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EDUCATION AND STRATIFICATION IN DEVELOPING COUNTRIES: A Review of Theories and Research

Claudia Buchmann[1] and Emily Hannum[2]
[1]*Duke University, Department of Sociology, Durham, NC 27708; e-mail: cbuch@soc.duke.edu*
[2]*Harvard University, Graduate School of Education, Cambridge, MA 02138; e-mail: emily_hannum@harvard.edu*

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■ **Abstract** This review examines research on education and inequality in developing regions. In tracing the progress of this field of inquiry, it focuses on empirical studies of educational inequality in four broad areas: macro-structural forces shaping education and stratification; the relationship between family background and educational outcomes; school effects; and education's impact on economic and social mobility. It assesses the contributions of research in Africa, Asia, and Latin America to the general study of education and social stratification and the theoretical leverage gained from examining stratification processes in developing regions of the world. Finally, the review discusses recent developments that hold promise for addressing the knowledge gaps that remain; these include utilizing relatively new data sources and methods in comparative, cross-national studies and greater collaboration between researchers who study strikingly similar questions but remain segregated due to their focus on either industrialized or developing societies.

INTRODUCTION

Research on education and social stratification in developing countries has a long history. Even before Blau & Duncan (1967) published their seminal work on educational and occupational attainment in the United States, researchers such as C. Arnold Anderson (1956), Philip Foster (1963), and Remi Clignet (Clignet & Foster 1966) were attempting to assess the "function of formal schooling as it relates to the emergence of new patterns of social differentiation or to processes of social mobility" in developing regions (Foster 1963:150). These early studies and nearly all those that followed are implicitly or explicitly comparative in scope: They extend major theoretical questions and concerns about stratification processes in industrialized contexts to developing regions.

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Less-developed societies have long interested students of stratification for the very different conditions they present in contrast to more industrialized societies. These may include class structures that are less differentiated, educational systems that vary in the extent to which they have been institutionalized, and occupational structures that are shaped by low levels of economic development and a weak position in the world system. Research in such social contexts can be useful for developing new theories. More commonly, however, these societal differences have provided opportunities for testing, refining, and extending theoretical perspectives that have emerged from research on industrialized countries.

In this paper, we review the literature on educational stratification in developing countries. We assess the empirical and theoretical contributions of this research to the general study of education and stratification and so illuminate areas where research has been notably limited. To keep the review manageable, we limit our geographic scope to developing regions that have been sites of the most research—countries in Latin America, sub-Saharan Africa, and South and East Asia. We include studies of rapidly industrializing East Asian countries such as Taiwan, Hong Kong, and South Korea, but exclude research on Eastern European and former Soviet-bloc nations. Also noticeably absent is the Middle East region, where, with the exception of Israel, research on education and stratification has been very limited. While our main focus is on the work of sociologists, we also cover relevant studies by demographers, economists, educational researchers, and anthropologists.

Figure 1 provides a conceptual framework for this broad field of study. As indicated by the figure, educational inequality is shaped by a wide range of factors on multiple levels. It is a consequence of dynamic interrelationships between family decisions about education (commonly referred to as demand) and the provision of educational opportunities (commonly referred to as supply).[1]

A significant body of research has examined how macro-structural elements, including state policies and global forces, shape educational stratification through their effects on the demand for education or the structure and supply of schooling. There has also been substantial research on how aspects of family background, such as socioeconomic status, family structure, and material resources, influence children's educational outcomes in developing countries. Perhaps as a result of the preoccupation with the "family versus schools" debate discussed below, few studies have considered how family and school factors interact to produce educational stratification. Instead, research on school-based determinants of educational stratification has developed relatively independently from research on family factors, and such research examines school processes or material inputs as they relate to

[1]The terms demand and supply are frequently used in education research because they help distinguish the provision of educational opportunities from the decisions to take advantage of such opportunities. But is it also important to acknowledge that this terminology simplifies the interrelated nature of supply and demand processes and neglects the point that some forces simultaneously impact educational supply and demand.

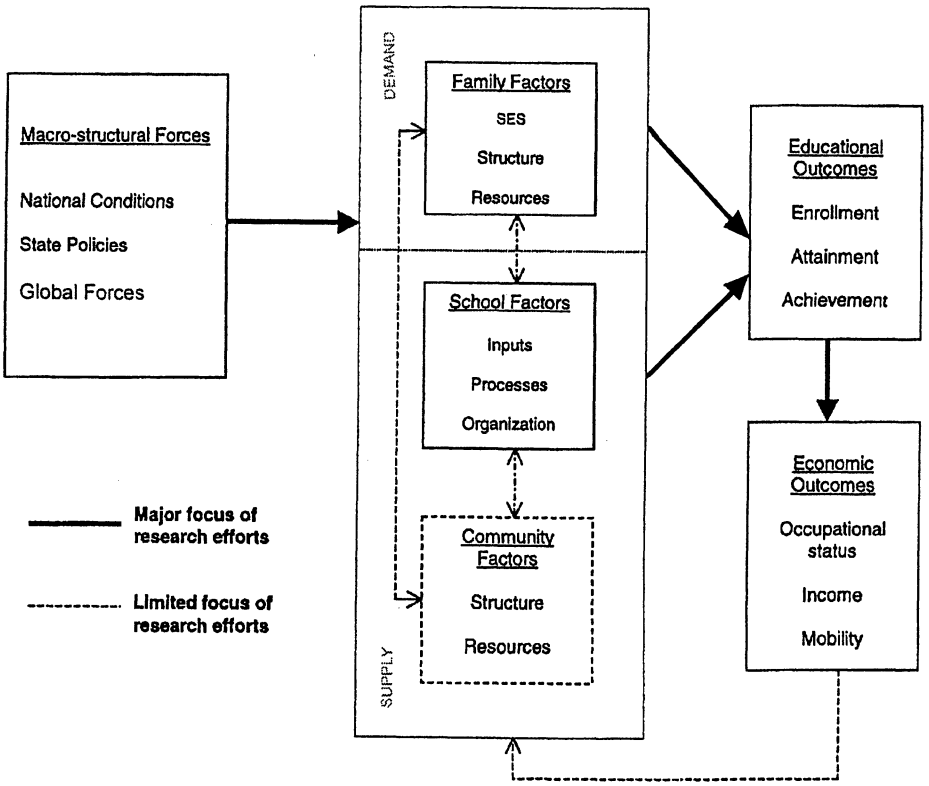

Figure 1 Research on education and stratification in developing countries.

attainment and achievement differences. There is also a notable lack of research on how community factors, operating independently or in conjunction with schools and families, shape educational outcomes in less-industrialized contexts. Finally, following the tradition of status attainment research in the United States, some researchers have addressed questions regarding the role of education in determining occupational mobility and other economic outcomes as well as changing patterns of social mobility in developing countries.

In the sections that follow, we discuss research in four broad areas, represented by the bold arrows in Figure 1: (*a*) macro-structural forces shaping educational stratification, (*b*) the impact of family background on educational attainment and achievement, (*c*) school factors as they relate to educational outcomes, and (*d*) the impact of education on social mobility in developing regions. Where applicable, we highlight key studies conducted in industrialized settings that have served as a foundation or stimulus for research in less-industrialized contexts. Rather than provide an exhaustive review of the work in each area, we focus on studies that illustrate the theoretical and empirical contributions of research in developing

countries. The paper concludes with a summary of the contributions of research on educational stratification in developing countries to broader concerns, and we offer specific strategies for overcoming the gaps in knowledge that remain.

MACRO-STRUCTURAL FORCES SHAPING EDUCATIONAL STRATIFICATION

Whether they view the state as a bearer of functional modernity, an agent of economic elites, or a mediator of class conflict, most theorists acknowledge a central role for the state in education. The nation-state may shape the provision of educational opportunities and determine the structure of the educational system through its educational policies. It can also spark demand for education by improving school quality, passing laws on compulsory schooling, or emphasizing the benefits of education (Fuller & Rubinson 1992).

Case studies of developing countries highlight the varied nature and efficacy of state educational policies. For example, in the rapidly industrializing city-state of Hong Kong, when the government mandated free and compulsory primary school and provided substantial funding for this mandate, it appeared that educational opportunities for children from all socioeconomic backgrounds increased (Post 1994). Educational policies in Malaysia (Lillard & Willis 1994) and the Philippines (King & Lillard 1987) had similar impacts, although Smith & Cheung (1986) demonstrate that, despite educational expansion in the Philippines, the association between social origins and educational transitions remained relatively stable over time. Strong authoritarian states, such as communist China and South Africa under apartheid, dramatically altered stratification processes in their societies through educational policies. In China, major shifts in state policy directly affected the life chances of individuals from different social groups (Zhou et al 1996). Most strikingly, during the Cultural Revolution, a radical egalitarian agenda dominated education policies. As a result, well-educated and upper-class individuals lost mobility, but regained advantages in the post-Mao era (Deng & Treiman 1997, Zhou et al 1998). Rural residents and women gained greater access to education during the Cultural Revolution, but the trends toward equality in education slowed for women and reversed for rural dwellers thereafter (Hannum & Xie 1994, Hannum 1999). In South Africa, during apartheid's long reign, the state used the educational system and other institutions to thoroughly block the social mobility of the black majority while ensuring promotion of the white minority (Seidman 1999, Treiman et al 1996). It remains to be seen whether deeply entrenched racial inequalities can be reduced in the post-apartheid era.

Such examples of state strength are relatively rare in the developing world. Usually governments face substantial barriers–severely limited economic and organizational resources, a lack of legitimacy, and peripheral status in the world system—in their attempts to shape educational opportunities or to boost school demand. In these cases, Third World states may be able to signal mass educational

opportunity by devising national exam systems or expounding the benefits of education, but may be too weak to create stable and effective educational institutions (Fuller 1991). Several studies have examined the deleterious effects of state weakness in the education sector, including excessive demand for higher education, extreme regional disparities in school supply, and poor school quality (Buchmann 1999, Parrado 1998, Fuller 1991, Post 1990). Others have noted that, in the absence of strong states, non-state actors such as local community groups and national and international nongovernmental organizations (NGOs) can facilitate the development and expansion of educational systems (Bradshaw 1993, Schafer 1999). These studies illuminate the capabilities and limitations of states as they try to expand and improve education in less-industrialized world regions.

Beyond the state, global forces, such as the policies and preferences of international organizations or the spread of Western ideology and organizational forms (including modern education) throughout the world, influence education and stratification processes within developing countries. World institution theory views worldwide educational expansion as the result of a social movement that has spread across national boundaries, regardless of economic and political particularities of nation states (Meyer & Hannan 1979, Boli et al 1985). Thus, the Third World state's drive to construct and expand education comes, in part, from the external pressures of a global political culture related to modern ideals of individual and national development (Inkeles & Sirowy 1983, Meyer et al 1992). The result is the convergence of educational systems throughout the world, in terms of both school organization (Ramirez & Boli 1987) and curricular content (Benavot et al 1991). In emphasizing the institutional effects of education, these scholars note that educational expansion alters allocation patterns in society to impact both schooled and nonschooled populations (Meyer 1977). For example, as the ideology of formal schooling constructs new rights and duties for women, even uneducated women may become integrated into the economic and political arenas of society (Ramirez & Weiss 1979). International institutions, such as UNICEF, UNESCO, and the World Bank, further propagate a worldview supportive of gender equity in education (Bradley & Ramirez 1996, Boli & Thomas 1997).

Other scholars have been more critical of the role of global forces and international organizations. Drawing on dependency theories, they argue that educational opportunities in developing countries are severely constrained by structural inequalities in the global economy and these countries' dependence on multinational corporations and international organizations. Clark (1992) maintains that multinational corporations' strategies, such as the mass hiring of women for unskilled labor, undermine women's entry to higher education in developing countries. Some research links educational declines in developing countries to the structural adjustment policies (SAPs) mandated by the International Monetary Fund (IMF) and other international financial organizations. These policies, which facilitate debt servicing through fiscal austerity and reduced government intervention in indebted nations, have been traced to declines in educational spending, teacher quality, and educational demand (Reimers 1991). Other evidence indicates that

SAPs disproportionately affect female participation in education, likely through their detrimental impact on survival strategies in poor households (Buchmann 1996). Finally, the pressures from the IMF and donor agencies on indebted governments to privatize and decentralize their educational systems may lead to greater inequities and declining educational participation (Arnove 1997). In sum, research on macro-structural determinants of education and inequality demonstrates that the efficacy of state actors in expanding education and shaping stratification patterns is highly variable over time and place and is enhanced or constrained by global institutions and forces.

FAMILIES, SCHOOLS, AND EDUCATIONAL OUTCOMES

In the past three decades, a great deal of research has focused on the role of family background and school effects on educational attainment and achievement. The stimuli for much of this research were two major projects, the Coleman Report (Coleman et al 1966) in the United States and the Plowden Report (Peaker 1971) in Great Britain, which generally concluded that family background was more important than school factors in determining children's educational achievement. These studies sparked a great deal of interest in assessing the determinants of educational attainment and achievement and set off a lively debate regarding the roles of family and school factors.

This debate was largely limited to industrialized countries until Stephen Heyneman published the results of his "Coleman Report for a developing country" (1976) in which he found family background to be less important than school factors in determining academic achievement in Uganda. In subsequent research, Heyneman & Loxley (1983) generalized these findings to other developing countries and found that the portion of the variance in achievement attributable to family background was generally much smaller, and that attributable to school quality generally much larger, in developing versus industrialized countries. They concluded that, "the poorer the country, the greater the impact of school and teacher quality on achievement" (1180). In the years that followed, many studies sought to assess the role of family background and school factors on educational attainment and achievement in a wide range of developing countries.

Family Background

Heyneman's findings of weak effects of family background notwithstanding, there is significant evidence that family factors are important for educational outcomes in the developing world. Research has examined the role of socioeconomic status, family size and structure, and family decision-making processes in an attempt to explain how they relate to educational inequalities in developing countries. Of course, the relationship between family socioeconomic status and school achievement is complicated in contexts where enrollment and attainment themselves are conditional on family economic circumstances. Case studies using culturally

specific measures of class have found significant effects of family class status on students' mathematics and language achievement (Lockheed et al 1989, Niles 1981). Moreover, numerous studies indicate marked disparities in enrollment and attainment associated with socioeconomic status (Sathar & Lloyd 1993 for Pakistan, Stash & Hannum 2001 for Nepal, Hannum 2000 for rural China, Patrinos & Psacharopoulos 1996 for Bolivia and Guatemala). In a recent systematic cross-national analysis of this relationship, Filmer & Pritchett (1999) analyzed the "wealth gap" in education in 35 countries in Africa, the Middle East, South Asia and East Asia. Their results revealed substantial cross-country variation in the differences between median years of school obtained by students in the top 20% compared to the bottom 40% of the wealth distribution. All countries (except Kazakhstan) displayed a difference between rich and poor children's attainment; the largest wealth gaps emerged in the countries of South Asia.

In addition to socioeconomic status, research has examined how family structure and size influence educational outcomes in developing regions. Importantly, much of this research questions the universality of findings from the United States and other industrialized countries. For example, in the United States the well-documented negative effects of single parenthood on children's educational outcomes range from a greater probability of school drop-out to lower achievement. These effects have been attributed in part to economic stress associated with female headship, and in part to the lack of human or social capital in the household (see Seltzer 1994 for a review).

Interestingly, in some African contexts female headship appears to be associated with greater, not fewer, educational opportunities for children. For example, in a study of adolescent girls in South Africa, Fuller & Liang (1999) reported that father absence served to *decrease* girls' risk of leaving school. Lloyd & Blanc (1996) analyzed the effects of female headship on children's schooling in seven sub-Saharan African countries. Female-headed households tended to be poorer than other households, but children in female-headed households were consistently more likely to be enrolled in school and to have completed grade four than were children in households headed by men. They maintain that "female household heads are more likely to invest resources, including time, money and emotional support, in facilitating the education of children living in their household" (288). The different effects of family structure in Africa and other regions may also be linked to the nuclear family's embeddedness in larger kinship networks. For example, Lloyd & Blanc (1996) noted that extended family networks in sub-Saharan Africa enable children with academic promise to move to households of "patron" family members, who help them gain access to higher quality schools. Pong (1996) similarly illustrated the importance of extended kinship systems in moderating the effects of family structure on children's schooling in Malaysia. Children of divorced mothers, but not of widowed mothers, have lower school participation rates than do children of two-parent families. Pong attributed these results to the buffering role of large kinship systems: in Malaysia, widows receive more material support from family members than do divorced mothers (248).

Studies on sibship size and schooling in developing countries similarly cast doubt on the generalizability of patterns found in industrialized countries. Research in the United States consistently documents an inverse relationship between number of siblings and educational attainment (Blake 1989, Steelman & Powell 1989). A prominent explanation for this relationship is the "resource dilution hypothesis" which stresses that material resources and parental attention are diluted with additional children in the household. Negative associations between sibship size and educational outcomes have been replicated in some developing countries, including Thailand (Knodel et al 1990), Malaysia (Pong 1997, Shreeniwas 1997, Parish & Willis 1993), the Dominican Republic and the Philippines (Montgomery & Lloyd 1997).

Yet the negative association between sibship size and schooling is not consistently observed. For example, Anh and associates (1998) demonstrated that the negative relationship between sibship size and enrollment in Vietnam disappeared when controls for socioeconomic status were added. In Kenya, Buchmann (2000) found no effect of sibship size on children's probability of enrollment, and Montgomery & Lloyd (1997) found no impact of excess fertility (fertility departing from stated family-size preferences) on educational attainment. Earlier research in Africa reported that siblings may even contribute to household resources in some contexts. In rural Botswana, the number of seven- to fourteen-year-old children in the household was positively related to educational enrollment and attainment (Chernichovsky 1985), and sibship size was positively associated with years of schooling in Kenya (Gomes 1984). These studies suggest an important caveat to the resource dilution hypothesis by demonstrating that effects of sibship size are not consistent across societies. The extended family systems common in Africa can provide resources that moderate the effects of sibship size and actually facilitate children's schooling.

A second caveat relates to the point that a child's position within the sibship structure may determine whether siblings contribute or dilute resources for education. For example, in addition to documenting positive effects of older siblings in Botswana, Chernichovsky (1985) found that the presence of very young siblings was detrimental to children's schooling. Similarly, Parish & Willis (1993) found that in Taiwan, early-born siblings receive less education while later-born siblings receive more; having older sisters is helpful to male and female children alike. Echoing Gomes' (1984) findings from Kenya, Lloyd & Gage-Brandon (1994) noted that some of the costs of high fertility in Ghana are borne by older siblings rather than by parents; thus later-born children may benefit from the economic resources provided by older siblings.

A final caveat to the resource dilution interpretation highlighted by research in developing countries lies in evidence for what economists call the quality-quantity trade-off. This term refers to the idea that parents may anticipate educational costs and modify fertility decisions in order to have fewer but better-educated children. Caldwell's (1980) influential work explicitly identified the direct costs of schooling and the increased pressures on parents to invest in their children as

important factors for bringing about fertility decline. Micro-demographic research in Nepal (Axinn 1993) found that children's schooling exerted a strong influence on parents' fertility preferences and behavior. Studies in Taiwan (Hermalin et al 1982, Parish & Willis 1993) and Malaysia (Shreeniwas 1997) showed that the negative relationship between sibship size and education began to emerge only after the onset of fertility limitation. Taken together, these findings suggest that observed negative effects of larger sibships might reflect not the dilution of resources per se, but rather prior decisions and preferences that determine both numbers of children in the household and investments in their education. In sum, the literature on family structure and schooling in developing countries illustrates the potential buffering effect of larger kinship structures and the often-significant impact of order and gender composition of siblings. More generally, the research highlights the importance of focusing critically on the social and economic contexts in which family effects operate.

In addition to the research on family structure, a growing body of research on family decision-making investigates conventional notions regarding parental values and preferences, cultural beliefs, and the allocation of children to work or school. For example, while early research attributed gender inequalities in education to patriarchy (Csapo 1981, Greenhalgh 1985), recent research emphasizes the context-specific nature of family decisions regarding education for sons and daughters. Some studies have demonstrated how multiple factors–labor market conditions, the family economy, parental beliefs and preferences–inform educational decisions (Parish & Willis 1993, Fuller et al 1995, Buchmann 2000). Similarly, researchers have begun to examine relationships between gender and poverty in household decisions about schooling (Knodel & Jones 1996, World Bank 2000).[2]

The allocation of children to productive activities in the home or the labor market is thought to be a common survival strategy for poor families, but more research is needed to determine whether and how child labor interferes with schooling. Studies have found detrimental effects of child household labor on schooling in Botswana (Chernichovsky 1985), Malawi (Lockheed et al 1989), Colombia, Bolivia, and the Philippines (Grootaert & Patrinos 1999). But in other contexts, where school has been effectively legitimated as the proper place for children or where employment opportunities for children are scarce, child labor is less likely to interfere with schooling. In a recent study of Botswana, Fuller and his associates (1995) found no effect of household labor tasks on girls' probability of leaving school. In Kenya, Buchmann (2000) found little evidence that wage labor or housework competes with school enrollment. These studies underscore that child labor and schooling need not be mutually exclusive activities. The varied results of the research on child labor strongly suggest that the relationship between schooling and working depends on social structural factors that determine the range of options available to families as they make decisions. Cross-national comparative research is needed

[2]A thorough review of gender inequality in education in developing countries is beyond the scope of this paper. For a comprehensive review, see King & Hill (1993).

to determine whether there are patterns underlying what appears to be a myriad of results from single-country case studies.

School Factors and Processes

The literature on the impact of school factors and processes on academic achievement in developing countries has developed largely independently from that on family background and educational outcomes. Much of the research in the former tradition can be traced to Heyneman's (1976) study of seventh grade students from 67 primary schools in Uganda. Replicating the design of the Coleman Report, Heyneman found significant effects of school facilities and weak effects of family background on academic achievement. He believed these results to be due to the greater variance in physical facilities of schools and the smaller variance of social class in Uganda. Following Heyneman's lead, more than 60 studies of school effects had been conducted by 1989 in a wide range of developing countries, the majority of which found significant effects of school factors, net of family background, on achievement [see Fuller (1987) and Fuller & Clarke (1994) for reviews]. Most of these studies utilized the production function approach[3] and regression analysis to identify the specific determinants of achievement and make inferences about the relative importance of the various inputs to student performance.

From these studies, some generalizations can be made regarding which school inputs increase student achievement in less-developed countries. While much US-based research suggests that per-pupil expenditure and quality of school facilities have little impact on student achievement,[4] studies in developing countries have found that basic material inputs such as textbooks, libraries, and teacher training strongly determine achievement (Heyneman & Jamison 1980, Heyneman & Loxley 1983, Lockheed et al 1986, Behrman & Birdsall 1983). More expensive inputs such as science laboratories, increased teachers' salaries, and reduced class size appear to have little effect (Cohn & Rossmiller 1987). The general conclusion is that basic material inputs are most important in contexts that have inadequate or very unequally distributed educational resources (developing countries) but are less important in contexts that have achieved a minimum level of basic resources (industrialized countries).

Importantly, some researchers questioned the rationale and methodology of school effects research. Indeed, one shortcoming of most studies of the impact of school effects versus family effects was their reliance on OLS regression analysis

[3]This approach focuses on the relationship between school outcomes and measurable educational inputs and is derived from the notion that the output of the educational process, namely individual student achievement, is related directly to a series of inputs (Hanushek 1995:228–9). Family inputs are commonly measured by parental education, income, wealth, and family size. School inputs are typically conceptualized as teachers' characteristics, school organization, and community factors.

[4]Although some recent research demonstrates clear advantages of small class size and other educational resources in the United States; see Arum (2000).

and the total variance in achievement (R^2) to measure the impact of family and school effects on student achievement. As Riddell (1989) noted, "Criticism of such arbitrary use of the proportion of variance as a measure of importance is at least as old as the criticism of the Plowden report. Yet such criticism does not seem to have prevented its continued misuse" (487). Another methodological caveat of the school effects research involved the "misapplication of a single-level model to a reality that is clearly hierarchical" (Riddell 1989:484). This problem was likely exacerbated by the use of aggregate data, which inflates estimated effects of family background relative to classroom and school effects (Bidwell & Kasarda 1980).

In the late 1980s, a new generation of research on effective schools in the United States revisited long-standing questions regarding school and family effects on achievement with multi-level modeling techniques (Aitkin & Longford 1986, Goldstein 1987, Raudenbush & Bryk 1986). These analytical strategies allow researchers to take account of the hierarchical nature of most educational data, thereby addressing some of the methodological shortcomings of prior work. While only a few studies have utilized multi-level models to examine school effects in developing countries, their results are quite interesting. In contrast to previous research utilizing the production function approach, these studies found greater effects of family background than of school factors on educational achievement in Zimbabwe (Riddell 1989) and Thailand (Lockheed & Longford 1991). For example, in their analysis of Thai data, Lockheed & Longford (1991) found that school-level differences contributed 32% of the explained variance while family and individual factors contributed 68% of the explained variance in student mathematics achievement. More recently, with cross-national data from the Third International Math and Science Study (TIMSS), Baker and colleagues (1999) examine whether the relationship between national wealth and large school effects found by Heyneman and Loxley in the early 1980s persists in the 1990s. They replicate Heyneman and Loxley's OLS method of analysis but also utilize hierarchical linear modeling procedures to examine the explained variance in achievement attributable to school and family factors in a wide range of countries. They find no association between national wealth and the size of school effects. Regardless of national levels of wealth, family factors are more important predictors of educational achievement than are school factors in most countries. They attribute this finding to continued educational expansion and greater standardization of school quality at minimal levels in less-developed nations. Baker and colleagues appropriately acknowledge the possibility that large school effects on educational achievement persist in very poor developing countries, which did not participate in the TIMSS.

These studies raise questions about past generalizations regarding the differential effects of family background and school factors in developing versus developed countries. Moreover, they have reinvigorated debates over the proper way to measure and study school effects (for a recent exchange, see Hanushek 1995 and Kremer 1995). Clearly, the long debate regarding school effects is far from resolved, and more research is needed before definitive conclusions can be made.

In its concern with assessing the impact of school material inputs versus family background factors, the school effects literature has also neglected

important questions regarding *how* schools impact achievement in developing countries (Fuller & Clarke 1994). Largely due to data limitations and a lack of qualitative school-based research in developing regions, our knowledge of how school organization and classroom processes influence children's educational experiences in these contexts is limited. The very few studies that have examined the role of teachers and administrators as managers of student learning find significant effects of teacher quality (Lockheed & Komenan 1989), classroom management and hours of instruction (Saha 1983, Fuller & Snyder 1991, Fuller et al 1994), and classroom dynamics (Lloyd et al 2000) on student achievement. These results are generally consistent with those found in the United States and other developed countries (Barr & Dreeben 1983). Thus, comments made by Bruce Fuller (1987:288) many years ago are still relevant today:

> Few observational studies within Third World classrooms have occurred. To date this work tends to be atheoretical and rarely involves quantitative analysis . . . the school effects literature from the U. S. and Europe suggests a variety of research avenues related to the social organization of schools and classrooms. But these roads have yet to be traveled by investigators working in developing countries.

The few studies that have traveled such roads demonstrate how research on school organization in contexts quite different from the United States can advance our understanding of educational stratification more generally. One example is Broaded's (1997) research on tracking in Taiwan. In an investigation of the effects of tracking on the educational aspirations and attainments of Taiwanese junior high school students, Broaded found school achievement variables (placement in high ability track, grade-point average) to be stronger predictors of educational aspirations and senior high school placement than were family background factors. Based on these results, and in contrast with much of the United States–based research that finds that tracking reinforces social-class inequalities (Oakes et al 1992), Broaded maintained that ability grouping as it is practiced in Taiwan contributes to greater equality of educational opportunity. This difference is likely due to institutional aspects of Taiwan's educational system, such as uniform elementary education and a nationally standardized curriculum, as well as smaller racial, ethnic, and income inequalities in Taiwan. As one of the few studies of tracking in less-industrialized contexts, this study demonstrates how research on school processes in developing countries can illuminate the ways in which societal differences condition stratification processes.

THE EFFECTS OF EDUCATION ON ECONOMIC OUTCOMES AND SOCIAL MOBILITY

The literature on the longer-term effects of schooling is quite broad. It encompasses research on education's impact on society (i.e., its role in fostering economic development and democracy) as well as its impact on a wide range of individual

behaviors (i.e., fertility practices, child rearing, perceptions and attitudes, labor market participation, occupational status, social mobility). This section reviews research on the effects of schooling only as they relate to changes in occupational status, labor market participation, and social mobility.

Much of the research on education and social mobility in developing countries has been grounded in the work of Blau & Duncan (1967) and the Wisconsin model of status attainment (Sewell et al 1969, Sewell & Hauser 1975). For example, Hansen & Haller (1973) replicated the Wisconsin model with longitudinal data for a sample of male Costa Rican high school students in order to examine the relationship between family background, education, and occupational attainment. The Costa Rica model differed from the Wisconsin model in that there was no strong association between family background and educational attainment. The authors attributed this finding to the relative homogeneity of occupational status among fathers in rural Costa Rica. As in the Wisconsin model, educational attainment and occupational aspirations had direct effects on the occupational attainment of Costa Rican males. In a study of occupational attainment in Chile, Farrell & Schiefelbein (1985) used longitudinal data for students interviewed in eighth grade and re-interviewed eight years later. The study found that the degree of respondents' occupational mobility depended, in part, on their class status. For the middle class, education was significant in determining occupational attainment; for respondents with either upper-class or very poor parents, intergenerational status inheritance was much more likely. Finally, Strudwick & Foster (1991) investigated intergenerational mobility in Jamaica, a lower-middle income country with a rigid class structure, and concluded that massive expansion of educational opportunities at the secondary level did little to increase the permeability of the Jamaican social structure.

The diverse foci and findings of even these few studies reflect a lack of cohesion in the limited research on status attainment in developing societies. In contrast to several major efforts to compare status attainment and intergenerational mobility processes across industrialized countries (Erikson & Goldthorpe 1992, Ganzeboom et al 1989, Shavit & Blossfeld 1993, Shavit & Mueller 1998), the research on less-developed regions is far more sparse and disjointed.

A somewhat different, but related, area of research is concerned with how industrialization alters the processes by which individuals are sorted into status hierarchies. The idea that the level of intergenerational occupational mobility in a society depends on its level of industrialization was first put forth by Lipset & Bendix (1959). In a study of nine industrialized nations, they found little variation in rates of mobility and concluded that this was due to the uniform level of industrialization across the countries. In a widely cited publication, Treiman (1970) expanded upon these ideas to provide a detailed explanation of the mechanisms by which industrialization should promote greater mobility. As societies develop, urbanization, mass communication, and industrialization should lead to greater social openness and a shift from particularistic to universalistic bases of achievement. As a result, the direct influence of father's occupational status

on son's occupational status, as well as father's educational and occupational status on son's educational attainment, should decline, while the direct influence of son's educational attainment on his occupational status should increase (Treiman 1970:221).

During the 1970s and 1980s, researchers set out to test these propositions. Most studies examined historical or regional differences within a single society, and few found support for the industrialism thesis. For example, in a study of occupational mobility in Toro, Uganda, Kelley & Perlman (1971) found a high degree of occupational mobility in pre-industrial Toro; mobility actually declined as Toro industrialized. Holsinger (1975) compared the effects of father's occupational status on son's education across four Brazilian cities with different levels of development and found no evidence of smaller effects of parental status on son's education in more developed areas. A decade later, Bills & Haller (1984, Bills et al 1985) reassessed Holsinger's conclusions with nationally representative data. They also found little evidence that patterns of status attainment vary by level of industrialization in Brazil. Finally, a study of occupational mobility in pre- and post-independence Zaire similarly challenged the thesis of industrialism (Mukweso et al 1984). Rather than finding an increasing impact of education on occupational attainment over time, results indicated that educational attainment was important for occupational attainment in both periods. After independence, ascribed characteristics such as religion and ethnicity declined in importance, but socioeconomic status became more important in determining occupational attainment.

Despite the obvious need for cross-national studies to inform questions regarding the industrialism thesis, to the best of our knowledge, only two such published studies exist. In a cross-sectional comparison of Haiti, Costa Rica, Great Britain, and the United States, Lin & Yeager (1975) concluded that at middle levels of industrialization, the direct influence of education on occupational status is suppressed by the influence of father's occupational status. Only at higher levels of industrialization does the influence of father's occupational status decline and the influence of son's educational attainment for his own occupational status increase. These findings provide some support for the industrialism thesis, but the authors acknowledged the need to test the results for a wider range of countries.

In 1989, Treiman & Yip set out to examine the industrialism thesis with cross-national data for 21 countries, including four developing countries (Brazil, India, the Philippines, and Taiwan). Like Lin & Yeager (1975), they found that the impact of social origins on educational and occupational attainment declines with industrialization, but they concluded that this is primarily due to a decline in the level of status inequality in industrialized societies and is not a result of industrialization per se: "Both industrialization and status equality promote achievement at the expense of ascription . . . The strongest effect on the achievement-ascription mix is the level of inequality of father's education" (Treiman & Yip 1989:393). Given the reliance on data from a single country in most studies on the issue,

Treiman & Yip's study is the most comprehensive assessment of the industrialism thesis to date. Yet, we are far from a definitive answer regarding how educational-occupational linkages vary by level of industrialization. This situation may soon be rectified. In a recent paper, Treiman & Ganzeboom (1997) discussed plans to use 250 sample surveys from 40 nations to test the industrialism thesis as well as other hypotheses regarding the impact of social change on stratification processes, in the hope of producing a comprehensive understanding on these issues.

A variant of the industrialization hypothesis exists in recent debates about education's effects in countries undergoing the transition from socialism to capitalism. Although much of the literature on this topic has focused on Eastern Europe and the former Soviet Union, and thus is beyond the scope of this paper, a significant part of the debate has focused on China. The onset of rapid market transition in China has presented an unusual opportunity to test basic tenets related to the industrialization hypothesis. One strand of market transition theory postulates that the shift from a planned to market-based economic system should increase the returns to human capital and decrease the returns to political capital (for a recent review, see Nee & Matthews 1996). Empirical results have been mixed. For example, Xie & Hannum's (1996) analysis of city- and individual-level data indicated that economic growth depressed the returns to education and did not affect the net differences between party members and nonmembers. Zhou's (2000) analysis of urban retrospective panel data found increasing returns to education, but no decline in the returns to political capital. Although a consensus has yet to be reached, ongoing research about China's transition to a market economy carries the potential to illuminate broader debates about the relationship between education and mobility over the course of industrialization.

Finally, in contrast to a well-developed literature on ethnic and gender stratification in labor markets in industrialized countries, very few studies of developing countries have examined educational inequalities as they related to ethnic and gender inequalities in labor force participation or occupational status. Telles (1994) examined the relationship between industrialization and race-based occupational stratification in Brazil to conclude that industrialization and educational expansion were associated with decreased racial inequality across the full occupational distribution, but with greater racial inequality in professional and white-collar sectors. Hannum & Xie (1998) found similarly ambiguous implications of educational expansion in Northwest China for ethnic differences in occupational attainment. Over an eight-year period, increased ethnic inequality in occupational status could be explained by increased ethnic differences in education. In South Africa, Treiman and coworkers (1996) found that educational disparities played an important role in maintaining race-based differences in occupational status, but explained a much smaller fraction of race-based income inequalities.

Brinton and associates (1995) investigated the relationship between education and women's employment in the rapidly industrializing societies of Taiwan and Korea. Interestingly, they found very different education-employment relationships for women in the two societies. In Taiwan, higher levels of education

increased women's probability of employment (see also Tsai 1998), while in Korea, highly educated women were less likely to be employed. The authors attribute this finding to differences in labor market conditions. An adequate supply of educated males offered Korean employers few incentives to reduce barriers to employment of married women; in Taiwan "an inadequate supply of males has forced employers to alter their patriarchal preferences" (Brinton et al 1995:1111). Gender differences in labor market opportunities can, in turn, influence male and female enrollment rates. For example, Buchmann & Brakewood (2000) found that differences in the labor structures of Kenya and Thailand were related to gender differences in enrollment rates in the two societies. In Thailand, a "feminization" of the manufacturing sector appeared to be related to demand for female secondary education; in Kenya, where the manufacturing sector is dominated by males, the size of local manufacturing sectors had no impact on female secondary enrollment rates. These studies push forward our understanding of the complex ways in which educational and occupational linkages are complicated by notions of gender and ethnic hierarchies within particular societies, which are shaped by contextual factors such as state policies and institutionalized discrimination.

In conclusion, the literature on the effects of education on occupational and social mobility in developing countries, with a few notable exceptions, has been dominated by single-country studies often utilizing less-than-ideal data and methods. In part, the dearth of studies has been due to data constraints. Collecting longitudinal data of the kind generally needed for status attainment research is especially time consuming in less-developed countries and "not to be commended to academics concerned with high publication rates and consequent tenure" (Strudwick & Foster 1991:153). Moreover, the development of reliable and valid, yet comparable, measures of class status, income, and occupational mobility is made especially challenging in developing societies, in part because the common constructs of these processes used in industrialized countries may be inappropriate in less-industrialized contexts.

SUMMARY AND CONCLUSION

Research on education and stratification in developing countries is as diverse as it is extensive. For the most part, the questions that have been the focus of this research—on the relationship between family background and educational outcomes, on the effects of schools on learning and achievement, and on the role of education in determining occupational status and social mobility—are the same central concerns that have guided research on education and stratification in industrialized contexts. In precisely the instances where answers to these central questions appear most different, the theoretical leverage to be gained from research on developing contexts is most readily apparent.

For example, research on aspects of family structure, such as female-headship and sibship size, indicates the need to refine the common definition of family to include broader kinship structures. Empirical evidence of the buffering effects

of strong kinship networks in developing countries also suggests fruitful lines of exploration in more industrialized contexts. Indeed, good examples are Shavit & Pierce's (1991) finding that sibship size is not significantly related to educational attainment among Israeli Arab groups with strong kinship networks and Blake's (1989) conclusion that the negative educational effects of large families in the United States could be somewhat offset by an exceptionally strong kin cohesion. Research on the codetermined nature of fertility and schooling decisions in less-industrialized societies also urges scholars to use caution in making causal interpretations of sibship size on educational attainment. Finally, this research highlights the importance of understanding the social and economic contexts in which families make educational decisions for their children.

The study of school factors and educational outcomes similarly highlights the importance of the social and economic contexts of schools. By offering counterpoints to the common notions (usually based on US research) regarding how school factors affect student achievement, studies in less-developed contexts clearly demonstrate that the impacts of specific policy initiatives depend on the environment in which schools function. Finally, the mixed results of research on economic outcomes and social mobility highlight the need to revisit theories about the impact of industrialization on social inequality. These examples illustrate how educational and stratification processes and outcomes are affected by the institutional variations between developing and industrialized contexts. Thus, as students of stratification increasingly are interested in understanding how institutional arrangements shape educational and stratification processes (Kerckhoff 1995), they would do well to look to developing countries and the variability in social context such cases offer.[5]

Focused research on less-industrialized societies may also provide answers to longstanding questions regarding the changing nature of stratification processes over the course of broad societal transformations. For example, early research attributed weak effects of family background on educational achievement to a smaller variance in social class and larger variance in quality of school facilities in developing countries. Recent research reports findings of strong family background effects and weak school effects on achievement that are more in line with those from industrialized countries. If these findings are real and can be documented across a broad range of developing countries, they may be indicative of increasing heterogeneity in family background and increasing homogeneity in educational institutions. Such findings would be in line with world institution theorists' claims of the global isomorphism of educational institutions and so could invigorate theorizing in the broad area of social change.

Other large gaps in knowledge remain to be addressed. In Figure 1, dashed lines indicate areas for which research is notably limited or weak. For example,

[5]At the same time, research on developing contexts could draw inspiration from the growing literature on the role of institutional arrangements for educational processes in industrialized countries (Shavit & Mueller 1998, Kerckhoff 2001), and research could focus more explicitly on the structural similarities and differences of developing countries' educational systems.

a growing interest among researchers in the United States relates to the role of community forces as they operate independently or in concert with family factors to affect educational attainment and achievement (for a review, see Arum 2000). Some research finds that community factors such as the concentration of poverty and the racial composition of neighborhoods are significantly related to unequal educational outcomes (Garner & Raudenbush 1991, Duncan 1994, Halpern-Felsher et al 1997). These studies are important in that they recognize that children develop within a set of embedded contexts and tap into the multifaceted nature of determinants of educational inequality. Indeed, poor societies often display enormous community-level variations in wealth and schools provided, and community groups are often actively involved in funding, building, and managing local schools. However, virtually no research has examined such community variations and processes in education. Thus, the neglect of community factors in most research to this point indicates a serious gap in the study of education and stratification in less-developed contexts.

Moreover, only a handful of studies explicitly examine family background and school factors as simultaneous and interactive forces in determining educational inequality, although research from the United States has found these interactions to have important consequences for children's educational experiences (Lareau 1989, Schneider & Coleman 1993). Finally, it is striking that, despite having been the focus of much empirical research in recent decades, the major debates regarding school versus family effects or the impact of industrialization on social mobility remain largely unresolved.

Recent developments in both data collection and analytical methods suggest that great progress can be made in overcoming these knowledge gaps. Many current data sources contain extensive information of the type needed to advance the study of education and stratification in developing countries. Appendix A lists several data sets that are well suited to such analysis and, with some exceptions, have been underutilized by researchers in this area. Especially exciting about these data sets is that most of them are cross-national, longitudinal, or multilevel in scope. By utilizing these data in conjunction with relatively new analytic strategies, such as multilevel statistical methods, researchers could make great strides toward resolving some of the longstanding questions central to this field. For example, by using hierarchical-linear modeling (HLM) strategies to analyze surveys containing nested data on individuals, families, and schools for a wide range of countries, researchers should be able to come to some definitive conclusions regarding the relative impact of family and school effects on educational outcomes in developing regions. The investigation of community factors, an area of research that has proven fruitful in industrialized contexts, is also possible with such data and could go far in advancing our understanding of the ways families, schools, and communities interact to determine unequal school outcomes. Alternatively, some of the gaps illuminated above might best be addressed with in-depth, qualitative research. Our limited knowledge of the impact of school processes and organization on children's achievement in the developing world stands to be richly informed by careful, detailed research in schools and classrooms.

Just as the 1990s was marked by the increasingly comparative study of stratification in industrialized societies (Treiman & Ganzeboom 1997), the next few decades could bring a parallel development in the research on developing countries. This would require a shift from the past focus on single-country studies to explicitly comparative, multiple-country studies using secondary data, as well as new data collection projects. We believe that the time is ripe for such a shift, but it will require efforts on several fronts.

First, research in the broad field of education and stratification in developing countries is relatively fragmented by the disciplinary divisions between sociology, economics, demography, and education, all of which have made contributions to the field. This fragmentation must be overcome; only through greater cross-fertilization and the sharing of research strategies and findings can our knowledge cumulate in this interdisciplinary area of study. Strategies that have been used in the last decade by comparative researchers of stratification processes in industrialized countries are readily applicable to building a more comparative literature on developing countries. For example, collaborative efforts that utilize comparable data and methods to analyze specific stratification processes in a range of countries (thus following the lead of Shavit & Blossfeld 1993, Shavit & Mueller 1998) would help to produce a more generalized understanding of patterns of educational stratification in the developing world.

Second, in order to ensure that contemporary data gathering efforts can address the longstanding concerns in this field, sociologists must play a greater role in large-scale international data collection efforts of the type outlined in Appendix A. For example, the Third International Math and Science Study (TIMSS) contains an impressive array of data for primary, middle-school and secondary-school students in 42 countries. The survey includes items on student achievement in math and science, their perceptions and expectations regarding education, as well as data on students' schools and families. Notably absent in the realm of family background, however, are data on family income, parent's occupational status, family structure, race and ethnicity.[6] Such gaps limit the study's usefulness for addressing questions that are of central concern to sociologists of education and stratification.

Finally, we must acknowledge that the developed/developing country distinction, while useful in some cases, is a greatly simplified dichotomy. In reality, the world is composed of a wide range of countries that differ in countless ways. We now know that the variability among industrialized countries and among developing countries is just as great as the variability between—and also within—them. Our research strategies need to reflect this reality. Thus, we encourage greater collaboration between researchers who study similar questions but often remain

[6]The Third International Math and Science Study includes some data on family size and structure, but they are of limited use to analysts interested in assessing aspects of family structure across a range of contexts because the question format is incomplete. Thus, it is not possible to know the total number of siblings or the birth order of siblings in the household. Despite these limitations, TIMSS offers an impressive array of comparable data on several developing countries that should be of great use to researchers.

segregated due to their focus on either industrialized or developing societies. Working collaboratively, these researchers may make the greatest cumulative advances in knowledge on education and stratification processes across a broad range of contexts.

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APPENDIX A: DATA SOURCES FOR ANALYSES OF EDUCATION AND INEQUALITY IN DEVELOPING COUNTRIES

Living Standards Measurement Study (LSMS) of the World Bank. Household surveys for 21 developing countries, some with repeated cross-sections. Generally include data on education, employment, income, and health data for all household members, but which varies by country. Some countries have community and school data that can be linked to households. http://www.worldbank.org/html/prdph/lsms

Third International Math and Science Study (TIMSS) of the International Association for the Evaluation of Educational Achievement (IEA). Data on student achievement in math and science, family background, teacher, classroom, and school data for primary, middle, and upper secondary populations of students in 42 countries, 8 of which are developing countries. Also includes a wide range of data on student perceptions and aspirations. http://timss.bc.edu

World Fertility Surveys (WFS). Internationally comparable surveys on fertility in 41 developing countries from the late 1970s and early 1980s. Data on demographic characteristics and fertility histories as well as education, employment, and health data for representative sample of women ages 15–50 and their household members. http://opr.princeton.edu/archive

Demographic Health Surveys (DHS). The successors to the World Fertility Surveys that contain additional runs of surveys during the 1990s, including an extended module on education and community level data for some countries. Many countries have data for multiple years. http://opr.princeton.edu/archive and http://www.measuredhs.com

Family Life Surveys (FLS), conducted by RAND, for Malaysia, Indonesia, Guatemala, and Bangladesh. Surveys contain detailed current and retrospective data on family structure, economic status, education/training, transfers, migration, and other topics, as well as community and school data. Upon completion of the third wave of the Malaysia Family Life Survey, the three Malaysian surveys will enable researchers to examine the effects of family background on educational outcomes over half a century. Surveys for Malaysia and Indonesia are two of the few longitudinal surveys for developing countries. http://www.rand.org/FLS

International Stratification and Mobility File. A collection of standardized sample surveys with information on social stratification and social mobility created and maintained by Professor Harry Ganzeboom at Utrecht University in the Netherlands in collaboration with Professor Donald J. Treiman at the University of California, Los Angeles. Some resources are open for public access. http://www.fss.uu.nl/soc/hg/ismf/index.htm

Program for Student Assessment (PISA) of the Organization for Economic Cooperation and Development (OECD). An internationally standardized assessment of the skills and knowledge of 15-year-olds in 32 countries, 28 of which are members of the OECD, and 4 of which are developing countries (China, Brazil, Korea, Mexico). First round of surveys completed in 2000 contain data on student achievement in reading, math and science, family background, teacher, classroom, and school data, as well as student perceptions and aspirations. http://www.oecd.org/els/pisa/

African Census Analysis Project at The University of Pennsylvania. An archive of census data for over 20 African countries, many containing multiple years. Resources are generally only available to project members, but inquiries can be directed to the project director, Professor Tukufu Zuberi. http://www.acap.upenn.edu

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