2 I would like to acknowledge an anonymous reviewer of this paper for stressing this point in his/her review.
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should not be expected to embark on a similar educational policy in the present period? Alternately, should not the struggle for economic development, so pervasive a force in the modern world, pressure less-developed nations to expand vocational training programs as an additional development strategy? Based on the assumptions and arguments of the above perspectives, the response to these questions would, with some qualification, be affirmative: vocational education should have expanded in the contemporary world to meet the demand for more highly trained manpower and to enhance national economic growth. To many, this seems a reasonable and logical prediction. But to anticipate our arguments below, there are a number of reasons why the answer to these questions appears negative.

To begin, it is not accidental that the introduction of public vocational education coincided with the development of "scientific theories" which viewed certain educational programs and an educated work force as rational strategies for economic growth (examples of these "theories" include Blonsky, 1919; Taylor, 1947; Kerschensteiner, 1911). New forms of schooling are often organized and legitimated according to "theories" or accounts of education's role in society articulated by national and transnational experts (Meyer, 1977). For example, ideas with a "human capital" and manpower planning flavor have historically elaborated the connection between education and economy. They have also served as a major justification for the structuring and reform of modern educational systems (see Sobel, 1978). Vocational education, by virtue of the applied and practical character of its programs, made sense in terms of these authoritative accounts and was therefore quickly legitimated as a new form of public schooling.

In recent years, though, egalitarian accounts of proper educational organization (education for all, equalization of educational access) have conflicted with and sometimes supplanted accounts embedded in human capital theory (Ramirez and Boli-Bennett, 1982). For many nations, this poses a serious problem because the traditional dual-stream character of secondary schools works to reproduce occupational stratification through inequalities in educational outcomes. States are now under pressure to reduce inequalities in educational opportunities and outcomes even though the inequities of adult status continue to exist (Levin, 1978; Kahane and Starr, 1976). Under conditions of conflicting ideological forces, the legitimacy of vocational education may be undermined.

Egalitarian educational accounts tend to view vocational programs with disdain. They are narrow forms of schooling that limit future access to higher educational and occupational positions and retard the development of individual self-expression. A world strongly committed to egalitarian educational institutions might phase out vocational education and restructure national education systems accordingly. In light of these arguments, we might expect a rather different pattern of secondary vocational enrollments in the recent period. Evidence examined in the next section directly addresses these issues.

3. GLOBAL PATTERNS IN SECONDARY VOCATIONAL EDUCATION: 1950–1975

Vocational education is, and continues to be, known by many names: industrial education, technical education, manual education and more recently, career education (Grubb and Lazerson, 1975). What is common to all these forms of vocational education is the essentially practical and applied character of instruction usually, though not exclusively, aimed at matching pupils with work positions in industry and commerce.

While we recognize historical and cross-national variation in vocational programs, for the purposes of this paper we have condensed secondary education into two categories: all forms of technical-vocational education on the one hand and academic-general education on the other. Enrollment figures reported under the heading of vocational education include students in:

post-primary courses in technical, industrial, arts and crafts, trade, commercial, agricultural, fishery, forestry, and domestic science programs. . . . [These courses are] provided in independent vocational schools as well as departments and classes attached to institutions whose main concern is education of other types and/or levels (UNESCO, 1969:234).

To track enrollment trends in vocational education over the past 30 years, we have calculated the proportion of secondary students enrolled in vocational programs (total vocational enrollment/total secondary enrollment) at five-year intervals for independent countries reporting enrollment data to UNESCO.3

3 Because we are interested in changes in the relative emphasis and expansion of secondary vocational education, the vocational share of secondary enrollments was seen as the most appropriate indicator of this process. Other measures such as the type of vocational programs offered and their duration in years, though informative, are only indirect indica-
Table 1. Proportion of Full-Time Secondary Students in Vocational Programs, 1950–1975, by select regions of the world*

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<tr>
<td>Africa</td>
<td>19.0</td>
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<td>16.2</td>
<td>13.1</td>
<td>8.1</td>
<td>7.9</td>
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<td>(21)</td>
<td>(26)</td>
<td>(30)</td>
<td>(34)</td>
<td>(32)</td>
<td>(37)</td>
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<tr>
<td>Asia</td>
<td>10.1</td>
<td>10.9</td>
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<td>11.4</td>
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<td>(12)</td>
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<tr>
<td>Middle East/North Africa</td>
<td>15.8</td>
<td>12.0</td>
<td>12.1</td>
<td>10.9</td>
<td>8.8</td>
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<tr>
<td>Latin America/Caribbean</td>
<td>29.9</td>
<td>28.4</td>
<td>23.0</td>
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<tr>
<td>Eastern Europe</td>
<td>50.5</td>
<td>54.0</td>
<td>58.4</td>
<td>59.2</td>
<td>64.1</td>
<td>66.1</td>
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<tr>
<td>Western Europe*</td>
<td>33.4</td>
<td>29.0</td>
<td>26.2</td>
<td>25.2</td>
<td>22.3</td>
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<tr>
<td>Totals, all regions</td>
<td>24.2</td>
<td>23.1</td>
<td>20.0</td>
<td>19.2</td>
<td>16.8</td>
<td>16.5</td>
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<td>(82)</td>
<td>(102)</td>
<td>(108)</td>
<td>(121)</td>
<td>(118)</td>
<td>(124)</td>
<td></td>
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<tr>
<td>Totals, Eastern Europe Excluded</td>
<td>22.5</td>
<td>21.1</td>
<td>17.8</td>
<td>16.0</td>
<td>13.4</td>
<td>12.8</td>
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<tr>
<td>(77)</td>
<td>(96)</td>
<td>(102)</td>
<td>(112)</td>
<td>(110)</td>
<td>(108)</td>
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* Western Europe includes Australia, New Zealand and Canada.

The following procedures were used in constructing Table 1:
1—Only independent countries were included; data for 1950, 1955 and 1960 were taken from the 1969 UNESCO statistical yearbook; data for 1965 and 1970 were taken from the 1975 yearbook; and data for 1975 was taken from the 1981 yearbook.
2—Enrollment figures close to 1975 were used for Angola (1972); Dahomey and South Vietnam (1973); Ivory Coast, Peru, Zaire, Bhutan, Sarawak, Malasia, and Nepal (1974) and Sri Lanka (1976).
3—Portuguese Guinea, Maldives Islands, Kuwait, and Mozambique were excluded at all time periods due to the small number of secondary students in their educational systems.
4—Data for Papua is included in estimates for New Guinea for the entire period; the United States is a missing case at all time points.

Table 1 presents the mean proportion of secondary vocational students for the world as a whole and for six geographical regions at each five-year interval. In 1950 the average proportion of full-time vocational students was about 25 percent of all secondary students (24.2 percent); by 1965 the proportion had dropped to 19.2 percent and in 1975 a national average of less than 17 percent (16.5 percent) of all secondary students attended vocational programs. The general world pattern, as evidenced in the next to last row of Table 1, points to a global decline in the share of vocational education on the secondary level. These trends are even more pronounced when the unusual pattern of Eastern Europe is excluded: the corresponding proportions are 22.5 percent in 1950, 16.0 percent in 1965 and 12.8 percent in 1975. Thus, for the vast majority of countries, the relative proportion of vocational enrollees has been cut in half: from almost one-fourth to one-eighth.4

We now turn to consider the regional trends presented in Table 1. One potential problem concerns the inclusion of part-time or adult workers in the estimated ratios which would inflate the number of vocational enrollees for some countries. This is of particular significance for countries in Western and Eastern Europe which are known to have highly differentiated vocational education programs and a long history of apprenticeship training. Our analysis shows that in UNESCO yearbooks prior to 1974, the number of vocational students in Austria, Czechoslovakia, West Germany, Netherlands, Switzerland, USSR, and East Germany may have included large numbers of part-time, evening and/or correspondence course pupils. For this reason, national statistical summaries from a supplemental source, volumes II and III of the World Survey of Education (UNESCO, 1958; 1961b), were used to prepare more reliable estimates of full-time vocational students. The country and time point(s) estimated from this source (and incorporated in Table 1) include Czechoslovakia (1950, 1955); West Germany (1955); Netherlands (1950, 1955); Romania (1955); Norway (1950, 1955); Lebanon (1955); United Kingdom (1955); and Cameroons (1955). Those countries for which reliable estimates of full-time pupils could not be found were coded as missing data.

4 Initially, we need to be cautious in evaluating the

 tors of the longitudinal variation in the relative importance of vocational education. Moreover, the latter measures are unavailable. Neither UNESCO nor other international agencies presently collect such information.
Throughout the period under study, Eastern Europe not only exhibited a higher share of secondary vocational students than any other region in the world, but the average vocational share also consistently increased: from 50.5 percent in 1950 to 66.1 percent in 1975. The high and increasing proportion of secondary vocational enrollees is primarily a post-World War II phenomenon. Before the war, the educational systems of this region were generally similar, in both structure and size, to those in Western Europe (Grant, 1969). Only after the war did a wave of legislative reform bring the East European educational systems more in line with the emphasis on technical education prevalent in the Soviet Union. In the late 1950’s and early 1960’s, secondary education was further reformed to include more labor education and polytechnic training for secondary school students (Havighurth, 1968; Zajda, 1980). The legitimation for these changes derived from earlier writings of Lenin and N. Krupskaya (Connell, 1980). Foremost among the educational principles institutionalized during this period was the notion that education should “give pupils knowledge of the general principles of production, equip them with a series of practical skills and link instruction with socially productive labor” (Mallinson, 1975:250).

The interesting point here is that the East European emphasis on technical education cannot be understood as a result of unique changes in its economic organization. The mechanization and growth of East European economies as measured by national product and income have, to a large extent, paralleled trends in other European countries (Bairoch, 1976). What is unique to the socialist states of this region is their political structure; that is, the nature of the link between state and society as well as their structural position in the world economy (Chase-Dunn, 1980; Konrad and Szelenyi, 1979). East European states have the pre-eminent role in planning and organizing economic production. The extent of state power in this and other domains of social life is extremely high. State bureaucracies establish investment policy, set production schedules, organize the distribution of the labor force and determine the content and enrollment level of educational frameworks. Given their strong commitment and actual power to control economic production, it is not surprising that the educational systems of Eastern Europe have been organized to keep in step with, and to be an instrument of, economic development. The end result, as Table 1 documents, was a conscious policy to integrate education and production goals by expanding skill-oriented trade schools and technical secondary schools (known as Technicums). In these schools students could engage in part-time productive labor and be instructed in practical skills for work in industry, manufacturing and engineering.

For four of the remaining five regions in Table 1 (Africa, Middle East/North Africa, Latin America/Caribbean, and Western Europe), the average vocational share of secondary enrollments decreased. The reduction in the proportion of secondary vocational students for these regions from 1950 to 1975 averaged about 40 percent. The Asian region, by contrast, had the lowest ratio in 1950 (10.1 percent) and thereafter remained at about the same level until 1975 when the national average was still one of the lowest in the world (11.2 percent).^5

It is significant that the sharpest decline took place in Africa (from 19.0 percent to 7.9 percent). Vocational education in Africa (usually oriented to agriculture and handicrafts) had been established because it was viewed by colonial powers as most appropriate to African needs (Blakemore and Cooksey, 1980). Foster (1965; 1977) has outlined possible reasons for its dramatic decline. First, public schooling in Africa, despite recurrent calls to the contrary, entailed basic instruction in literacy and numeracy rather than training in specialized skills for industrial work. Second, in most African countries the absence of a strong and expanding industrial base as well as a weak private sector precluded graduates of vocational programs from using acquired technical skills in a differentiated job market. Moreover, the economic sectors undergoing significant expansion during this period were the public, state-related bureaucracies and the civil service; positions in this sector required general educational credentials, but not certificates of technical proficiency. Perhaps more importantly, vocational education had acquired a negative stigma among Africans under colonial rule. After independence, the dual character of

^5 We also analysed the figures in Table 1 to make certain that regional changes in the vocational share of secondary education are not statistical artifacts. Because the number and sample of countries upon which the ratio is based vary across time points, the relative decline in vocational education might have been artificially accentuated. To check this problem, we calculated the proportion of secondary vocational education for a constant set of 87 countries at three of the six time points: 1955, 1965 and 1975. The resulting figures were essentially the same for both the overall trend and regional breakdowns. The decline in the Middle East and Western European regions was, however, slightly less pronounced whereas the increase in Eastern Europe was slightly steeper.
Table 2. Proportion of Full-Time Secondary Students in Vocational Programs, by Gender and Regions of the World (1955, 1965, 1975)

<table>
<thead>
<tr>
<th>Region of the World</th>
<th>1955</th>
<th>1965</th>
<th>1975</th>
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<td>(mean values; cases in parentheses)</td>
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<tr>
<td>Africa</td>
<td>Male</td>
<td>18.4 (22)</td>
<td>13.3 (29)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>15.7 (22)</td>
<td>13.4 (29)</td>
</tr>
<tr>
<td>Asia</td>
<td>Male</td>
<td>13.5 (12)</td>
<td>12.5 (13)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>5.9 (12)</td>
<td>9.4 (13)</td>
</tr>
<tr>
<td>Middle East/North Africa</td>
<td>Male</td>
<td>11.3 (11)</td>
<td>13.6 (14)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>11.0 (11)</td>
<td>9.5 (14)</td>
</tr>
<tr>
<td>Latin America/Caribbean</td>
<td>Male</td>
<td>29.0 (19)</td>
<td>21.5 (19)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>32.4 (19)</td>
<td>21.7 (19)</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>Male</td>
<td>68.4 (4)</td>
<td>59.7 (6)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>37.9 (4)</td>
<td>43.0 (6)</td>
</tr>
<tr>
<td>Western Europe</td>
<td>Male</td>
<td>34.2 (12)</td>
<td>31.9 (14)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>28.4 (12)</td>
<td>22.3 (14)</td>
</tr>
</tbody>
</table>

| Totals, all regions       | Male            | 24.0 (80)       | 20.5 (95)       | 17.9 (96)       |
|                          | Female          | 20.6 (80)       | 17.1 (95)       | 13.8 (96)       |
| Totals, Eastern Europe    | Male            | 21.7 (76)       | 17.9 (89)       | 14.7 (91)       |
|                          | Female          | 19.6 (76)       | 15.4 (89)       | 11.3 (91)       |

Secondary education was sharply attacked. African nationals pushed for comprehensive, rather than stratified, secondary school systems (Blakemore and Cooksey, 1980). For all these reasons, it becomes clear why the demise of vocational education is so pronounced in Africa.

Given these regional descriptions, how certain are we that the global pattern in Table 1 captures an actual structural movement? Remember that the raw number of vocational enrollments, while increasing in most countries during this period, did not keep pace with non-vocational enrollments. Enrollments in the latter category increased at a faster rate, thereby producing the finding that the vocational share of secondary education declined. Some may argue that the decline is simply a product of economics: it is more expensive to expand and sustain vocational programs than general ones. Although there is an element of truth to this assertion (see the cross-nationally based cost estimates of technical versus general curricula in Psacharopoulos, 1980:36), in most countries vocational education includes a significant number of not-so-costly programs in such areas as handicrafts, services, business, commerce, and domestic science (UNESCO, 1979). In general, education is a relatively cheap institution to set up and expand; recent studies point out that the redefinition of some people as teachers and others as pupils is less tied to economic and political characteristics of nations than one might expect (Meyer et al., 1977). The relatively higher cost of vocational education should be seen as only a partial explanation of its widespread decline during the last three decades. Table 1 therefore suggests that the global trend (apart from Eastern Europe) reflects a real and significant shift from a differentiated to a "comprehensive" organization of secondary schooling.

Another possible argument that could be raised in this context is whether changes in vocational enrollment patterns are confounded by gender-specific enrollment trends. Might the incorporation of women into secondary vocational education significantly alter the global and regional trends discussed above? To answer this, we present in Table 2 the respective proportions of male and female secondary students in vocational programs in 1955, 1965 and 1975 broken down by region.

There are two findings of note. First, in all regions (except for Latin America in 1955), the share of male secondary vocational students is greater than that of female students. Second, temporal trends within each region are essentially the same for both males and females: where they decline, as in Africa, Latin America and Western Europe, they decline in both; where they increase, as in Eastern Europe, they increase in both. As for Asia and the Middle East, the fluctuating trends do not appear to differ substantially by gender. Thus we can conclude that while the average proportion of female secondary students enrolled in vocational education is generally lower than that of males, the declining share of secondary vocational enrollments holds equally for both sexes.

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6 To be sure, programs in "hard-core" vocational subjects such as carpentry, metalwork, mechanics, and electronics probably dominate vocational education, but we have no reliable estimates of the proportion of these type programs either nationally or cross-nationally.
RISE AND DECLINE OF VOCATIONAL EDUCATION


<table>
<thead>
<tr>
<th>Vocational Share of Secondary Education</th>
<th>Log Gross National Product Per Capita</th>
<th>Log Energy Consumption Per Capita</th>
<th>Percent Labor Force In Industry</th>
<th>Secondary Enrollment Ratio</th>
<th>Date of Independence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1955</td>
<td>.29**</td>
<td>.21*</td>
<td>.20*</td>
<td>.17</td>
<td>-.40***</td>
</tr>
<tr>
<td></td>
<td>(87)</td>
<td>(84)</td>
<td>(93)</td>
<td>(85)</td>
<td>(95)</td>
</tr>
<tr>
<td>1965</td>
<td>.39***</td>
<td>.37***</td>
<td>.36***</td>
<td>.31***</td>
<td>-.36***</td>
</tr>
<tr>
<td></td>
<td>(111)</td>
<td>(107)</td>
<td>(109)</td>
<td>(111)</td>
<td>(111)</td>
</tr>
<tr>
<td>1975</td>
<td>.41***</td>
<td>.41***</td>
<td>.36***</td>
<td>.33***</td>
<td>-.41***</td>
</tr>
<tr>
<td></td>
<td>(99)</td>
<td>(97)</td>
<td>(106)</td>
<td>(102)</td>
<td>(107)</td>
</tr>
</tbody>
</table>

*** p < .001.  
** p < .01.  
* p < .05.

4. CROSS-NATIONAL ANALYSES OF VOCATIONAL EDUCATION

The discussion and evidence presented in the previous section leads us to conclude that the global pattern described in Table 1 is an accurate depiction of an underlying structural change in the organization of post-War educational systems. Given that the vocational share of secondary education has, apart from Eastern Europe, declined in almost all countries, our strategy of analysis is twofold: first to isolate societal factors that are significantly associated with the secondary vocational ratio and second, to account for cross-national variation in the declining proportion of vocational education from an initial historical level.

Correlational analysis. The dominant theme of the theoretical perspectives discussed earlier is that vocational education develops in response to industrialization and changes in the division of labor. Industrial and manufacturing jobs require technical skills which can be practically and efficiently taught in vocational training programs. We would therefore expect that those economies with a greater proportion of skilled jobs would tend to expand practical vocational programs tailored to the needs of industry.

H1: The more developed or industrialized a country's economy, the greater the proportion of secondary vocational education.

Another factor we expect to be associated with the vocational ratio is the size of the secondary education system. Countries that have more of their eligible population enrolled in secondary schools are more likely to expand vocational education because of their ability to control and allocate scarce educational resources.

H2: The greater the secondary enrollment ratio of a country, the greater the proportion of secondary vocational education.

Finally, since the rise of vocational education is closely connected to a certain historical period, we would expect that the period in which a country became independent and established a secondary system should be associated with its relative emphasis on vocational education. Older countries should have more expanded vocational programs than newer ones.

H3: The older the country, the greater the proportion of secondary vocational education.

Cross-national data for economic development and the size of secondary education were assembled (World Bank, 1976; ILO, 1977; UNESCO, 1969; 1975) and correlated with the vocational ratio. We used three measures of economic development: per capita gross national product, per capita kilowatts of electricity consumption and percent labor force in industry. The skewed distributions of the first two measures were corrected by taking logged values. Table 3 reports zero-order cross-sectional correlation coefficients between the vocational ratio and each of the other variables at three time points (1955, 1965 and 1975). The positive and significant correlations reported in Table 3 support each of the predictions. Older countries, more industrialized economies and countries with larger secondary systems are all associated with higher secondary vocational ratios. Additionally, the correlations in 1975 are all stronger than those in 1955, which may mean that the decline in the vocational share of secondary education in

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7 There are, however, some countries where the vocational share of secondary education increased between 1955 and 1975. These include: Botswana, Central African Republic, Egypt, Costa Rica, El Salvador, Argentina, Chile, Peru, Cyprus, Iran, Israel, Japan, Nepal, Singapore, Philippines, Italy, and Papua/New Guinea.
less-developed countries is greater than that in developed ones. To find out whether these factors are causally related to changes in the vocational ratio over time, we turn to the second form of analysis.

**Panel regression analyses.** Here we examine whether date of independence, level of industrialization and size of secondary education significantly affect changes in the proportion of vocational education over time. We use two sets of panel regression models, one with a 20-year lag (1955–1975) and the other a 10-year lag (1965–1975). Each row reported in Table 4 represents a separate multivariate regression equation where the vocational ratio at time 2 (1975) is regressed on a set of independent variables at time 1 (1955 or 1965, depending on the lag used). The unstandardized raw slope and standard error are reported for each independent variable in the equation. Eastern European countries have been excluded from all panel analyses because of their unusually high values on the vocational ratio.

In Table 4, we find that measures of economic development and industrialization have no effect on the decline of vocational education. Neither does the period in which a country became independent. The only variable to show a significant effect is the size of the secondary education system in equations with a 20-year lag. The positive slope of this variable means that countries with more expanded secondary education systems in 1955 had larger proportions of vocational education enrollments 20 years later. Comparing the effects of this variable in the two lag periods enables us to infer that the effect of secondary system size occurred primarily between 1955 and 1965 because there is no significant effect in the 1965–1975 period. In a sense, this finding reflects the content of post-War educational policies where support for the expansion of secondary education went hand in hand with the development of vocational education programs. Only in the 1960’s and 1970’s, when the role and effectiveness of vocational education was carefully questioned, did these two processes become independent of each other both in terms of public political support and real economic allocation.

Overall, the main finding of Table 4 is one of no findings. Economic and historical variables do not significantly affect changes in the vocational ratio: richer and poorer, older and younger countries all de-emphasize vocational education at about the same rate. The picture painted by these analyses is one of inertia. Older, industrialized countries, while having established larger vocational systems, see the proportion of vocational education decline just like that of younger, less industrialized coun-

---

**Table 4. Panel Regression Analyses (Unstandardized Regression Coefficients; Standard Error in Parentheses)**

<table>
<thead>
<tr>
<th>Independent Variable: Vocational Share of Secondary Education 1975</th>
<th>Measures of Industrialization</th>
<th>Period of Country’s Independence</th>
<th>Secondary Enrollment Ratio</th>
<th>R²</th>
<th>Number of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measures of Industrialization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.16 (4.80)</td>
<td>1.92 (1.92)</td>
<td>1.59 (3.05)</td>
<td>0.63 (3.40)</td>
<td>0.01 (0.10)</td>
<td>0.064 (0.06)</td>
</tr>
<tr>
<td>Log GNP Per Capita</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.09 (0.10)</td>
<td>0.24 (0.10)</td>
<td>0.06 (4.80)</td>
<td>0.02 (4.80)</td>
<td>0.06 (4.80)</td>
<td>0.02 (4.80)</td>
</tr>
<tr>
<td>Dependent Variable: Secondary Education Share 1975</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.79 (3.05)</td>
<td>1.53 (1.40)</td>
<td>0.01 (0.10)</td>
<td>0.064 (0.06)</td>
<td>0.06 (4.80)</td>
<td>0.02 (4.80)</td>
</tr>
<tr>
<td>Log KWH Per Capita</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.09 (0.10)</td>
<td>0.24 (0.10)</td>
<td>0.06 (4.80)</td>
<td>0.02 (4.80)</td>
<td>0.06 (4.80)</td>
<td>0.02 (4.80)</td>
</tr>
<tr>
<td>Percent of Labor Force in Industry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.09 (0.10)</td>
<td>0.24 (0.10)</td>
<td>0.06 (4.80)</td>
<td>0.02 (4.80)</td>
<td>0.06 (4.80)</td>
<td>0.02 (4.80)</td>
</tr>
</tbody>
</table>
tries who had set up smaller vocational systems. Throughout the world, the vocational share of secondary education has contracted, or so it seems, according to the beat of the same drummer.

5. DISCUSSION

The findings presented in the last two sections support the idea that structural arrangements of educational systems are affected by changing worldwide ideological currents. The fact that the vocational share of secondary education has declined since 1950 so consistently and in such diverse countries appears to reflect a growing global ideology, egalitarian in character, that shuns formal differentiation of children while they occupy the status of high school pupil. What is the conceptual context within which this ideology makes sense?

Recent research has shown that the modern world places greater power and authority in the state for defining the direction of internal social institutions such as education (Boli-Bennett, 1979; Boli-Bennett and Meyer, 1978). State authorities use education as an irreplaceable tool for achieving social equality and collective progress (Meyer, Boli-Bennett and Chase-Dunn, 1975). But while states enjoy greater power and authority, theories from a world-system perspective argue that states do not have unlimited discretion in affecting the structure and organization of formal education; in other words, their internal power and authority is tempered by normative prescriptions within an integrated worldwide system (Meyer, 1980; Ramirez and Boli-Bennett, 1982). The main contention is that states act less as autonomous units than as units within a global system which defines proper state action and patterns social institutions in isomorphic forms. In the sphere of education, this system constructs ideologies that legitimate certain types of educational programs and de-legitimates others. The global decline of vocational education discussed in this paper, as well as complementary trends toward comprehensive schooling discussed by others (e.g., Levin, 1978; Passow et al., 1976) tend to support the world system perspective.

One reason why vocational education has been de-legitimated is because of the unprecedented celebration of individualism in contemporary educational ideologies (Gordon-Lanford and Fiia, 1981). Current world culture glorifies the notion of a multi-faceted and complex individual in need of extensive socialization (Meyer and Gordon-Lanford, 1981). Education is seen as a multi-dimensional framework wherein the individual can be nurtured, the personality enhanced and the social self experienced. Vocational programs are traditionally oriented to the transmission of specific, technical skills based on a narrow conception of individual capacities and abilities. In a world constituted upon strong notions of individualism, the type of training carried out in vocational schools is both limiting and uni-dimensional. By current ideological standards, then, the relative decline of vocational education in most national systems of education is far from surprising.

Another reason that countries have come to see differentiated compulsory schooling as problematic is related to the increasing importance of education’s “incorporation function” in the modern world. Education has become a means of formally assimilating children as new members of national society (Ramirez and Rubinson, 1979; Ramirez and Boli-Bennett, 1982). In just one generation, the average secondary enrollment ratio for all countries has dramatically increased from 19.4 percent and 14.7 percent in 1950 to 44.9 percent and 35.3 percent in 1977 for males and females respectively (Craig, 1981). Formal education confers new status on the young members of national societies. By completing school, pupils receive the equivalent of modern citizenship; that is, they are endowed with basic rights and status vis-a-vis the state. The unusual pattern exhibited by the East European region derives, in a large part, from the fact that the incorporation function is less central in societies where polity and economy are both located in the state apparatus and where the formal status of all citizens is constitutional.

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8 Evidence of the effects of contemporary educational ideology can also be seen in the de-legitimation of part-time vocational programs. On the international level, agencies such as UNESCO have altered their accounting criteria of secondary enrollments to exclude part-time vocational pupils. On the national level, there is evidence that the length of study and academic standards of part-time vocational programs tend to increase appreciably or face the possibility of discontinuation (Kahane and Starr, 1976).

9 It should be noted that the strong emphasis of vocational education in East European education systems does not invalidate a world system perspective. One reason for this judgment is that the nature and stature of technical-vocational education in state socialist countries is qualitatively different than that of other countries. For example, the curricula of East European technical schools tend to have generous portions of scientific and academic classes. Also the relative social prestige of these schools and the marketability of technical credentials are much higher. Thus, for our purposes, it seems appropriate to place East European countries in a separate analytic category.
ally codified and frequently reaffirmed through ideological dictation.

For the rest of the world, the dramatic expansion of compulsory public schooling has essentially meant the extension of citizenship rights to young children regardless of class and racial background. The justification of a differential set of rights to different groups of citizens is no less suspect than the structuring of secondary schooling with district winning (academic) and losing (vocational) tracks. Instead of early selection and allocation of students into a different secondary system of elitist, academic tracks aimed at university study on the one hand and vocational tracks geared towards jobs in the labor market on the other, current ideology emphasizes postponing selection and maximizing future access to postsecondary education for all children. Until recently, undifferentiated forms of education where schools and classes are relatively uniform and homogeneous were only true of primary education. Now, as evidenced by the findings reported in this paper, they are becoming true for secondary education as well.

In conclusion, the unusual quality of vocational education is seen in its historical transformation during the past century as one of the few structural educational innovations that underwent both global legitimation and de-legitimation within a relatively short span of time. It is a key element in understanding the shifting significance of education in the modern world. The rise of vocational education on the coat-tails of industrialization and its post-World War II decline in importance is an illustration of the impact of changing global ideological currents. The rise and fall of vocational education coincides with a shifting mandate for secondary schooling—a movement away from the production of differentiated workers that fit a differentiated economy into the production of more standardized citizenry in line with the egalitarian demands of nation-building and citizenship privileges. In short, ideological imperatives appear to have undermined the impact of economic imperatives even for the most economically relevant form of schooling—vocational education. Worldwide ideological accounts press for systems of secondary schooling that guarantee greater formal equality for children of all social classes and serve as a means of initiating young people into their roles as citizens of the modern state.

REFERENCES


Ramirez, F. and J. Meyer 1980 Comparative education: The social con-


