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Mada al-Carmel Arab Center for Applied Social Research



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The Education budget and participation of Arab women in the labor market in Israel

An analysis of Gender and Ethnicity

Policy Paper

Mtanes Shihadeh

Foad Moadi

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The Education budget and participation of Arab women in the labor market in Israel
An analysis of Gender and Ethnicity

Authors: Mtanes Shihadeh and Foad Moadi
English translation: Zvi Shulman
Design and production: Wael Wakeem

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P.O. Box 330, Shefa-Amr 20200, Israel
Phone: (972) 4 986 1171, Fax: (972) 4 986 1173 ,E-mail: admin@gal-soc.org

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Preface

In recent decades, the role of the budget has come to increasingly affect economic and political disparities between different population groups and determine the limits of economic activity and the status of various population groups. Thus, the analysis of the budget and its economic particulars, political and social implications, and effects on distributive justice, has become one of the most important means in the struggle for equality and social justice, specifically the improvement of rates of women's participation in the public sphere and in the development of society at large.

This policy paper focuses analytically on the budget of the Ministry of Education through the lens of ethnicity and gender. It is part of a broader research project on "centering gender and ethnicity in the state budget", which seeks to raise awareness of the budget, increase transparency in the budgeting process, and achieve maximum public involvement in ensuring this process' equitability. The project at large focuses on understanding the political and economic system's effects on poverty among Arab women in Israel, so done through a thorough study of the state budget in three main Ministries: those of Health, Industry, and Education, respectively.

The project's primary goal is to convince decision-makers to adopt a more gender sensitive budget by encouraging them to take into account the aspects of gender and ethnicity while preparing the distribution of public resources through the budget. Such an achievement, we believe, will advance social justice and equality between men and women in general, and between Arab men and women in particular. The budgets of three government Ministries have been identified as having the most decisive impact on poverty levels among Arab women.

With great appreciation, we would like to thank the European Union for their contribution towards this project.

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Project team

Introduction

The state budget is the Israeli government's most extensive and important responsibility. It clearly expresses the government's priorities, the organization and scope of agencies, as well as the level of influence exercised by diverse population groups on decision-making processes. The budget specifies the allocation of resources for each segment of society, and it establishes the tax burden on each group. The budget is an important tool for bringing about change. It can improve the situation of disadvantaged groups, impoverished communities, women, and ethnic minorities; budget allocations and taxation policy can encourage development and integration.

Ever since the Fourth UN Conference on the Status of Women convened in Beijing in 1995, special attention has been given to the Israeli budget's effect on the economic status of women. There has been general agreement on the need for integration of women in the processes of economic growth in order to improve women's financial conditions, with gender mainstreaming in drafting the budget an important tool for this effect. The budget should reflect sensitivity to the special needs of different groups of women.

Traditionally, while drafting and implementing the budget, lawmakers have made no distinctions between women and men with respect to rights, needs, responsibilities, or capabilities. This traditional approach assumes gender and ethnic-national neutrality and views the needs of all citizens as identical. This imagined neutrality impedes the identification of the specific needs of men and women and precludes the recognition of real differences in the economic status and rate of development for each gender group. Additionally, in Israel, this alleged neutrality does not allow for making any distinctions between Jews and Arabs. This failure to deal with differences between groups has

contributed to maintaining gender and ethnic-national inequality.

According to Ezra (2009), the Arab population in Israel accounts for 8 percent of gross domestic product (GDP). This relatively low percentage, he contends, stems from two factors: 1) Arabs account for 20 percent of the total population but only 12 percent of the employed population, and 2) the average wage of the Arab worker is only 69 percent of the national average. To Ezra's analysis, it might be added Arab women account for 25 percent of GDP of the Arab population and 3 percent of Israel's total GDP. This, of course, takes into account the continuing debate among economists on the use of labor as a GDP indicator,

The obvious reason for such disproportionate representation is the minimal participation of Arab women in the workforce. This low rate of participation is evidently linked to the quality of the education Arab girls receive and to the fields in which they specialize throughout their academic studies. The solution must involve broadening the range of specialties offered to Arab girls during secondary education. To realize this change, it is necessary to augment the resources allocated to Arab girls' education, which this policy paper shows are disproportionate and insufficient. This has resulted in significant barriers that impede the improvement of the economic conditions of Arab women, as well as their economic integration in a way that results in benefit from any economic growth. The principal barrier involves their ability to assimilate in the modern labor market, which is largely based on acquisition of technological and scientific knowledge.

Improving the economic status of Arab women in Israel necessitates providing them with the tools required for participation in the state's economic development, increasing their numbers in the workforce, giving them better jobs in various segments of the economy, and including them in policy-making processes. Certainly required to achieve these goals is the adoption of a budget that is sensitive to gender and ethnicity.

Such a budget must make consideration of gender and ethnicity integral to its

process of drafting and passage. Such inclusion will result in more just and efficient allocation of financial resources and in recognition of the special needs inherent in the diversity of this society. Specifically, budget solutions must incorporate education and aid in integrating Arab women in the work force, the desired result being greater variety in job options, higher wages, and the consequential reduction in levels of poverty.

These aims can be achieved through the allocation of resources to increase and encourage specialty training of Arab girls and young women in technology and science. Such a focus will enable them to take advantage of the increasing demand for these qualifications in the primary, Jewish labor market in Israel. It will also aid in improving the employment patterns of Arab women in the local Arab labor market. This goal differs from the conventional objective, which measures the success of women's integration in the workforce through matriculation exam scores and attainment of academic degrees, even while ignoring the specific courses of study.

Clearly, such restructuring would not immediately bring comprehensive change to all the employment issues faced by Arab women, but it is comprises and integral facet in any potential solution.

Increasing Arab Women's Participation in the Labor Market

Israel's labor market is essentially split in two sections, each of which is also bisected. From the top down, the market is divided between a main and a peripheral market, and each of them between the national and local markets, the latter being the home to the majority of the Arab population's economy and workforce, in the form of the local-ethnic labor market (Shehadeh 2005). This multi-layered division and the internal dynamic of the interactions between the labor markets greatly determine the nature of the jobs available to and the employment difficulties encountered by Arabs in Israel, particularly Arab women. Furthermore, the division fosters socioeconomic inferiority, perpetuates the cumulative oppression of Arab women, and determines the characteristics of female employees, the demand for jobs, unemployment, and levels of participation in the work force. This perspective affects the definition of the problem and its solutions in public policy and legislative attempts to cope with the inability of Arab women to participate in the economic growth of the country. Likewise, this perspective should be applied to policy on education.

This division of labor markets determines the barriers faced by Arab women joining the workforce. Research has shown that Arab women prefer to work in the localized Arab labor market, which is small, has limited available jobs, and features agricultural work to a limited extent (Lewin-Epstein 1999). Also, demographic factors affect women's participation in the workforce. According to Abu Bakr and Gottlieb (2008), relatively high numbers of children at home, low levels of education, and lack of convenient public transportation are major factors in the meager participation of Arab women in labor markets.

This result is often interpreted as an indication of inequality in employment between Jews and Arabs and as discrimination against Arabs in labor markets in which members of these social groups are employed (Gera and Cohen 2001, Gera 2005, Yashiv and Keysar 2009). An alternate interpretation is that this limited participation is connected to the failure of Arab women in Israel to integrate in the main labor market, a failure that results from a wider variety of factors, psychological barriers among them (Sadan 2006). Finally, some research also points to discrimination against Arab women in the central economy (Shehadeh 2005).

Khattab (2002) states there is an inclination to integrate educated Arab men in professions perceived as women's professions, such as those in social work, education, and nursing, inasmuch as Arab men have difficulty finding jobs in their preferred professions. If the number of educated Arab women employed in these professions continues to increase, so to will the challenge of finding suitable work therein. It is thus expected that the job markets in which Arab women can easily integrate will eventually become saturated. Khattab's findings compel the diversification of the academic training of Arab women to enable them to engage in a greater variety of occupations in the local economy. This will aid them in shattering the structural barriers in the central economy. Such diversification of professions, occupations, and academic studies begin with diversifying the specialties offered to Arab girls in the schools. Therefore, education policy that prioritizes changes in the nature of the women's employment and the branches of the economy and the occupations in which they work, and not only on increasing their participation in the labor market.

Stated more briefly, focusing efforts solely on increasing level of participation of Arab women in the workforce will miss the target of fundamentally improving their economic conditions and will not provide a solution to their distress. It ignores the experience that other countries and societies have garnered, whereby increased participation of women in the workforce did

not necessarily lead to substantial improvement in their economic status and did not improve the existing socioeconomic stratification. Women's greater assimilation in the workforce often result in employment in "feminine" jobs that offer low pay or unstable, temporary positions. In this situation, the socioeconomic stratification women face does not change significantly (Guy 1989; Marchand et al. 2000; Moghadam 1999).

Alternatively, women can seek employment in public administration and social services (Moghadam 1997). While useful in immediately bringing a balance to the labor market, a state opening up jobs in the public sector to women does not necessarily lead to improvement of the economic status of women. Such a policy can actually increase the male power structure, and also in our case, the national power structure, as well as exploit already disadvantaged women (Moghadam 1999, Nagar et al. 2002).

The objective of improving the employment status of Arab women necessitates the removal of barriers blocking integration of women in the economic-growth process. Policy that recognizes the differences between the starting points of men and women, as well as the difference between the tools available to men and women or Jews and Arabs. Integration of women into the economy will not occur as an automatic byproduct of general economic growth. Therefore, government involvement—by means of budgetary allocation for education—is necessary to improve the economic status of Arab women. Decisions made to such ends must also integrate the minority groups in decision-making processes.

In addition to questions of gender, removal of the economic barriers faced by Arab women includes an ethnic-national aspect. Many of the structures and institutions preventing the economic growth of Arab women also block Arab economic development in general, and the integration of Arab men in development processes. General removal of barriers faced by the Arab population at large, while helpful, is not sufficient to achieve assimilation of Arab women specifically in growth and development, even though such

removal is prerequisite.

Implementation of an education budget, sensitive to gender and ethnicity-nationality should provide Arab female students with the human capital, the capabilities, and the specialized skills needed to meet the demands of the modern, technological workplace. Assimilation in academic studies in the technological and scientific fields will thus aid Arab women in shattering some of the existing employment barriers in the central economy. Such a budget would not limit them to female occupations in the local Arab economy—public services, education, welfare, and unskilled occupations—and so would avoid the saturation commonly found in the localized labor markets in which Arab women have been employed. In other words, changes in education budgetary policy could bring about participation of Arab women in the growth and development process, improve their status in the workplace, and reduce poverty among the Arab population as a whole.

Defining the Problem: The Current Situation

The findings of the 2010 socioeconomic survey conducted by the Ricaz Databank (CITE) indicate a continuation of inferior economic status of Arabs, especially women, in Israel. Fifty percent of Arab women and their families live under the poverty line, despite the increase in participation of Arab women in the labor market from 23 percent in 2007 to 28 percent in 2010. By comparison, the percentage of Jewish women in the labor market was 57.3 percent in 2010, and the nationwide percentage of women in the workforce was 52.7 percent. The unemployment rate for Arab women in 2010 was 10.5 percent, while only 5.6 percent of Arab men were unemployed. The nationwide unemployment figure was 6.6 percent.

Arab women in Israel continue to have a low percentage of participation in the labor market and above-average unemployment, despite increasing education levels and a growing percentage of educated Arab women among those employed. This situation is explained, in part, by the high level of Arab women's employment in the local economy, the nature of the professions in which women work, and the difficulties faced by Arab women trying to integrate in the central Israeli economy.

Arab women have achieved a more respected status in local markets than in the central Israeli market, where they face discrimination as women and as Arabs (Lewin-Epstein and Semyonov, 1999). Additionally, they are not properly compensated financially in local markets. Many take jobs in the local public sector and in the public-services sphere, and their participation in academic occupations, associate professions, and in the service sector is growing (Halihal, 2000).

A small percentage of women went to work in factories (producing textiles, food, shoes, and so forth) built in the early 1990s in Arab communities, where factory owners' wanted to benefit from cheap, unskilled labor. The factories'

proximity to the women's homes, the organized transportation, and the presence of so many able-bodied persons facilitated the assimilation of the women in these jobs. At the end of the 1990s when such jobs were outsourced to countries where cheaper workforces were available, the industrial sector essentially disappeared. Concurrent declines in budget allocations for local Arab authorities and the privatization of public services further impacted job opportunities in the local public service sphere.

The figures in Tables 1 and 2, below, indicate the substantial difference in the composition of the Arab workforce, by economic sector and occupation, between the 1990s and the present. In 2010, few Arab women were engaged in the industrial and agricultural sectors compared to the 1990s. By contrast, in 2010, some 60 percent of Arab women were employed in the education, health, and service sectors, compared to 40 percent in the early 1990s. The number of Arab women working in industrial jobs has dropped by two-thirds. Traditional branches of employment have ceased to be a refuge in which Arab women can find work. Meanwhile, educated Arab women have begun to assimilate in "feminine" occupations like those in education, health, and public service in the local Arab economy. This situation has posed as an obstacle to women wanting to shatter the barriers blocking them from holding non-feminine positions in the local Arab economy or in the central, modern labor market (see Table 1 in the appendix).

The increased participation of Arab women in occupations perceived as having higher status results from higher education of women in the labor market and the departure of uneducated women. Public policy must take these opposing trends into account, raising the level of education of Arab women and by changing the nature of their studies and the specialties for which they are trained. Doing so will prevent the saturation of "feminine" professions and increase job opportunities for educated women and academics not currently able to find jobs or to leave the labor market because of this saturation.

While increased education aids Arab women in assimilating in the labor market (Yehudit King et al. 2009), the attainment of higher education may be a two-edged sword. The educational level of Arab women has risen steadily

since 1990: the percentage of Arab women with 0-8 years of school dropped from 60.2 percent to 31.8 percent; the number of high-school graduates increased from 18.4 percent to 27.7 percent; those with 13-15 years of schooling doubled, from 6.1 percent to 13.3 percent; and the number of Arab women with 16 or more years of education jumped from 1.8 percent to 10.3 percent, with the vast majority (75 percent) gaining academic degrees.

Table 1: Level of Education of Arab Women (by percentage)

Years of Education	1990	2001	Years of Education	2010
0	13.6	9.7	0	7.5
1-4	6.6	4.6	1-6	16.4
5-8	23.6	18.6	7-9	20.6
9-10	17.4	16.9	10-12	36.5
11-12	25.7	28.8	+13	19.0
13-15	9.9	14.1		
16 +	3.2	7.2		

As shown in Table 2, there is also a connection between amount of schooling and level of participation in the workforce. The group of Arab women with the highest percentage currently in the workforce is that with 13 or more years of schooling: 66.2 percent have jobs. However, the percentage of Arab women in the workforce with 16 or more years of education is still much lower than that of Arab men (85 percent) or Jewish women (80 percent) with equivalent levels of education (Blaycoff 2007). The percentage of employed Arab women with 10-12 years of schooling, who comprise around half the Arab female population, is lower than that for all women in Israel, but it is comparable to the average among Arab women of all educational levels. In comparison, in 1990, only one-third of Arab women in the workforce had 13 or more years of schooling, and those with 16 or more years of schooling accounted for less than 10 percent.

Table 2: Arab Women’s Participation in the Workforce, by Level of Education

Years of Education	1990	2001	2010
0			1.6
1-6	1.3	2.5	9.2
7-9	10.1	8.45	12.8
10-12	14.5	16	23.1
13+	48.8	40.5	66.2

Regarding the number of Arab women employed in Israel, in 2010, the women having fewer than nine years of schooling was around 10 percent (Table 3); in 1990, this category accounted for one-third of Arab women. This figure reflects the departure of uneducated Arab women from the workforce. This group of women has been unable to find jobs given their lack of the requisite skills for assimilating in the labor local and central markets. In comparison, women with 13 or more years of education hold a substantial place (more than 50 percent) in the labor market.

Table 3: Employed Arab Women, by Level of Education (by percentage)

Years of Education	1990	2001		2010
0-4	2.9	2.4	0-6	3.0
5-8	25.9	10.2	7-9	7.9
9-12	42.3	42.3	10-12	35.6
13-15	20	22.7	13+	53.5
16+	8.8	22.4		

Decision-makers and drafters of public policy face a dual challenge with respect to education: to continue to raise the level of education among Arab women and to broaden the range of specialties in which Arab schoolgirls are educated.

Level of Education: A Two-edged Sword

In the modern, global labor market, education is the key to assimilation (Jabarin 2010; Sadan 2006; Eran and Yashiv 2010; King et al. 2009). This tendency applies to the case of Arab men and women within Israel. The level of education for individual Arabs in Israel affects their chances of gaining employment, rates of unemployment, wages, extent of participation in the labor market, choices of occupation, and levels of productivity therein. King et al. (2006) found that education has the greatest independent effect on employment numbers for both Arab and Jewish women; the likelihood of obtaining employment for women with 16 years of schooling or more is 61 percent higher than for women with up to eight years of education. Additionally, the chances of finding work for women with 13-15 years of schooling are 37 percent greater than for women with only an eighth-grade education. The research also indicates that level of education among Arab women has a greater effect on the chances of gaining employment than among Jewish women, assuming other variables remain fixed.

Despite the steady rise of education levels for Arab women and the growing percentage of university-educated Arab women in the labor market, the picture is far from rosy. In recent years, employment rates of Arab women aged 18-64, at all levels of education, have dropped. (King et al. 2009). For Arab women with up to eight years of schooling, the rate has declined steadily from 6.2 percent in 1990 to 4.7 percent in 2006. For those with 9-11 years of education it sank from 14 percent to 9.3 percent. Arab women with 12 years of schooling saw their employment rates peak at 25 percent in 1995 and then fall to 16 percent by 2006. Finally, the employment rate for Arab women with 16 or more years of education fluctuated, reaching a peak of 71.5 percent in

2001 before falling to 65.2 percent (in 2006), the same level as in 1990.

The increase in the rate of employment among Arab women as a single group, which has occurred despite fallen rates of employment for each individual subset, results from the fact that the most employed group of women, those with 16 or more years of education, grew fivefold during the relevant period. Though the rate of employment of this group fell slightly, the increase in the sheer mass of this group has resulted in a higher overall rate of employment among the entire population of Arab women.

The findings of King et al. indicate that the percentage of Arab women who have post-secondary education and are employed in academic, associate professional, technical, and administrative positions is higher than that of Jewish women holding the same level of education—75 percent compared to 61 percent. Still, more than half of Arab academics (54.2 percent) are employed in associate and technical professions, not in academic or administrative positions. This phenomenon can be partially explained by the high percentage (42 percent) of academics employed in kindergarten and elementary schools. A 2010 survey on the employment of Arab academics, conducted by the Ministry of Industry, Trade and Labor, paints a similar picture.¹ Only 17.5 percent of the Arab academics surveyed (63.6 percent of them men, 36.4 percent women) were employed in high-tech professions; 10.7 percent of Arab academics studied finance-related subjects (73.6 percent men, 26.4 percent women). Of the academics in high-tech, only 1.3 percent work in elite or mixed elite technology industries, and 50 percent of the remainder have teaching positions. Of the academics who studied finance, 28.3 percent are employed in the business services sector (not including computerization and research), 15.2 percent in wholesale and retail sales, 15.2 percent in banking and finance, and 12 percent in teaching.

The survey also examined the principal occupations of Arab women

1 State of Israel, Ministry of Industry, Trade and Labor, Research and Economy Administration, "Survey on Employment of Arab Academics," March 2011.

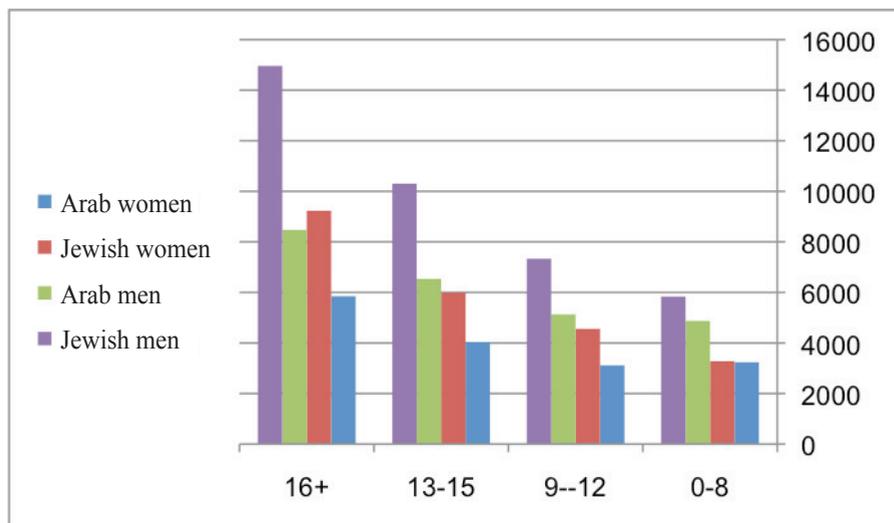
academics. The findings indicate that 61.3 percent work in education, 11.8 percent in medical professions, and 11.5 percent in clerical work.

Concerning wages, 41.3 percent of employed academics earned more than NIS 7,501 a month, and 11.2 percent earned up to NIS 3,800 a month. Among employed college-educated men, 89.7 percent work full-time, compared to 69.7 percent of women. For women employed part-time, 63.2 percent explained their part-time work citing trouble finding full-time positions or because of other restricting factors.

The gender and ethnically based disparities in rates of employment is matched by similar disparities in income. According to the research of Karnit Flug, Jewish men earn nearly 50 percent more than Arab men for the same work, and Jewish women earn 40 percent more than Arab women.² Flug contends that an appreciable portion of the gap stems from the difference in the background, namely age and education, between Jewish and Arab employees. However, this difference alone cannot account for such disparity. About one-quarter of the income gap between Jewish and Arab male employees, and one-fifth of that between Jewish and Arab female employees, still need to be explained. At least part of this disparity might result from discrimination in the labor market. According to figures published by the Central Bureau of Statistics (*Statistical Yearbook for Israel 2011*, Table 8.74), in 2009, Arab women with 16 or more years of education earned an average of NIS 5,849 a month, compared to NIS 9,232 for Jewish women with the same level of education.

2 The figures were provided in a talk at a conference on Arab society, held at the Van Leer Institute on 27 November 2011: "Israel in 2011: Income Gap between Jews and Arabs Stands at 50 Percent," *TheMarker*, November 27, 2011, available at <http://www.themarker.com/career/1.1576961> [in Hebrew].

Graph1: Average wages by nationality, sex and education



Clearly, it is prerequisite to increase Arab women’s level of education in order to improve their economic status. However, any such increase has the potential for backlash against some Arab women. Any increase in the level of education or overall number of university-educated Arab women without a corresponding expansion of their range of specialties will not significantly help their assimilation in the central labor market, nor will it remove most of the structural barriers discussed. Additionally, because of market saturation, a higher level of education in the existing specialties will prevent Arab women academics from finding jobs in the local market and potentially lead to hidden unemployment.

With respect to education policy, the educational achievements of Arab women exceed those of Arab men. Arab women students take the matriculation exams at higher rates than Arab men, their passing rates are higher than those for Arab men, and they meet the criteria for university admission at higher rates than those for Arab men. However the figures for all these indicators are still lower for Arab women than for their Jewish counterparts, including both men and women.

Table 4: Arab Female and Male Students, by Success in Matriculation Exams and in Meeting Criteria for University Admission, 2009

	Number of students	Students tested		Students who passed the exams		Students who met university admission criteria	
		Number	Percent	Number	Percent	Number	Percent
Total	18,995	17,284	91	7,792	41	5,744	30.2
Male students	8,547	7,453	87.2	2,769	32.4	2,056	24.1
Female students	10,358	9,831	94.9	5,023	48.5	3,688	35.6

Arab women continue to enroll in post-secondary programs at higher rates than Arab men, with the exception of PhD programs. In Israeli universities, in the 2007/2008 school year, women comprised 60 percent of the Arab population in bachelor's degree programs, and 55 percent in master's degree programs. Conversely, women comprised only 36 percent of Arab students studying for doctorates. There are also notable differences between women and men by field of study, as shown in Table 5.

Table 5: Arab Students in Universities in Israel, by Field of Study, 2007-2008

	Bachelor's		Master's		PhD	
	Male Students	Female students	Male students	Female students	Male students	Female students
	3,374	5,315	924	1,137	111	196
Humanities	595	1,471	236	484	47	79
Social sciences	822	1,839	236	253	29	39
Law	128	116	89	51	-	-
Medicine	149	127	145	130	4	13
Medicine affiliated	553	901	90	151	6	5
Math and science	478	590	71	52	20	44
Engineering	636	250	54	16	5	14
Agriculture	13	20	-	-	-	-

Given this information, several questions arise: Do higher scores in the matriculation exams correlate with successful assimilation “non-feminine” and “non-Arab” professions in the labor market? Does such scores enable women to specialize in fields that will improve their economic status? Are the existing specialties sufficient to improve the economic status of Arab women? Considering the evidence, the answer to each of these questions seems to be no.

To attain the desired change, the level of human capital acquired through education must increase and female students should be oriented both to technological specialties in secondary school and to academic studies in the fields of technology, engineering, and science. Women trained in such fields will have the ability to fill vacant specialty positions all across the ever-progressing labor market and will find the current barriers in the central labor market to be significantly diminished. Such a shift in orientation will also further enable Arab women to find work in non-feminine professions in the local-Arab labor market.

The existing concentration of Arab women in relatively few fields of study, as shown above, does little to improve their economic status. In fact, it seems to be an obstacle to improvement. Almost 60 percent of the Arab female students studying in Israeli universities specialize in the humanities and social sciences. Presumably, the reasons are related to perceptions of lax admission requirements in these fields of study and the belief that these studies are not difficult, but will still guarantee them jobs local labor markets. We see from the table that only 17 percent are studying medicine-affiliated fields, and only a very meager 10 percent (combined) are studying engineering, medicine, and law.

Table 6: Fields of Study, Arab Students and Nationwide (by percentage)

	Arab men	Arab women	Nationwide
Humanities	17.6	27.6	25.5
Social sciences	24.3	34.0	31.8
Law	3.8	2.1	9.4
Medicine	4.4	2.3	5.6
Medicine affiliated	16.4	17	--
Math and science	14	11	9.3
Engineering	18.8	4.7	18.0
Agriculture	0.3	0.37	0.4

The chosen fields of study for Arab men and women differ greatly from the student body as a whole in Israel. Changing the curricula of Arab women students to conform to national trends—namely by increasing their numbers in technology, engineering, and advanced sciences—will raise their chances of assimilation in the labor market and improve their overall economic conditions.

This is not a question of equal representation or equality in opportunity and allocation of resources. Instead, the main question that arises from this information is: What policy is needed to improve Arab women’s economic status, even if the needed allocations of resources exceed Arab women’s proportion of the population?

To broaden the range of academic disciplines studied by Arab women and conform them to the nationwide division, any formula for change must begin immediately following elementary school. Thus, the selection of specialty courses available in Arab high schools must be expanded so that a change can occur in the consciousness of Arab female students of alternative fields of study. The objective of accomplishing this will of course involve altered budgetary allocations. Below is described the current reality as it affect Arab women, as well as proposed solutions.

The Existing Situation: Inappropriate Budgets

This section of the paper hosts a two-layered comparison—between budgets earmarked for Arab students of each gender by specialty courses of study, and between the budget for specialty courses in the Arab education system and that in the Jewish system. This comparison requires the compilation and analysis of a unique body of statistics, which came primarily from data collected by the Ministry of Education.

The Ministry of Education operates separate systems for Jewish and Arab education. It does not directly publish the figures on the budgets for each system, so this analysis required the extraction of the relevant numbers from budget transfers made by the Ministry of Education to schools in the country and from Ministry figures on the number of students and availability of specialty courses in each school. Both sets of data were compiled as one to make an analysis based on gender, availability of specialty courses of study, and the number of students engaged in each specialty. The dataset for each school was separately linked with its corresponding budget transfer made by the Ministry of Education. This comparison between Arab and Jewish schools relied solely on a random sample of 15 schools in the Jewish educational system.

It should be noted that the sample of Arab schools does not include those in occupied Jerusalem or the Golan Heights. It also excludes Bedouin and Druze education, according to official classification by the Ministry of Education, whose position the authors of this paper do not necessarily accept. Bedouin and Druze schools are considered by the Ministry of Education to be separate from the Arab sector.

The comparison specifically intends to examine the condition of Arab female students in relation to the entire Arab community, on the one hand, and in relation to Jewish female students, on the other. Because Arab male students also suffer from disproportionately low funding and inferior resources—as

will be shown in this analysis—altering the budget for Arab female students to match that of Arab males would not necessarily guarantee results in improved economic conditions for Arab women. In other words, this comparison is not made to merely advocate equality between the two genders within the Arab education system, since that will not likely solve the problem. What we demand is that budgets be set according to need, with the objective of closing the gaps that have existed for more than 60 years between the two systems of education in order to give the educational system in general, and the resources available to Arab female students in particular, the tools needed to improve their human capital.

Methodology

The data used is published on the websites of the Ministry of Education, which provide figures for schools and students' budgets and other statistics. Two of these websites are particularly relevant for our purposes: "A Broad Glance" (Mabat Rahav) and "Meytar."³ The former publishes information and statistics on the main components in the educational system: institutions, instructional staff, students, classes, standard hours, and budgetary allocation. The latter provides monthly information on payments made by the Ministry of Education to authorities that manage schools and other educational institutions. Computation of payments is made on a monthly basis for the current school year by means of a "unified payments system" in the Ministry of Education. Each month, the data for the previous month's payment appears on the "Meytar" website after the Ministry of Education approves the payment. The figures include expenses for: tuition, kindergarten, janitorial and secretarial supplements, supplements for beneficiaries, tutoring for

3 The link to "A Broad Glance" is <http://ic.education.gov.il/klali/SH40.htm>, and to Meytar http://www.education.gov.il/meytar_rs/ [both in Hebrew].

new immigrants, psychological consultant services, transportation, net transportation, examination fees, student club fees, manual workers, nursing, and other general expenses.

Also considered is data published by the Ministry of Education on the progress of students, including annual data on the rates at which schools send students to take the matriculation exams, the institutions' symbols, names of institutions, names of communities, description of the persons making the reports, description of legal status, gender, type of supervision, and other data. Figures were also explored on the number of students studying in the various specialty courses of study in post-elementary-school frameworks for the years 2000-2011.

From these sources of data, files were prepared to include the monthly budget allocations made to Arab post-elementary schools, by school and number of students, with separate breakdown by gender, for each specialty course of study in the schools. Unification of the data enabled the computation of the budgets allocated by the Ministry of Education to each specialty course of study in all the Arab schools, as well as the number of students in each specialty and the Ministry of Education's average per-student monthly allocation.

To obtain comparable figures for the Jewish sector, a similar procedure was applied to a random sample of 15 Jewish post-elementary comprehensive schools, each having more than 1,000 students. That random selection at least three schools from each Ministry of Education district.

Findings

According to "A Broad Glance," (Mabat Rahav) in the 2010/2011 school year, Israel had 1,561 senior high schools, which had 14,618 classes and 368,303 students (185,085 boy and 183,218 girls). In the Arab education system (Arab and Bedouin together, but excluding Jerusalem), there were about 200

post-elementary schools, which had about 2,350 classes and 65,000 students (30,300 boys and 34,500 girls).

The Arab education system has inferior resources compared to its Jewish counterpart in many regards, including shortage of classrooms and buildings, overcrowding, number of dropouts, shortage of teachers, and insufficient hours of instruction (Tabibian-Mizrahi et al. 2004). The Arab system faces many barriers, leading to impeded development when compared to that of the Jewish system ((Abu-Isba 2006). Classes are more crowded, resulting in a gap between the Arab and Jewish schools concerning the number of instruction hours allocated per student. Arab students receive less individual attention from teachers than their Jewish counterparts. It should be noted, though, that this gap has been reduced in recent years (Blass 2009). However, a gap remains and even has increased in the allocation of hours from other sources, such as from the Ministry of Education, other government ministries, local authorities, parent associations, and the like (Blass and Adler 2009). Blass and Adler think that the great differences in allocation of resources between the Arab and Jewish sectors are the primary cause of the disparity in achievement between Arab and Jewish students of comparable age. The gaps are maintained, even despite the existence of affirmative-action allocations and budgets allotted to all levels of education, including the very young. As it currently stands, it is difficult to visualize the educational system as an apparatus for improving the condition of Arab women.

The inferior condition of Arab education creates difficulties for disadvantaged groups in Arab society, namely female students. This reality is specifically reflected in the level of budget allotments for and hence the possibilities of specialization for Arab female students. These two factors impede their agency in their own education, especially regarding specialty courses of study, and they prevent the improvement of Arab women's educational achievements.

Table 7: Ministry of Education Budget for Schools (in shekels)

Year	Total	Jewish sector	Arab sector
2011/2010	6,299,210,149	5,291,024,990	1,00,185,159
2010/2009	5,759,774,744	4,884,823,585	874,951,159
2009/2008	5,490,163,818	4,673,384,343	816,779,475
2008/2007	5,214,948,246	4,491,631,989	723,316,257
2007/2006	5,171,739,323	4,483,465,262	688,274,061
2006/2005	5,040,494,798	4,422,479,981	618,014,817
2002/2001	4,729,143,808	4,224,333,988	504,809,820

Table 8: Share of the Education Systems in Total Education Budget (by percentage)

Year	Instructional staff, Jewish education	Instructional staff, Arab education	Jewish education	Arab education
2011/2010	86.08	13.92	84.00	16.00
2010/2009	86.84	13.16	84.81	15.19
2009/2008	87.19	12.81	85.12	14.88
2008/2007	87.53	12.47	86.13	13.87
2007/2006	88.04	11.96	86.69	13.31
2006/2005	88.50	11.50	87.74	12.26
2002/2001	89.89	10.11	89.33	10.67

In the 2010/2011 school year, Arab students accounted for 18 percent of the entire student population. Figures published on the “A Broad Glance” website indicate that the Ministry of Education’s transfer payments to Arab schools for senior high schools was 16 percent of the total budget for these grades. Thus, there has been a slight improvement in the proportionate share received by Arab high schools, but Arab students in high schools throughout the country are still poorly represented in the national education budget, because the percentage of their allocation does not match the percentage of Arab students in high schools throughout the country. It also does not properly represent the percentage of the country’s schools that are part of the Arab education. However, it should be noted that the gap has decreased somewhat in recent

years.

With this data shown, it is reasonable to conclude that the percentage of allocations for the education of Arab schoolgirls in high schools in the Arab education system is less than their percentage in the entire group of high school students in the state's educational system. Arab schoolgirls, who comprise 12 percent of all high school students, receive only 8 percent of the Ministry of Education's budget transfers to high schools.

Examination of the specialty courses of study offered to Arab female students in high schools shows that such courses' share of the budget is small relative to Arab girls' percentage of the total high school population. The Ministry of Education's figures indicate that Arab high schools are offered 30 specialty courses of study. Table 9 shows the distribution of boys and girls in the Arab education system, both by specialty course of study and by budgetary allotment, as well as the total share of the educational budget for each specialty course of study. These figures are helpful in seeing if the specialty courses of study offered to Arab high school girls enable them to assimilate in academic studies that will ultimately improve their socioeconomic status.

Table 9: Number of Students in Arab Education, by Gender and by Specialty Course of Study and Budget Allocation for Each Specialty

Specialty	Track	No. of students	Boys	Girls	Budget for specialty	Budget per student	Budget for boys	Budget for girls
Medical systems	Technology	342	114	228	376,330	1,100	125,443	250,887
Communications	Technology	3,035	1,371	1,664	3,734,537	1,230	1,687,002	2,047,535
Integrated technology	Technology	259	95	164	290,582	1,122	106,584	183,998
Microelectronics	Technology	496	245	251	604,852	1,219	298,768	306,084
Biotechnology	Technology	1,499	497	1,002	1,855,807	1,238	615,301	1,240,506
Systems planning and programming	Technology	5,110	2,186	2,924	5,994,030	1,173	2,564,178	3,429,852
Computerization	Technology	689	528	161	887,639	1,288	680,222	207,416
Electronic communications	Technology	2,269	1,008	1,261	2,636,691	1,162	1,171,346	1,465,345
Electrical engineering and energy	Technology	33	33	0	55,614	1,685	55,614	0
Mechanical engineering – electronics and auto electrical systems	Technology	36	36	0	60,155	1,671	60,155	0
Mechanical engineering – auto mechanics	Technology	85	85	0	148,358	1,745	148,358	0
Maintenance of mechanical systems	Technology	113	111	2	155,018	1,372	152,274	2,744
Construction engineering	Technology	283	163	120	320,959	1,134	184,863	136,096
Bookkeeping	Technology	1,846	750	1,096	2,190,168	1,186	889,830	1,300,338
Climate-control systems	Technology	109	109	0	205,300	1,883	205,300	0
Output systems command and control	Technology	2,155	1,638	517	2,898,432	1,345	2,203,077	695,355
Computerization and control systems	Technology	189	129	60	357,070	1,889	243,715	113,356
Auto mechanics systems	Technology	1,380	1,362	18	2,023,687	1,466	1,997,291	26,396
Auto computerized systems	Technology	883	882	1	1,293,092	1,464	1,291,627	1,464
Computerized drafting/planning systems	Technology	629	437	192	859,711	1,367	597,287	262,424
Production management	Technology	33	21	12	33,137	1,004	21,087	12,050
Hotel management	Technology	120	54	66	123,920	1,033	55,764	68,156
Human resources management	Technology	2,855	1,383	1,472	3,401,104	1,191	1,647,540	1,753,564
Business management – bookkeeping and wage computation	Technology	14	1	13	25,468	1,819	1,819	23,468
Business management – legal	Technology	7	0	7	11,797	1,685	0	11,797
Tourism management	Technology	33	16	17	49,919	1,513	24,203	25,716
Nursing	Technology	764	249	515	883,108	1,156	287,819	595,289

Specialty	Track	No. of students	Boys	Girls	Budget for specialty	Budget per student	Budget for boys	Budget for girls
Design	Technology	941	336	605	1,261,194	1,340	450,331	810,863
Hairdressing and cosmetics	Technology	232	38	194	370,966	1,599	60,762	310,204
Fashion and clothing	Technology	155	43	112	170,077	1,097	47,183	122,894
Cooking arts and hotel baking	Technology	142	96	46	176,654	1,244	119,428	57,226
Set of academic courses	Academic	18,430	8,963	9,467	17,908,615	972	8,709,437	9,199,179
Set of academic-science courses	Academic	11,335	4,172	7,163	10,817,671	954	3,981,590	6,836,081
Instruction and counseling	Academic	421	115	306	637,722	1515	174,200	463,523
Physical education	Academic	333	157	176	335,481	1,007	158,170	177,311
Education - nursery schools	Academic	1,735	162	1,573	2,112,779	1,218	197,274	1,915,505
Education - environment	Academic	4,436	1,927	2,509	4,769,498	1,075	2,071,872	2,697,627
Integrated agriculture	Academic	482	217	265	611,436	1,269	275,273	336,163
Total		63,908	29,729	34,179	70,648,578	1,105	33,561,987	37,086,412
Percentage of total			46.52	53.48			47.51	52.49

Note: The data presents about 95 percent of the high school students and are based on figures from the websites of the Ministry of Education (“Meytar” and “A Broad Glance”) and on data obtained from the Ministry of Education. A crosscheck was made of the data on the division of students by gender in the specialty courses of study (which were received from the Ministry of Education) and the budget data received from the Arab high schools (taken from the Meytar website). There is a minor deviation in the data on the number of students in the two databases, which does not significantly affect computation of per-student budget allocation in each specialty course of study.

Analysis of the specialty courses of study in Arab high schools shows that the per-student budget allocation was NIS 1,105. 41 percent of the Arab students were in the technology track, and the remaining 59 percent were in the academic track. The per-student allocation in the technology track specifically was NIS 1,251, compared to NIS 1,001 in the academic track. The results vary when broken down by gender: 37 percent of the girls were in the technology track and 63 percent in the academic track; for boys, the figures were 47 percent and 53 percent, respectively. This budgetary distribution is significant since the per-student allocation in the technology track is higher than in the academic track. Thus, because they are less prone to be placed in the technology track, Arab schoolgirls receive a lower budget allocation than do Arab schoolboys. Furthermore, 48 percent of the Arab girls in the academic track are engaged in the two courses of study receiving the lowest budget allocations (NIS 972 per student).

The greatest numbers of girls are taking the “set of academic courses” and the “set of academic-science courses” specialties, which are considered traditional fields of study. A small percentage of the girls select the technological or advanced scientific specialties—courses of study that receive greater allocations than the academic track—such as integrated technology (164 girls), mechatronics (251), biotechnology systems (1,002), output systems command and control command (517), communication systems (1,664), or systems planning and programming (2,924). Although girls are represented in these specialty courses of study, the percentage of schoolgirls choosing to continue their academic studies in advanced science and technology specialties is extremely small, even minuscule. As explained earlier and shown in Table 9, most Arab schoolgirls select studies in the humanities and social sciences. The Jewish education system was also analyzed for division of students by gender and specialty course of study in 15-school sample of all those funded by the Ministry of Education. The data heavily indicates that the variety of specialty courses of study and the opportunity for selection offered to students in the Jewish education system is significantly greater than in the Arab education system.

The findings presented in Table 10 show that 66 percent of the students in high schools in the Jewish education system are in the academic track, and 32 percent in the technology track. The division is almost the same when student numbers are broken down by gender. However, the per-student allocation by specialty course of study is higher for girls in the Jewish education system is than for their Arab counterparts (Table 11).

Table 10: Division of Students in the Arab Education System, by Specialty Course of Study and Gender

Specialty course of study	Track	Boys	Girls	Total
Not defined	-	1,662	2,213	3,875
Computerized drafting/planning systems	Technology	1,767	346	2,113
Machine systems maintenance	Technology	88	3	91
Auto mechanics systems	Technology	778	43	821
Auto computerized systems	Technology	344	1	345
Mechanical engineering – machine construction	Technology	155	12	167
Mechanical engineering - mectronics	Technology	210	15	225
Mechanical engineering - flight systems	Technology	113	29	142
Mechanical engineering – maritime mechanics	Technology	23	1	24
Mechanical engineering – auto mechanics	Technology	195	0	195
Mechanical engineering - electronics and automobile electrical systems	Technology	48	0	48
Computer systems and control	Technology	1,176	132	1,308
Computer systems	Technology	283	59	342
Communication systems	Technology	4,950	1,174	6,124
Electrical engineering and computers – electronic systems	Technology	1,486	216	1,702
Electrical engineering and computers – computer and control systems	Technology	121	4	125
Architecture	Technology	293	917	1,210
Engineering planning of buildings	Technology	119	118	237
Construction engineering and architecture - construction	Technology	10	19	29
Construction engineering and architecture - architecture	Technology	26	95	121
Systems planning and programming	Technology	7,760	3,596	11,356
Program engineering	Technology	349	31	380
Biotechnology systems	Technology	1,821	2,769	4,590
Biotechnology engineering	Technology	5	4	9
Human resources management	Technology	4,039	6,064	10,103
Bookkeeping	Technology	1,493	6,388	7,881
Business administration – legal	Technology	0	77	77

Specialty course of study	Track	Boys	Girls	Total
Business administration - medical	Technology	3	93	96
Business administration – bookkeeping and wage computation	Technology	0	53	53
Production management	Technology	629	564	1,193
Marketing	Technology	1,178	1,170	2,348
Navigation, shipping, and seamanship	Technology	15	2	17
Industrial engineering and management – operating systems	Technology	99	59	158
Industrial engineering and management – logistics and marketing	Technology	5	4	9
Tourism management	Technology	202	252	454
Hotel management	Technology	80	95	175
Design	Technology	3,875	8,893	12,768
Fashion and clothing	Technology	54	1,867	1,921
Hairdressing and cosmetic	Technology	325	795	1,120
Television and cinema systems	Technology	414	450	864
Film systems	Technology	544	321	865
Nursing	Technology	7	28	35
Medical systems	Technology	489	585	1,074
Education – nursery schools	Technology	95	541	636
Instruction and counseling	Technology	0	5	5
Naval systems	Technology	140	97	237
Integrated technology	Technology	919	649	1,568
Electronic communications	Technology	2,119	3,485	5,604
Advertising and public relations	Technology	206	385	591
Flight systems	Technology	552	237	789
Mectronics	Technology	1,748	394	2,142
Maritime thermodynamics	Technology	104	25	129
Output systems command and control	Technology	4,061	576	4,637
Climate-control systems	Technology	14	0	14
Electrical engineering control and energy – output systems command and control	Technology	534	33	567
Cooking arts and hotel baking	Technology	335	194	529
Teleprocessing	Technology	1,628	170	1,798
Set of academic-science courses	Academic	14,077	16,715	30,792
Set of academic courses	Academic	68,775	63,715	132,490
Physical education	Academic	1,705	1,046	2,751
Environment education	Academic	1,422	968	2,390
Science and arts	Academic	280	430	710
Music	Academic	1,614	1,468	3,082
Dance	Academic	34	1,180	1,214
Scientific agriculture	Academic	1,130	1,013	2,143
Regional agriculture	Academic	1,644	2,326	3,970
Integrated agriculture	Academic	4,510	4,184	8,694
Total		144,907	139,439	284,346
		50.96%	49.04%	

Table 11 shows that, in the Jewish education system, the general per-student budget allocation by specialty course of study is NIS 1,328, compared to NIS 1,105 in the Arab education system. Specifically, the per-student allocation in the technology track is NIS 1,459, compared to NIS 1,251 in Arab education, a difference of 16 percent, and the per-student allocation in the academic track in Jewish education is NIS 1,257, 25 percent higher than the allocation of NIS 1,001 in Arab education.

An examination of these differences indicates that, in the specialties that the highest number of schoolgirls, both Jewish and Arab, study, the difference in per-student allocation between the Arab and Jewish education systems is substantial. If one looks again at the “set of academic courses” specialty, the per-student budget in the Jewish schools is NIS 1,433, compared to NIS 972 in Arab education, a stark 47 percent difference. In the “set of academic-science courses” specialty, the respective numbers are NIS 1,085 and NIS 954 for a difference is 14 percent. The situation is the same in nearly every specialty course of study.

Table 11: Number of Students, by Specialty Courses and Allocation for Each Specialty (Random Sample of 15 Jewish Schools)

Specialty course of study	Track	No. of students	Boys	Girls	Computed sum (in NIS)	Amount per student (in NIS)
Architecture	Technology	91	24	67	115,734	1,272
Fashion and clothing	Technology	35	8	27	69,373	1,982
Electrical engineering and computers – electronic systems	Technology	59	48	11	116,315	1,971
Construction engineering and architecture – architecture	Technology	30	11	19	58,842	1,961
Mechanical engineering – auto mechanics	Technology	60	60	0	115,509	1,925
Mechanical engineering – mectronics	Technology	24	22	2	46,203	1,925
Software engineering	Technology	15	15	0	29,769	1,985
Industrial engineering and management – logistics and marketing	Technology	9	5	4	17,861	1,985

Specialty course of study	Track	No. of students	Boys	Girls	Computed sum (in NIS)	Amount per student (in NIS)
Physical education	Academic	258	154	104	292,438	1,133
Environment education	Academic	86	42	32	95,850	1,115
Integrated agriculture	Academic	315	121	186	409,185	1,299
Regional agriculture	Academic	217	75	142	238,674	1,100
Scientific agriculture	Academic	59	45	14	69,409	1,176
Bookkeeping	Technology	224	134	102	278,463	1,243
Integrated technology	Technology	80	64	13	102,952	1,287
Arts and sciences	Academic	54	18	36	60,587	1,122
Music	Academic	164	101	51	189,071	1,153
Dance	Academic	132	0	128	143,581	1,088
Mectronics	Technology	370	237	60	527,090	1,425
Biotechnology systems	Technology	333	150	199	442,224	1,328
Output systems command and control	Technology	145	120	25	250,747	1,729
Television and cinema systems	Technology	32	12	20	62,048	1,939
Computer systems	Technology	17	13	4	22,434	1,320
Computerization and control systems	Technology	122	96	4	158,089	1,296
Auto mechanics systems	Technology	137	136	1	247,134	1,804
Computerized drafting/ planning systems	Technology	102	65	36	201,672	1,977
Film systems	Technology	40	10	15	50,500	1,263
Medical systems	Technology	81	32	51	100,834	1,245
Communications systems	Technology	198	176	22	276,580	1,397
Marketing management	Technology	81	27	54	104,183	1,286
Human resources management	Technology	173	110	83	314,591	1,818
Business administration – bookkeeping and wage computation	Technology	18	0	18	35,305	1,961
Tourism management	Technology	21	13	8	42,473	2,023
Design	Technology	450	118	332	642,620	1,428
Combined curriculum	Academic	3,390	1,386	1,842	4,859,169	1,433
Combined academic-science curriculum	Academic	2,787	1,310	1,394	3,024,942	1,085
Systems planning and programming	Technology	652	462	185	859,685	1,319
Electronic communications	Technology	373	126	246	513,412	1,376
Not defined	-	2	0	0	1,962	981
Total		11,480	5,561	5,564	15,247,057	1,328

The differences between the two systems of education, between Arab and Jewish schoolgirls, and between Arab schoolgirls and the nationwide average are substantial and significant, but they are intended not as conclusions themselves, but as support for the main questions raised in this policy paper. Those are: Is the Ministry of Education's policy goal to change the economic status of Arab women? What share of the Ministry's budget is allocated to Arab schoolgirls? What monetary sums are needed in education policy to bring about change in the economic status of Arab women? As things currently stand—with insufficient data on the overall budget allocated to Arab education by the Ministry of Education and the poor performance of the Arab education system relative to its Jewish counterpart—the answer is that the Ministry is currently not implementing policy that will economically improve the situation of Arab women in Israel. The educational system is not improving Arab women's economic status.

Another indicator for comparing the quality of technology education in the Arab system to that in the Jewish system is the degrees of success students have in taking the matriculation exams and in meeting the criteria for admission to university. A study conducted by Tzipi Buknik and Bela Zalmanowitz (2009) compared these indicators for the 2003-2004 school year. Table 12 displays the substantial difference they found between the level of success of students in the Arab education system and that of students in the Jewish education system.

Table 12: Matriculation Examinees in Technology Education, Students Entitled to Matriculation Certificate, Students Meeting University Admission Criteria, by System of Education, 2003/2004

(by percentage)

	Examinees	Entitlement to matriculation certificate		Meet university admission criteria		
		Percentage of 12 th grade students taking the exams	Percentage of examinees entitled to certificate	Percentage of 12 th grade students entitled to certificate	Percentage among 12 th grade students who meet criteria	Percentage among the students entitled to certificate
Total						
Hebrew education	81.9	68.6	56.2	46.6	83.0	56.9
<i>Technology</i>	75.2	59.7	44.9	34.7	77.4	46.2
Arabic education	88.6	54.1	47.9	29.7	62.0	33.5
<i>Technology</i>	81.2	48.9	39.7	27.1	68.2	33.4

Source; Tzipi Buknik and Bela Zalmanowitz, “Science and Technology Personnel in Israel: Selected Issues Part 2” (Ne’eman Institute, The Technion, 2009).

The figures indicate that the percentage of examinees entitled to a matriculation certificate in technology education and the percentage of the students meeting university admission criteria was lower for students in the Arab education system than for those in the Hebrew system; those figures were 48.9 percent compared to 59.7 percent and 62 percent compared to 77.45 percent, respectively. More recently, figures from the Central Bureau of Statistics show that in 2010, the percentage of examinees who received a matriculation certificate in Arabic technology education rose to 51 percent, while that of the Hebrew education system stood even higher at 63.4 percent (*Statistical Yearbook for Israel 2011*, Table 8.24). In other words, the quality of Arabic technology education continues to lag behind that of Hebrew education, both in matriculation achievement and in meeting university admission criteria. The importance of technology and advanced science education is not unknown to institutions in the Israeli educational system. Indeed, they have

encouraged the efforts of many of the Ministry's decision-makers to continue to expand technology education. Since the 1980s, several committees have been established to study the quality of the programs in technology education and make relevant recommendations. Most recommendations emphasize the importance of technology and science education and call for further allocation of resources, revitalization of programs, and orientation towards new specialty courses of study, the end goal being to tailor technology education to meet the changing demands of the labor market. In 1992, for example, the Harari Committee for the Examination of Technology Education recommended expanding involvement in science and technology and increasing the investment in these spheres of education (Ronen Tikva 2006). The Committee found that basic knowledge in science and technology is vital to the advancement of disadvantaged population groups and asserted that special efforts must be made to instill this knowledge.

The Ministry of Education has rich experience in planning and implementing programs to encourage technology education, but these programs have sidestepped the Arab education system. If the implementation of these programs were applied where the primary need lies, with emphasis on encouraging Arab girls to take part in technology education and making the corresponding specialty courses of study more easily available in Arab education, one would see an increase in the number of the Arab girls who specialize in these fields, likely resulting in many choosing more apt academic specialties.

The Ministry of Education has increased the general budget for technology education and developed new study programs and materials. Since 2003, it has been reforming technology education to emphasize science-based technologies and scientific profession and instill expertise and technological content that conform to current needs in the academy, economy, and industry. Thus, it operates projects aimed at encouraging students to choose high-level science and technology courses. Most of these projects are carried out in cooperation with academic institutions and entities in the industrial sector.

Two such projects are “The Future Generation for High-Tech in Industry,” operated jointly by the Ministry of Education and the Union of Industrialists, and the “Young Scientists” project, a combined effort of the Ministry of Education, the Science Museum in Jerusalem, Hadassah College, and several industrial bodies. The Ministry of Education also operates joint projects with the IDF, such as “Futures,” “Horizons,” and “Heights of Technology.”

The Ministry also operates “jump-start into industry” programs, which concentrate on showing students the employment perspective and offering them opportunities to assimilate in industry. As further evidence of these efforts of reform, in the past, the system did not offer any such employment solutions to students. Additionally, as part of the “jump-start” project, one day a week is dedicated to studies in industry. Another program is the “technician and matriculation” project, a program operated in cooperation with the Union of Industrialists and the technology-education authorities. Participating students complete 12th grade with both a technician’s diploma in an occupation for which there is demand in the economy—electronics, mechanics, or computers—and a matriculation certificate.

Regional technology centers in the north and south have been established to increase the number of students in technology education by integrating significant practical experience as part of those students’ curriculum. Such programs have also coordinated with the IDF conform technology education to the changing needs of the IDF. There has, for example, been multiplication of robotics programs, with the objective of exposing students of all age groups to opportunities in robotics. In another program, through which the Ministry of Finance aims to advance high-tech industries⁴, former employees of high-tech industries are assimilated in technology education.

According to publications by the Ministry of Education and a study conducted

4 See the Ministry of Education’s website: http://cms.education.gov.il/EducationCMS/Units/MadaTech/englishsifria/Strategicplantostrengthenscienceandtechnologyeducation/hazon_verazonia_english.htm.

by the research unit of the Knesset, a serious project implemented in recent years is a technicians and matriculation program to advance technology education (Goren and Natan 2008). The website of the program lists 33 schools participating in the project, most assisted by industrial entities. Only seven of these schools are in the Arab education system, three of those are in the Negev, and only one of the seven has an industrial entity accompanying it. Conversely, most of these schools in the Jewish education system have industrial entities working with them. These facts indicate the great seriousness given to the project, as well as the limited extent to which it has been implemented in Arab education.

Considering these results, it is clear that the Ministry of Education in Israel has not done enough to encourage advanced science and technology education in Arab education. Some of the programs discussed in this paper have not been implemented in Arab education. To operate such programs, it is necessary to revitalize the curricula, to translate study materials, and to prepare and train teachers. Substantial investment is required to build the needed facilities, prepare students, and offer them opportunities to continue their studies in the 13th and 14th grades in specialties in the technology track.

It is recommended that responsibility for the implementation of these programs be given to a special administration to be established in the Ministry of Education, in coordination with representatives from the Arab community, in order to improve technology education in Arab education and to encourage Arab schoolgirls to specialize in technology tracks.

Policy recommendations

The achievements of Arab female students in Israel and their effects on the ability to find jobs and on their social status are significant issues in this project. In every society, acquisition of education is a fundamental tool in establishing

socioeconomic mobility and improving quality of life; this is especially true for minority national-ethnic groups. Despite the steady increase in rates of education of Arab women and the growing percentage of employed Arab women in recent years, their percentage is still low relative to the overall numbers of working women in Israel.

To close the gaps between the Arab and Jewish segments of the population and advance the status of Arab women in the State of Israel, the state must allocate more resources to improve Arab education in general and the education of Arab women in particular. These goals require changes to be made in the existing specialties that are offered and encouraged in Arab education, as well as an increase of awareness by Arab students, both male and female, of the importance of choosing a specialty that corresponds to the needs of the labor market. To accomplish this change and reach such a goal, meaningful measures must be taken by the government—the Ministry of Education, in particular—through allocation of resources, as well as by elements of Arab society, such as women’s organizations, through the encouragement of schoolgirls to choose specialty tracks. The involvement of political or representative Arab organizations and institutions can also work bring about change in the specialty courses of study that Arab girls select. Work must also be done in schools to encourage girls to move in this desired direction, as well as in the entire Arab society to increase awareness of the importance of this matter.

It is clear that, in addition to the need for changes in the specialty courses of study offered in schools, the needs of Arab schoolgirls differ, depending on geographic place of residence. These differences call for separate study and analysis. However, space is too limited in this policy paper to attempt to examine all the problems facing Arab schoolgirls, so the conveyed problems and objectives must take precedent.

Appendixes

Table 1: Employment of Arab Women, by Economic Sector

Economic sector	1990	1995	2001	2010
Agriculture	4.2	2.2	1.2	1.2
Industry	32.4	16.8	12.1	9.2
Electricity and water	-	-	-	
Construction	0.7	1.2	0.8	1.4
Wholesale and retail trade and repairs	6.6	6.6	12.8	11.1
Hospitality and food services		1.7	2.6	1.7
Transportation, storage, and communications	1	1.0	1.6	2.2
Banking, insurance, and other financial institutions	7	5.6	1.4	1.8
Business services	inclusive	1.3	7.1	4.5
Public administration	40	2.8	3	2.3
Education	inclusive	26	35.2	44.3
Health, welfare, and nursing services	inclusive	12	17.2	13.8
Community, social, personal, and other services	5	5	4.6	3.3
Household services		18		3.2

Table 2: Employment of Arab Women, by Occupation

Nature of employment	1990	1995	2001	2010
Scientific/academic	3.7	6.4	11	15.5
Associate, technical, and professional	27.4	21.1	28.4	31.6
Management	0	1	0.8	0.8
Clerical	15.1	16.7	20.7	14.0
Sales and services	20.3	21.8	19	17.6
Skilled manual labor	26.9	14	9.4	10.2
Unskilled manual labor	6.6	9.0	9.6	8.6

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