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Educational Reforms and Inequalities in Israel: The MMI Hypothesis Revisited

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Israeli secondary school students sit for national matriculation examinations that result in their receiving either a plain or a university-qualifying diploma. During the 1990s, the Ministry of Education implemented policies that were designed to raise eligibility rates for the diploma. This article evaluates the consequences of these policies for gender, ethnic, and socioeconomic inequalities in the odds of obtaining the two forms of the diploma. The results show that the reforms reduced socioeconomic inequalities in the odds of obtaining the plain diploma but increased inequalities in the odds of obtaining the university-qualifying diploma. Overall, the results refute the prediction of Raftery and Hout's (1993) hypothesis of maximally maintained inequality that inequalities are maintained as long as privileged groups have not reached saturation vis-à-vis an educational level. Rather, they are consistent with Lucas's (2001) claim that the differentiation of a given educational credential can substitute qualitative inequalities for quantitative ones.

Israeli secondary education culminates in the matriculation diploma (*bagrut* in Hebrew), which is a prerequisite for admission to most forms of tertiary education. The *bagrut* is differentiated into a university-qualifying and a plain diploma. The former provides access to universities, whereas the latter provides access to less-esteemed forms of postsecondary education. During the 1990s, the Israeli Ministry of Education implemented a series of policies that were designed to raise eligibility rates. As a consequence, the rates increased substantially (Kashti 1996). An important objective of the reforms was to raise eligibility among the weaker social groups in society: Arabs, disadvantaged Jewish ethnic groups, and the lower social strata. However, little is known about whether this objective was achieved. It is not known how the reforms may have affected eligibility rates for the plain or university-qualifying

diploma among the various groups. This article attempts to fill this void.

Theoretically, the analysis is couched in the recent debate surrounding Raftery and Hout's (1993) hypothesis of maximally maintained inequality (MMI). MMI is a compelling theoretical statement regarding the effects of educational expansion on inequality in educational attainment among various strata. It states that on the whole, educational expansion does not reduce such educational inequalities. Rather, inequalities among the social strata are maintained as long as those in the privileged stratum can increase their educational attendance rates as fast or faster than those in the less-privileged strata. Only when the privileged stratum reach saturation at a given level of education will further expansion of that level reduce inequality.

MMI and the paradigm of research on educational transitions (Mare 1980, 1981) of

which it is a part have recently been criticized for ignoring the simple fact that educational systems are not one dimensional (Breen and Jonsson 2000; Lucas 2001). Most systems maintain some form of qualitative differentiation (i.e., tracking) at the secondary, tertiary, and often even at the primary levels. Citing the vast literature on tracking, Lucas proposed his hypothesis of effectively maintained inequality (EMI), arguing that once saturation has been reached with regard to a given level of education, inequalities in the odds of attaining that level may be replaced by inequalities in the odds of placement in the more selective track.

In this article, we analyze the consequences of the *bagrut* reforms for socioeconomic, sex, and ethnic inequalities in the odds of attaining the *bagrut*. In doing so, we test both MMI and EMI under conditions preceding saturation. Our results are consistent with the arguments (Lucas 2001; Shavit and Kraus 1990) that qualitative differentiation enables educational systems to reduce inequalities along the quantitative dimension. In other words, when a given level of education is tracked, socioeconomic inequalities in the odds of its attainment can decline even before saturation has been reached. This proposition explains some of the empirical exceptions to MMI in which equalization appeared before saturation was reached by the privileged classes.

We proceed as follows: First, we describe the specific context in which the study was set—the Israeli matriculation reforms of the 1990s. Second, we discuss MMI and some of its critiques more fully. Third, we describe the data, the analysis, and the findings. We conclude by discussing some theoretical implications of the study.

THE REFORMS OF THE 1990S

At age 12, after a year in preschool and six years in primary school, Israeli children enter middle school, where they spend Grades 7, 8, and 9. Middle school is followed by upper secondary school in Grades 10–12. Upper secondary education consists of two main tracks: the academic track, which prepares

students for the matriculation examinations leading to a *bagrut* diploma that is required for higher education, and the vocational track, which, until recently, trained most students in a vocation and prepared them for the world of work, rather than for further study.

Matriculation examinations are administered nationally and graded anonymously. The examinations are offered on a unit basis and can be taken at either a basic level (3 units) or an advanced level (4 or 5 units). To obtain the matriculation diploma, students must meet several requirements: (1) take examinations totaling at least 20 units; (2) be tested in seven compulsory subjects, two of which are English and mathematics (other subjects are Hebrew or Arabic, civic education, literature, history, and the Bible); and (3) pass all but one subject (failure in one subject is allowed).¹ In recent cohorts, over 60 percent of the men and women sat for one or more matriculation examinations. However, only about half of them were eligible for the diploma. Math and English were the major stumbling blocks: only about 35 percent and 40 percent of recent birth cohorts passed the math and English examinations, respectively, compared, for example, with 50 percent who passed the Hebrew language examination.

The matriculation diploma is an important stage in the educational and occupational selection process. To a large extent, it determines whether one will attend higher education and become a professional or a manager or whether one will join the working class. To illustrate the point, among men who were born in the early 1960s who obtained a matriculation diploma, a quarter are professionals, managers, or semiprofessionals, compared with 3.2 percent of those who did not obtain the diploma.

Although, formally, the *bagrut* gains one access to higher education, the major universities admit only *bagrut* holders who meet three additional conditions: (1) they have passed the English examination at an advanced level, (2) they have passed any level of the mathematics examination, and (3) they have passed an additional examination at the advanced level. Only two thirds of *bagrut* holders meet these additional requirements.

In total, about 35 percent of recent cohorts obtained the *bagrut*, and only a quarter of the cohort met the additional conditions.

Eligibility for the *bagrut* is strongly correlated with ethnicity and social class. To illustrate, among Jews of European ethnic origins (*Ashkenazim*), over 50 percent of the men and 60 percent of the women are eligible, compared with 35 percent and 40 percent, respectively, for Jews of North African origins and 15 percent and 20 percent for Muslim Arab men and women. These gaps are visible and therefore are also prominent on the political agenda. During the 1990s, the Ministry of Education implemented two reforms that were aimed at increasing eligibility for the *bagrut*: a relaxation of the requirements for the *bagrut* examinations themselves and the gradual academization of the curriculum in the vocational tracks, orienting them toward the *bagrut* in addition to preparing students for entry into the labor market.

Reforms

Reform of the *Bagrut* Examinations In 1994, Prime Minister Rabin appointed Amnon Rubinstein minister of education. Rubinstein was committed to reducing ethnic and class inequalities by raising overall *bagrut* eligibility rates, especially among the disadvantaged social strata. He reduced the number of compulsory external examinations from seven to four in the hope that with fewer examinations to prepare for, students would do better and success rates would rise. The three excluded subjects were selected by lottery each year during the last trimester, and school grades were substituted for examination grades. These steps were implemented as of the 1994–95 school year, and the results were encouraging. Rubinstein remained in office until 1996, and in 1997, his successor, Zebulon Hammer, did away with the lottery “system,” replacing it with another.

The Reform in Vocational Education Israeli secondary education was fashioned after central European systems in which there is a clear distinction between academic education leading to the matriculation diploma, to higher education, and to the professions and

vocational tracks that prepare most students for immediate entry into the labor force. In Israel, as elsewhere, track placement is closely linked to students’ socioeconomic and ethnic origins. Thus, the system came under severe criticism for perpetuating and reproducing educational and occupational inequality across generations (see, e.g., Shavit 1984; Swirski 1990). The criticism was not confined to academic circles alone and was echoed in the press and public discourse. In response to mounting criticism of the vocational education system, which constitutes a semiautonomous section within the Ministry of Education, the ministry embarked on reforms, the essence of which was academization of the curriculum. The vocational components of the curriculum were replaced by academic subjects, and students were encouraged to sit for the matriculation examinations (Tzuk 1994). Furthermore, through the late 1980s, vocational secondary education consisted of a hierarchy of tracks that were intended for students of different levels of scholastic achievement. The lowest track (the practical vocational track) was intended for the least-able students, and its curriculum was largely practical. The regular vocational track was intended for vocational students of intermediate achievements, and its curriculum consisted of both practical and academic components. Of the vocational tracks, only the matriculating vocational track (MASMAT) prepared students for the matriculation examinations. In 1991, tracking within the vocational system was formally abolished, and all students were encouraged to sit for part or the complete course of the matriculation examinations.

These reforms did not do away with tracking. Vocational schools, as well as vocational tracks within comprehensive schools, continue to exist as distinct entities, catering to academically less successful students who are disproportionately drawn from the less-privileged strata. However, the curricular distinction between the academic and vocational tracks was much reduced. The reform of vocational education was implemented as of 1991, and the first cohort to have been affected by it attended the 12th grade in 1995. The main objective of this article is to analyze the consequences of these reforms

for change across cohorts in both the level of and inequalities in the odds of eligibility for both forms of the *bagrut*.

BRINGING THEORY TO BEAR

Did the Rubinstein experiment and the academization of vocational education reduce inequalities among ethnic groups and social strata in matriculation rates? Social theory and research do not provide a uniform prediction in this regard. On the one hand, the MMI hypothesis predicts that the reforms did not affect inequality, whereas from EMI, we can derive a hypothesis that the differentiation of the *bagrut* reduced inequalities in the odds of its attainment but maintained or raised inequalities in the odds of attaining the more selective form of the diploma.

As MMI (Raftery and Hout 1993) states, lowering curricular requirements and broadening educational opportunities can raise educational attainment rates among working-class and minority students, but these changes are not likely to reduce inequalities. When educational systems expand, opportunities are created not just for the less-privileged social classes, but for everyone. On average, the sons and daughters of privileged classes do better in school than do those of working-class origins; they have higher educational ambitions (Hauser, Tsai, and Sewell 1983), are more familiar with school culture (see, e.g., Lareau 1989), and can afford to pay both the direct and indirect costs of education. In short, they are better prepared than are others to take advantage of new educational opportunities. Therefore, educational expansion does not reduce educational inequalities among classes. Only when the privileged classes have reached saturation with regard to a given level of education would further expansion of that level contribute to the reduction of inequality among classes. In other words, educational inequalities among social classes are maintained by educational expansion as long as privileged groups can continue to increase their attainment rates.

The MMI hypothesis explains research results in a variety of settings. For example,

Halsey, Heath, and Ridge (1980) reported that the expansion of tuition-free secondary education in England and Wales during the 1950s and 1960s did not reduce class inequality in the odds of its attainment because the enrollment rates of the middle class rose faster than did those of the working class. Mare (1981) tested the hypothesis that in the United States, socioeconomic inequalities in the odds of attaining primary, secondary, and postsecondary education declined during the first half of the 20th century. These were decades of massive educational expansion at both the secondary and postsecondary levels. Rather than a decline, Mare found persistent and even rising inequalities. Mare's mode of analysis and his results have been replicated in a variety of international settings (e.g., Smith and Cheung 1986). In a comparative analysis of changing educational inequalities, Shavit and Blossfeld (1993) and their associates found that despite the expansion of educational systems, educational inequality among strata did not decline in 11 of 13 countries from which data were available. Bolotin-Chachashvili, Shavit, and Ayalon (2002) examined the effects of the recent expansion of Israeli higher education on ethnic inequalities in attendance rates and found that as the system expanded, all ethnic groups increased their enrollment rates. However, increases were most pronounced among the more-privileged ethnic groups. Conversely, Hanley (2001) found a significant decline in socioeconomic inequality in progressing to secondary education in state-socialist Czechoslovakia. He attributed the result to the 1948 educational reform in Czechoslovakia, which expanded secondary education and brought the demand of the upper and middle classes for this level to saturation.

When applied to the specific case presented here, the MMI hypothesis predicts that the easing of the examinations would raise matriculation rates among all ethnic and social groups but would retain the pattern of inequality among them. The most privileged social groups have not yet reached saturation in matriculation rates. Therefore, it may be some time before further expansion would reduce inequalities.

As we noted at the outset, MMI was

recently critiqued for ignoring the qualitative differences within educational systems. Breen and Jonsson (2000) and Lucas (2001) developed models of educational transitions that deal with both quantitative and qualitative educational stratification. Lucas also proposed a revision of MMI, which he labeled EMI. EMI focuses on instances in which the attainment of a given level of schooling is universal. He wrote:

As long as a particular level of schooling is not universal . . . the socioeconomically advantaged use their advantages to secure that level of schooling. Once that level of schooling becomes nearly universal, however, the socioeconomically advantaged seek out whatever qualitative differences there are at that level and use their advantages to secure quantitatively similar but qualitatively better education. (p. 1652)

However, Lucas later argued that "it is possible that even when quantitative differences are common, qualitative differences are also important" and posited that "the socioeconomically advantaged will use their socioeconomic advantages to secure both quantitatively and qualitatively better outcomes" (p. 1652). In other words, the qualitative dimension in the educational stratification process is prevalent irrespective of whether saturation has been reached. Data did not permit Lucas to test EMI in the absence of saturation.

In our study, we followed Lucas, but focused on the qualitative dimension in the educational stratification process in the absence of saturation. We studied the consequences for educational stratification of qualitative differentiation during educational expansion.

Sociologists of education know that an educational system faces contradictory expectations and plays a dual and conflicting social role. At the same time, it is both an avenue for social mobility and a gatekeeper in an economically advanced society. It is required to reduce inequalities among social groups in the distribution of credentials, but the gatekeeping function requires the system to be selective and to ration credentials. Employers expect the educational system to be selective because they want credentials to filter able and diligent workers (see, e.g., Bills

1992; Thurow 1975). Professional organizations support selectivity in the educational system because it helps them maintain closure over their privileged positions (Collins 1979, Parkin 1979). Teachers and administrators of the educational system favor educational selection because it enhances their own prestige and power as gatekeepers (Apple 1990). For these reasons, educational systems resist, with varying degrees of success, the pressure to open up and equalize the distribution of credentials.

When push comes to shove, educational systems respond to exclusionary pressures by a combined strategy of expansion and differentiation. By expansion, we mean increasing the proportions of cohorts who attend successive levels of the educational system. Expansion, however, can bring about the devaluation of educational credentials as their scarcity diminishes. To counter this liability, actors in the field (e.g., ministries of education and university systems) tend to accompany expansion with differentiation into more- and less-accessible tracks. Differentiation creates a situation in which education is indeed more accessible, but the stronger groups retain their hegemony in the more-valued tracks of the expanded system. Furthermore, once a system is differentiated, the less-selective track can be opened up further, leaving the role of social selection to the more selective one.

This hypothesis is supported by research that has found that the proliferation of education and the absorption of broader social strata by the system created different tracks with various stratifying effects. For example, the expansion of secondary education in Israel, the United States, and other countries was accompanied by the formation of nonacademic tracks, intended mainly for new immigrants and working-class students (Labaree 1988; Powell, Farrar, and Cohen 1985; Shavit 1984; Swirski 1990). More recently, the expansion of post-secondary education in many countries has been accompanied by its differentiation into different classes of institutions that target hierarchically diverse social strata (Meek et al. 1996). The expansion of second-tier colleges enables the more prestigious universities to remain selective.

In the case of the Israeli *bagrut*, the major actors involved in the formation of *bagrut*-related policies were the Ministry of Education and the universities. In response to public demand, the Ministry of Education attempted to increase the eligibility rates. The major opposition to lowering standards came from the six universities that existed in Israel until recently. These institutions were well organized in the Council for Higher Education and were well coordinated in defending their collective interests. The universities feared that expansion of *bagrut* eligibility rates would create an influx of ill-prepared university applicants and erode their prestige. The reaction of the universities to the major reform in the *bagrut* system in the late 1970s demonstrates this point and marks the beginning of the differentiation of the *bagrut* certificate. That reform allowed some flexibility in the mix of examinations. Whereas in the past, students were examined according to strictly defined programs, the reform gave them a certain degree of choice between subjects and levels of subjects. Following their concern that students might avoid advanced courses, in general, and the difficult ones in math and English, in particular, the universities changed their admission policy. First, they demanded an additional admission criterion—a general aptitude test, known in Israel as the psychometric test. Second, they promised priority in admission to high school graduates who took at least two advanced subjects, advanced English and at least the minimal level in math (Ministry of Education 1976). This change started the differentiation between the university-qualifying *bagrut* (UQB) and the plain *bagrut*. The existence of UQB enabled the implementation of the *bagrut* reform in the 1990s. Having UQB as the gatekeeper, the universities accepted the relaxation of requirements on the plain *bagrut*.

Following Lucas (2001) and the literature on tracking, we hypothesized that as eligibility rates increase and as the *bagrut* becomes less socially selective, social selection will shift to the level of the UQB. Specifically, we hypothesized that (1) between 1992 and 1996, the social selectivity of the UQB remained stable or even increased and (2) the

social selectivity of the plain *bagrut* declined. The second of these two hypotheses contradicts MMI, which predicts that inequalities in the odds of obtaining the *bagrut* should increase or remain stable.

DATA

We analyzed data on a 20-percent sample of all Israeli native adolescents who were born between 1974 and 1978 and who were given the detailed form of the 1995 Israeli Population and Housing Census. We merged these adolescents' census records with records obtained from the Ministry of Education. These records included information on all matriculation examinations taken; grades obtained; and a variety of additional variables on students, their tracks, and their schools.² At the time of the census, the subjects were 16–21 years old, and the vast majority of them (91 percent) were polled in their parental households. Thus, we were able to merge the subjects' records with those of their parents and hence to obtain a wealth of information on the subjects' social origins, including ethnicity, religion, parental education and occupation, the economic circumstances in the parental household, and more. We excluded immigrants from the data set because we did not want to confuse educational processes that were occurring in Israel with those that the subjects may have experienced abroad prior to immigration. Finally, we excluded the graduation cohort of 1994 because the proportion of this cohort for whom we could merge the census and ministry files was suspiciously low.³ Our initial sample size for native Israelis was 88,063, but after we deleted cases, we were left with 69,817.

VARIABLES

Dependent Variable

The dependent variable in our study was the type of *bagrut* obtained. Its categories were not eligible, eligible for a plain *bagrut*, and eli-

gible for a UQB. This variable was operationally defined on the basis of the information from the Ministry of Education file. Subjects who were eligible for a *bagrut* and passed an advanced examination in English, passed the examination in math, and passed an advanced-level examination in an additional subject were assigned to the UQB category. Descriptive statistics for this and all other variables are presented in Table 1. As Table 1 shows, about 35 percent of the sample was eligible for a *bagrut*, of which one third (11.7 percent of the sample) were eligible for a plain *bagrut* and two thirds (23.1 percent) were eligible for a UQB.

Independent Variables

Cohort This variable represents the year during which a subject turned 18 and would have graduated from secondary school. We used data for the graduation cohorts of 1992, 1993, 1995, and 1996. The 1994 cohort was excluded from the study because the quality of the data for that year was questionable. The 1995 cohort was the first to experience both reforms; the Rubinstein reform was implemented in 1995, and the first cohort to graduate from the reformed vocational education system, which began in 1991, did so in 1995. In the multivariate analysis, we coded this variable into a dummy variable contrasting post- and prereform cohorts.

Sex Sex was coded 1 for men and 0 for women.

Ethnicity The census collects data on religion and on the country of birth of both the respondents and their parents. We constructed the following categories:

Muslims or Druse. Muslims constitute about 21 percent of the target population, and Druse constitute about 1 percent. We merged the two because there were few Druse in the sample, and their socioeconomic circumstances, especially their parents' education, are not very different from those of Muslims. In the multivariate analysis, Muslims and Druse served as the reference category.

Christian Arabs. This was a small category, consisting of 2.3 percent of the sample. We

kept it distinct from Muslims and Druse because the educational attainments of Christian Arabs are much higher than those of the other two groups.

Middle Eastern Jews. This category included the following respondents: (1) those whose fathers were born in the Middle East (all countries between Iran and Egypt and between Turkey and Yemen), (2) those whose fathers were born in Israel but whose mothers were born in the Middle East, and (3) those whose parents were both born in Israel but whose paternal grandfathers were born in the Middle East.

North African Jews. The same three rules applied to North African Jews as to Middle Eastern Jews. North Africa consists of all North African countries along the Mediterranean except Egypt.

Ashkenazi Jews. The same three rules applied to the Ashkenazi Jews as to the Middle Eastern Jews. The countries included all European countries except Turkey, as well as the countries of North and South America and South Africa.

Second-generation Israeli Jewish natives. This category consisted of native respondents whose parents and grandparents were born in Israel.

Parental Education Parental education was measured in two ways. In the descriptive analysis, it was measured as a categorical variable representing the highest certificate attained by either parent. In the multivariate analysis, it was measured more parsimoniously as the average number of school years completed by the parents. When information was missing on either parent, we assigned the value of the parent for whom data were available.⁴ When information was missing on both parents' education, the missing values were replaced by the mean of the respondent's ethnic group. In addition, a dummy indicator for missing value was included in the equation.

Economic Circumstances This variable measured the economic circumstances in which a respondent grew up. The 1995 census forms asked for information on the availability of a variety of items in the home, such as a tele-

Table 1. Descriptive Statistics for the Variables

Variables	%	
<i>Bagrut</i>		
Not eligible	65.2	
Plain <i>bagrut</i>	11.7	
University-qualifying <i>bagrut</i>	23.1	
<i>Cohort</i>		
1992	24.2	
1993	25.3	
1995	25.3	
1996	25.2	
<i>Sex</i>		
Female	48.6	
Male	51.4	
<i>Ethnicity</i>		
Muslim and Druse	21.3	
Christian Arabs	2.3	
Ashkenazim	13.2	
Middle Eastern Jews	14.2	
North African Jews	14.4	
Second-generation native Jews	17.9	
Ethnicity unknown	16.6	
<i>Parental Diploma</i>		
Primary or less	28.7	
Secondary	15.7	
Matriculation	20.6	
University	13.2	
Unknown	21.8	
<i>Track</i>		
Academic	43.5	
Vocational	25.1	
Unknown	14.1	
Did not attend secondary school	17.3	
	Mean	SD
<i>Parental Education (in years)</i>	9.8	3.8
<i>Economic Circumstance</i>	5.6	3.6
<i>Number of Cases</i>	69,817	

phone, air conditioner, personal computer, and car. Economic circumstance was measured as the number of appliances and amenities that were available in the parental household. It ranged from 0 to 11.

Track The census questionnaire requested information on the number of years of attendance at various types of secondary education (e.g., academic, vocational, and yeshiva).

Track was coded as academic for respondents who attended the academic track for two or more years and as vocational for those who ever attended a vocational track. It was coded as no secondary education for those who attended school for 10 or fewer years and as missing for those for whom information on tracks was not available. In the multivariate analysis, vocational track served as the reference category.

ANALYSIS

We began the analysis by plotting cohort proportions of eligibility for the *bagrut* for men and women (see Figure 1a). As can be seen, the proportion of matriculates increased between the 1992–93 and 1995–96 cohorts. The increase was especially pronounced for women, and the sex gap increased from about 10 percent in 1992 to about 12 percent in 1996. In Figure 1b, we present cohort differences in the proportion who were eligible for a *bagrut* by ethnicity. The figure reveals several interesting results. First, for all ethnic groups, the eligibility rate increased between 1992 and 1996. The increase was most pronounced for Middle Easterners; Christian Arabs, and Muslims and Druse for the entire period and, from 1995, for North Africans. Consequently, the ethnic gap declined somewhat during the period, especially among the Jewish groups. Figure 1c presents cohort proportions of eligibility by parental education. It reveals a slight increase in the proportions in all levels of parents' diploma but does not show a narrowing of gaps.

We continued the descriptive analysis by studying changes in the rates of obtaining a UQB. When one compares Figure 2a with Figure 1a, one can see that the female advantage with regard to the *bagrut* carries over to the UQB, although the rate of increase of the two groups, with regard to the UQB, is about equal. In other words, the female advantage in obtaining the UQB did not increase over time as it had increased for the plain *bagrut*.

We hypothesized that as rates of eligibility for the *bagrut* increased, the social selectivity of the UQB would increase. Figures 2b and 2c provide partial support for the hypothesis: Figure 2b shows that the gaps among the Jewish ethnic groups were stable, but the rates for Christian Arabs and particularly for Muslims and Druse rose more slowly. In other words, Muslims and Druse appear to have benefited the least from the reforms with regard to the UQB. Figure 2c repeats the analysis for categories of parents' diploma and reveals a clear pattern: The increase in the eligibility rate for the UQB is related to parental education, and the gap between the categories widened.

In sum, the descriptive analysis shows that the reforms raised the eligibility for the *bagrut* and that the rate rose more sharply for women than for men. All ethnic groups and parental-education strata benefited from the reforms, and their rates increased at a similar pace. The reforms also increased the proportion of students who were eligible for a UQB. The increase was similar for men and women, slower for Arabs than for Jews, and faster for those whose parents were more educated.

Multivariate Analysis

We now evaluate the consequences of the reforms for inequalities in the odds of matriculation in a multivariate framework. We studied change, before and after the reforms, in the effects of sex, ethnicity, parental education, and economic condition on the odds of obtaining a plain *bagrut* and a UQB. Toward this end, we estimated a multinomial logit model contrasting the plain *bagrut* and the UQB against not eligible.⁵ The model includes the main effects of the explanatory variables, as well as the interactions of sex, ethnicity, parental education, and economic condition with cohort. In the presence of interactions of cohort and all the remaining explanatory variables, the main effects represent the prereform period. The interactions with cohort represent the change in the effects of the various variables before and after the reforms.

Plain Bagrut In the first column of Table 2, one sees that in the prereform period, women were more likely to obtain the plain *bagrut* than were men and that the effect of parental education and the economic circumstances of the family of origin were positive and significant. *Ceteris paribus*, Christian Arabs, were significantly more likely, and North African and second-generation Jews were less likely, than were other ethnic groups to obtain the plain *bagrut*. In the prereform period, students in the academic track were 50 percent as likely as were students in the vocational track to obtain the plain *bagrut*, and those who did not attend secondary school were far less likely to do so.⁶

The reforms increased the overall odds of matriculation by about 40 percent. They also

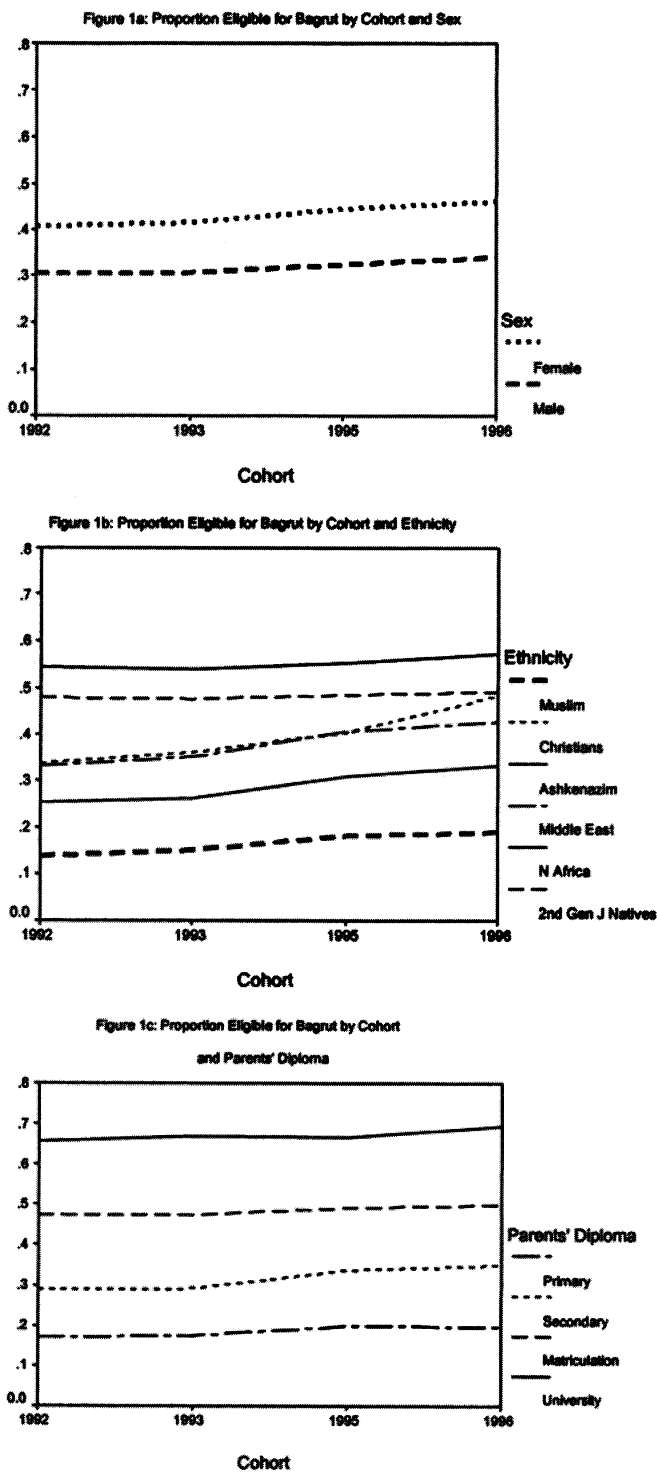


Figure 1. Proportions Eligible for the *Bagrut*

Table 2. Multinomial Exponential Logistic Coefficients for the *Bagrut* and the UQB

Independent Variables	(1) Plain <i>Bagrut</i> versus None	(2) UQB versus None
<i>Sex</i> (female omitted)	0.87**	0.67**
<i>Parental Education</i>	1.09**	1.23**
<i>Economic Circumstance</i>	1.08**	1.07**
<i>Ethnicity</i> (Muslims omitted)		
Christians	1.33**	2.37**
Ashkenazim	1.03	2.86**
Middle Eastern Jews	0.97	2.22**
North African Jews	0.71**	1.44**
Second-generation native Jews	0.86*	2.42**
Ethnicity unknown	1.02	2.82**
<i>Track</i> (vocational omitted)		
Academic	1.50**	14.78**
Missing	1.17**	5.72**
No secondary education	0.16**	0.79
<i>Cohort</i> (prereform omitted)	1.41**	4.31**
<i>Parental Education Missing</i>	0.81**	1.54**
<i>Interactions with Cohort</i>		
Sex	0.72**	0.97
Parental education	0.97**	0.99
Economic circumstance	0.99	1.03**
<i>Ethnicity</i>		
Christians	1.11	1.04
Ashkenazim	0.77**	0.81
Middle Eastern Jews	0.98	1.04
North African Jews	1.08	0.91
Second-generation native Jews	0.85	0.83
Ethnicity unknown	1.40**	1.23
<i>Track</i>		
Academic	1.18**	0.25**
Missing	0.94	0.33**
No secondary education	2.43**	1.01
<i>Parental Education Missing</i>	0.97	0.77**
<i>Intercept</i>	0.06**	0.00**
<i>N</i>		69,817
<i>-2 Log Likelihood</i>		41,398
<i>Cox Snell R²</i>		0.27

* $p < .05$, ** $p < .01$ (two-tailed tests).

produced changes in sex, socioeconomic, and ethnic inequalities in the likelihood of obtaining the *bagrut*. The interaction between sex and cohort shows that the reforms further increased the advantage of women over men. The interaction between parental education and cohort shows that in the postreform period, the effect of parental

education declined. This change is less consistent with MMI than it is with the alternative hypothesis, which predicts a decline in the social selectivity of plain *bagrut*. It was surprising to find that the significant effect of the interaction between cohort and the academic track is positive. This finding indicates, contrary to expectation, that the reforms

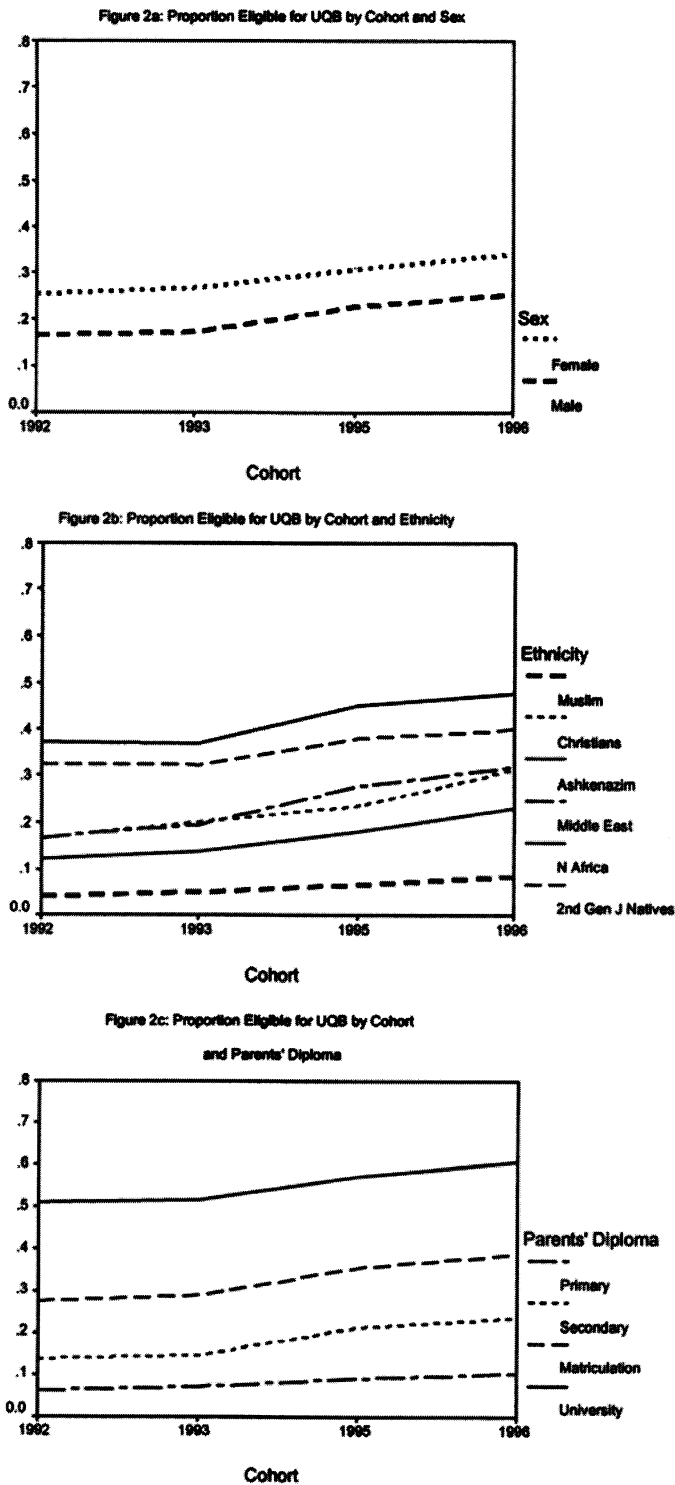


Figure 2. Proportions Eligible for the University-Qualifying *Bagrut* (UQB)

increased the advantage of academic-versus vocational-track students in the odds of obtaining the *bagrut*. We discuss this finding in the next section. The disadvantage of those who did not attend secondary school declined from 0.16 pre-reform to 0.39 (0.16*2.43) post-reform, but is still substantial.

UQB Column 2 contrasts the odds of obtaining a UQB with not being eligible for either diploma. In the pre-reform period, women and students from privileged social backgrounds were advantageous in the odds of obtaining a UQB. The effect of ethnicity indicates an advantage of all ethnic groups over Muslims. This finding is consistent with the argument, often made by Arab educators, that the additional requirements of the UQB, especially, to pass the examination in advanced English, are difficult for Muslims, for whom English is a third, rather than a second, language.⁷ Academic-track students have a clear advantage in the present contrast and are about 15 times as likely as are vocational students to obtain a UQB.

The reforms increased the odds of a UQB about fourfold (the effect of cohort is 4.31). The interactions show that the reforms did not affect inequality by sex. Nor did they change the effect of parental education. However, the benefit associated with advantageous economic circumstances increased significantly.

The most noteworthy finding in this part of the analysis is the effect of the reforms on track inequality. After the reforms, academic-track students were only 3.7 (14.78*0.25 = 3.7) times as likely as were vocational-track students to obtain a UQB, whereas their advantage before the reforms was about 15 times as great. Recall that in the first column of the table, the interaction effect between cohort and the academic track was positive and significant, indicating that, contrary to expectation, the reforms increased the difference between these tracks in the odds of obtaining a plain *bagrut*. Could it be that the academization of vocational education increased the odds of vocational students obtaining a UQB but reduced their odds of obtaining a plain *bagrut*? We returned to the raw data and computed, for the pre- and

post-reform cohorts, the track percentage of the students who obtained each of the two diplomas (see Figure 3). As can be seen, in the academic track, the increase in the overall matriculation rate was due primarily to a 4-point rise in the percentage obtaining a UQB, coupled with a small decline in the percentage obtaining a plain *bagrut*. In the vocational track, in contrast, the reform was much more effective in enabling students to obtain a UQB than it was in raising the overall matriculation rate (the total of plain *bagrut* and UQB). The former rose by over 11 percent, whereas the latter rose by 5.3 percent (from 19.5 to 24.8). Recall that prior to the reforms, only students in the more elitist vocational tracks (MASMAT) could matriculate and that the vast majority of vocational students were in the nonmatriculating tracks. The data shown in Figure 3 suggest that the reforms offered former MASMAT students an "upgrade" from *bagrut* to UQB but did little to raise the overall matriculation rate among vocational students. The social origin of MASAMT students is superior, on average, than that of other vocational students (Yogev & Ayalon 1991). Thus, the main beneficiaries of the reforms are more likely to be the relatively privileged vocational students.

Comparing columns 1 and 2 of Table 2 shows that the reforms affected socioeconomic and sex stratification of the plain *bagrut* and of the UQB in different ways: They enhanced the advantage of women over men in obtaining a plain *bagrut*, but did not change it in obtaining a UQB; they reduced the effect of parental education on obtaining the *bagrut*, but not on obtaining the UQB; and they did not change the advantage attached to economic circumstances in the *bagrut*, but increased it in the UQB. Thus, the reforms decreased the socioeconomic stratification of the plain *bagrut*, but increased the stratification of the UQB. These results are consistent with the hypothesis derived from EMI, which predicted that as a result of the reforms, socioeconomic and ethnic differences in the odds of obtaining the *bagrut* would decline, whereas their effects on the UQB would not change or would even increase.

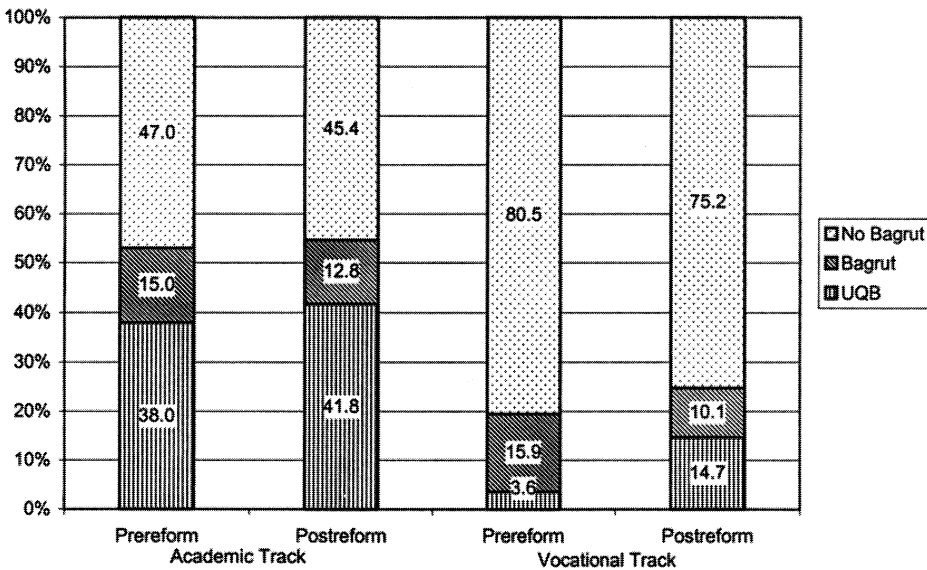


Figure 3. Percentage Distribution of the *Bagrut*, by Track and Cohort

DISCUSSION

In this study, we sought to contribute to the scholarship on the conditions under which educational reforms affect the stratification of educational opportunity. We studied a set of far-reaching reforms in Israeli secondary education that were implemented during the 1990s. The reforms included the academization of vocational tracks and the lowering of requirements for the matriculation examinations. The matriculation diploma is a major gatekeeper in the Israeli stratification system. It determines, to a large extent, who will go to a university and into the professional and managerial class and who will turn to working-class occupations. The reforms were designed to raise eligibility rates for the matriculation diploma and to reduce the ethnic and class inequalities of its distribution.

Our analysis was guided by two hypotheses. The first hypothesis, derived from Raftery and Hout's (1993) MMI hypothesis, predicted that the relaxation of the requirements would raise matriculation rates among all ethnic groups and social strata, thus preserving the pattern of inequality between them. The second hypothesis was derived from the observation that the rising rates of eligibility for the *bagrut* were made possible by its differentia-

tion into the plain *bagrut* and the UQB through the imposition of further admissions requirements by universities. The differentiation between the *bagrut* and the UQB was a compromise between two conflicting forces. On the one hand, the public and political discourse called for raising eligibility rates, especially among disadvantaged social groups. On the other hand, the universities opposed lowering the threshold because they feared that their students might be less well prepared and that the "massification" of higher education would lower their prestige. The universities reluctantly agreed to the reforms, knowing they could rely on the additional admission requirements to exclude weaker students. We hypothesized that inequality among social strata in eligibility for the plain *bagrut* would decline while inequality in eligibility for the UQB would be stable or even increase. The results clearly support this hypothesis concerning socioeconomic inequality: The reforms reduced the effect of parental education on the odds of eligibility for the *bagrut*. At the same time, social inequality in the odds of obtaining the UQB remained stable and may have even increased. As for sex, the reforms produced an advantage for women in the plain *bagrut*, but not in the UQB. Overall, the results refute

the MMI prediction that inequalities are maintained as long as the privileged groups do not reach saturation vis-à-vis an educational level. Rather, they are consistent with Lucas's (2001) claim that the differentiation of a given educational level or credential enables a reduction of inequalities in the odds of its attainment and substitutes qualitative inequalities for quantitative ones.

As we noted earlier, several studies have corroborated MMI by reporting either stable inequality over time or equalization following saturation. However, there is also some evidence, consistent with the differentiation approach. Shavit and Kraus (1990) found that inequalities between Ashkenazim and other Jews, in the log odds of completing 12 years of schooling, declined somewhat during the 1970s. Secondary education was far from universal at that time, both among Ashkenazim and other ethnic groups. Shavit and Kraus speculated, but were unable to show, that the decline was replaced by rising ethnic inequalities in track placement at the secondary level. Similarly, American data showed that between 1982 and 1992, enrollment by minorities in higher education increased more than did enrollment by whites (Schmitt 1994), but analyses based on the National Education Longitudinal Survey found an overrepresentation of ethnic minorities in two-year, rather than four-year, colleges (Ayalon et al. 2001). Karen (2002) reported that the expansion of postsecondary education in the United States did not change the link between social origin and enrollment in selective institutions and attributed this finding to the large expansion of the two-year-college sector.

The differentiation between the *bagrut* and the UQB was the key to the "success" of the Israeli reforms of the 1990s. Rising eligibility rates for the *bagrut* and the UQB, as well as the relative equalization of *bagrut* rates, enabled Rubinstein to claim success in reducing social barriers in education. At the same time, the UQB enabled the universities to maintain high selection criteria and reduced their opposition to the reform.

At about the same time, Israeli higher education was also reformed. Whereas the vast majority of students attended seven selective

universities until 1994, during the second half of the 1990s, the number of degree-granting institutions increased tenfold. Most of the new colleges admit students with a plain *bagrut* and do not require a UQB. The expansion of less-selective higher education offers matriculates who did not meet the UQB requirements options that did not exist before the mid-1990s, thus blurring the distinction between the two forms of *bagrut*. This expansion made the differentiation more acceptable to the public, although university education, which is still considered better, more prestigious, and less expensive than some of the alternatives, could maintain and increase its level of selectivity.

This article has also alluded to the debate on tracking. The differentiation of the *bagrut* is a form of tracking in so far as the configuration of the examinations determines future opportunities. Tracking is often viewed as a mechanism of social exclusion and of the reproduction of inequality. We have shown as well that the UQB, the upper track in the case of the *bagrut*, is socially exclusive. However, tracking also enables the educational system as a whole to bring in students who may otherwise remain outside it. This, we believe, is the central dilemma in the field of educational stratification: As a mechanism of both inclusion and exclusion, is tracking reducing inequality or enhancing it? Our results support the view that the two functions of tracking are indivisible. As tracking differentiates opportunities within, the educational system as a whole can reduce barriers that are outside it.

NOTES

1. For most students, the grade in each subject is computed as an average of the score on the examination and school grades in the subject. The national examinations are referred to as *external* examinations, and the school examinations are referred to as *internal* ones. Students who are not enrolled in formally recognized schools can nonetheless take the *external* examinations, in so-called *external* schools, and their scores determine their final grades. The *external* schools are

usually private schools that specialize in preparing students for the *bagrut* examinations. Their clientele are primarily teenagers who failed in secondary academic schools or young adults, usually in their 20s, who did not pass some or any of the examinations (Shavit, Ayalon, and Kurleander 2002).

2. The two files were merged on the basis of the national identifications numbers of the respondents that appeared on their respective master files. The Central Bureau of Statistics performed the merge. Before releasing the file to us, the bureau stripped out all identifying information and aggregated categories of many variables to prevent the possible identification of individuals.

We successfully merged Ministry of Education records for 72 percent of the census cases of adolescents who turned 18 in 1992, 1993, 1995, and 1996. The vast majority of the cases that were not merged should not have had records in the Ministry of Education file. Sixty-one percent of them reported primary education or less on the census forms and would not have sat for a single *bagrut* examination. An additional 20.7 percent reported secondary education without a *bagrut* diploma. We calculated that about half the latter students did not sit for a single *bagrut* exam. Thus, 71 percent of the cases of adolescents whose records were not merged should not have been merged. This estimate reduces the failure rate of the merge process from 28 percent to about 5 percent of the total sample.

3. As we noted in note 2, the overall proportion of census cases for which we merged Ministry of Education records was 72 percent: 70 percent for the 1992 cohort, 73 percent for the 1993 cohort, 74 percent for the 1995 cohort, and 75 percent for the 1996 cohort. For the 1994 cohort, only 64 percent of the cases were merged. It should be noted that for each of the cohorts, data were provided in a different file. We suspect that the low merge rate for the 1994 cohort was due to the loss of cases in the processing of the files at either the Ministry of Education or the Central Bureau of Statistics.

4. Even so, we were left with 21.8 percent of cases for which data on parental educational were missing. Of these cases, 9 percent

were cases for which the respondents' parental records were not found (most likely because the respondents no longer lived in the parental households), and for 12.8 percent, no information was provided.

5. We considered using ordered logit but decided against it because our hypothesis is that the effects of social origins on the plain *bagrut* and on the UQB changed in *opposite* directions following the reforms. This change would not have been picked up by ordered logit analysis.

6. The significant and positive effect of the Track Missing category suggests that it includes a disproportionate number of academic-track students. This hypothesis is substantiated by the large effect of the category on the odds of obtaining a UQB discussed later.

7. For most Jews, English is a second language, whereas for Arabs, it is a third language after Arabic and Hebrew. In unreported analyses, we found that of the three UQB requirements (passing advanced English, mathematics, and an additional advanced subject), advanced English is the most difficult hurdle for Muslims. Christian Arabs are more successful in English because most of them attend church schools, where European languages are taught intensively.

REFERENCES

- Apple, Michael W. 1990. *Ideology and Curriculum* (2nd ed.). New York: Routledge.
- Ayalon, Hanna, Eric Grodsky, Adam Gamoran, and Abraham Yogev. 2001, August 18–21. "Stratification and Inequality in Higher Education: A Comparison Between Israel and the United States." Paper presented at the annual meeting of the American Sociological Association, Anaheim, CA.
- Bills, David B. 1992. "The Mutability of Educational Credentials as Hiring Criteria—How Employers Evaluate Atypically Highly Credentialed Job Candidates." *Work and Occupations* 19:79–95.
- Bolotin-Chachashvili, Svetalana, Yossi Shavit, and Hanna Ayalon. 2002. "Hitrachvot Ha'askala Ha'fvohaa Vehashlachoteia Ha'ribudiot Be'Israel 1980–1996" [The Expansion of Higher Education and Its Social Implication in Israel: 1980–1996]. *Soziologia Israelit* 4:317–45.

- Breen, Richard, and Jan O. Jonsson. 2000. "Analyzing Educational Careers: A Multinomial Transition Model." *American Sociological Review* 65:754–72.
- Collins, Randall. 1979. *The Credential Society: An Historical Sociology of Education and Stratification*. New York: Academic Press.
- Halsey, A. H., Anthony Heath, and John M. Ridge. 1980. *Origins and Destinations: Family, Class and Education in Modern Britain*. Oxford, England: Clarendon Press.
- Hanley, Eric. 2001. "Centrally Administered Mobility Reconsidered: The Political Dimension of Educational Stratification in State-Socialist Czechoslovakia." *Sociology of Education* 74:25–43.
- Hauser, William H., Shu-Ling Tsai, and William H. Sewell. 1983. "A Model of Stratification with Response Error in Social and Psychological Variables." *Sociology of Education* 56:20–46.
- Karen, David. 2002. "Changes in Access to Higher Education in the United States: 1980–1992." *Sociology of Education* 75:191–205.
- Kashti, Or. 1996, January 1. "Alya Shel 2% Be'shiurei Ha'zkaut Lebagrut 1995 Lumat 1994" [An Increase of 2% in Bagrut Eligibility in 1995 Compared to 1994]. *Haaretz*, p. 4.
- Labaree, David F. 1988. *The Making of an American High School*. New Haven, CT: Yale University Press.
- Lareau, Annette. 1989. *Home Advantage*. New York: Falmer Press.
- Lucas, Samuel R. 2001. "Effectively Maintained Inequality: Education Transitions, Track Mobility, and Social Background Effects." *American Journal of Sociology* 106:1642–90.
- Mare Robert D. 1980. "Social Background and School Continuation Decisions." *Journal of the American Statistical Association* 75:295–305.
- . 1981. "Stability in Educational Stratification." *American Sociological Review* 46:72–87.
- Meek, V. Lynn, Leo Goedegebuure, Osmo Kivinen, and Risto Rinne, eds. 1996. *The Mockers and the Mocked: Comparative Perspectives on Differentiation, Convergence and Diversity in Higher Education*. New York: Pergamon Press.
- Ministry of Education. 1976. "Chozer Myuchad Shel Ha'mankal: Beit Ha'sefer Ha'tichon Ekronot, Limudim, Bchinot" [Special Memo 1 of the Director General: High School: Principles, Studies, Examinations]. Jerusalem: Author.
- Parkin, Frank. 1979. *Marxism and Class Theory: A Bourgeois Critique*. London: Tavistock.
- Powell, Arthur G., Eleanor Farrar, and David K. Cohen. 1985. *The Shopping Mall High School: Winners and Losers in the Educational Marketplace*. Boston: Houghton Mifflin.
- Raftery, Adrian E., and Michael Hout. 1993. "Maximally Maintained Inequality: Expansion, Reform and Opportunity in Irish Education 1921–75." *Sociology of Education* 66:41–62.
- Schmitt, Carl M. 1994. *Trends in Enrollment in Higher Education by Racial/Ethnic Category: Fall 1982 through Fall 1992: E.D. Tables* (NCES-94-104). Washington, DC: National Center for Education Statistics.
- Shavit, Yossi. 1984. "Tracking and Ethnicity in Israeli Secondary Education." *American Sociological Review* 49:210–20.
- Shavit, Yossi., Hanna Ayalon, and Michal Kurlander. 2002. "Schooling Alternatives, Inequality, and Mobility in Israel." *Research in Sociology of Education* 13:105–24.
- Shavit, Yossi, and Hans Peter Blossfeld, eds. 1993. *Persistent Inequality: Changing Educational Attainment in Thirteen Countries*. Boulder, CO: Westview Press.
- Shavit, Yossi, and Vered Kraus. 1990. "Educational Transitions in Israel: A Test of the Industrialization and Credentialization Hypotheses." *Sociology of Education* 63:133–41.
- Smith, Herbert, L., and Paul P. L. Cheung. 1986. "Trends in the Effects of Family Background on Educational Attainment in the Philippines." *American Journal of Sociology* 91:1387–1408.
- Swirski, Shlomo. 1990. *Chinuch Be'Israel: Mezchoz Ha'maslulim Ha'nifradim* [Education in Israel: Schooling and Inequality]. Tel Aviv: Brirot Publishers.
- Thurow, Lester C. 1975. *Generating Inequality: Mechanisms of Distribution in the U.S. Economy*. London: Macmillan.
- Tzuk, Uzi. 1994. *Ha'refoma Bachinuch Ha'technology: Doch Maakav* [The Reform in Technological Education: A Follow-Up Report]. Jerusalem: Ministry of Education and Sports.
- Yogev, Abraham, and Hanna Ayalon. 1991. "Learning to Labor or Laboring to Learn? Curricular Stratification in the Israeli Vocational High Schools." *International Journal of Educational Development* 11:209–19.

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