

The labour market of Israeli Arabs: Key features and policy solutions

Eran Yashiv and Nitsa Kasir (Kaliner)¹

Tel Aviv University and CEPR; Bank of Israel

Introduction

The situation of Israeli Arabs in the labour market draws considerable attention in the public discourse in Israel, especially in the economic debate, due to both their large share of the population and their incomplete integration in the labour market. An analysis of this situation indicates that Arab men retire from work at a relatively early age and that only a fifth of Arab women participate in the labour force. There are high unemployment rates, especially among the less educated. Those who are employed are concentrated mainly in low-skilled industries, where wages are relatively low. The fortunes of workers with a higher education are also less favourable. Some work in occupations that do not fit the subjects they have studied, while others deliberately avoid studying fields where their chances of employment are low. Most workers with a higher education are employed in the public sector and only a small minority are employed in advanced industries, such as high-tech firms.

The situation of Israeli Arabs in the labour market has many consequences both for Arab society and for the entire economy. The Arab sector, while making up one fifth of the population, accounts for almost 50% of all the poor in the economy. The sector's economic situation also affects the social situation and relations with the Jewish sector. Due to this partial integration and failure to exploit the sector's potential, the growth of the economy is lower than it could be.

The negative labour market outcomes of Israeli Arabs, the consequences for the socioeconomic situation, and the under-utilisation of the economy's productive capacity, highlight the need for comprehensive government policy to help integration in the labour market. This Policy Insight proposes a plan to facilitate more successful integration.

In Section 1 we outline and then briefly summarise the main problems. In Section 2 we present our recommendations. We delineate a breakdown of the proposed government budget, including policy proposals for a limited budget. We then present simulations of future labour force participation rates for women and the rate of return on the proposed policy measures.

I Key features of the labour market of Israeli Arabs

In this section, we present key data on Israeli Arabs in the following areas: demography, education, labour force participation, unemployment, employment (distribution by industry and by occupation), wages and geography. In the relevant cases we use international comparisons. Section 1.1 is based mainly on data from the Central Bureau of Statistics (CBS) and on calculations presented and reviewed in Yashiv and Kasir (Kaliner) (2011, 2013). Most of the labour market data discussed are updated to 2011, as the CBS changed the sampling framework of its Labor Force Survey in 2012 and data since then are not readily comparable with past data. Section 1.2 offers a summary.

¹ The publication of this paper was made possible through the generous financial support of the following foundations: Alan B. Slifka Foundation; Andrea and Charles Bronfman Philanthropies; Arnow Family Fund; Naomi and Nehemiah Cohen Foundation; Phyllis Bernstein and Robert Kuchner Fund. We thank seminar participants at the Bank of Israel Research Division and at the Van Leer Institute for their helpful comments. We are grateful to Ruth Boganim, David Eliezer and Ayelet Spaier for excellent research assistance. Any errors are our own.

1.1 Data

1.1.1 Demography

The Arabs comprise 20.8% of Israel's overall population and 18.7% of the working-age population. The reason for the difference in these shares lies in the fact that this population is characterised by a large share of children and youth (below the age of 15). The share of the population aged 0-14 is 35% (versus 27.7% among Jews).

The Arabs' share of the population has fluctuated over the years. When the State of Israel was established, 18% of its inhabitants were Arab; in the wake of large waves of Jewish immigration, the share dropped sharply to less than 14% a year later and to 11% in 1951; and from then until the end of the 1950s it remained stable at about 11%. Due to a relatively high fertility rate among Arabs, their share of the population rose to about 12% in 1966; in 1967 it rose to over 14% with Israel's annexation of East Jerusalem; then from 1967 to 1989 it grew at an average rate of one percentage point every five years, reaching 18.5% by the end of the 1980s. In the wake of the immigration wave from the former Soviet Union in the 1990s, the share of Arabs in the population stopped rising (even declining somewhat) and stabilised at about 18%. Since 2000, its growth has resumed, rising to almost 20% at the end of 2005. The CBS forecast for 2030 is for the share to be 24.3% under its high growth scenario.

The CBS demographic forecasts point to the following trends:

- In all of Israel's population groups, a drop in the total fertility rate is expected, and therefore also in the population's growth rate. This is true for both *haredi* and non-*haredi* Jews, but the decline is expected to be sharper among the *haredi* Jews.
- The group with the highest growth rate was and remains the Muslim Arab group, especially Muslims in the south. Their growth rate is projected to decline from 2.3-2.5% to 1.9-2.5% per annum in 2030, in comparison to a decline among Jews from 1.5-1.7% to 1.1-1.7% per annum in 2030.
- Total fertility is expected to range between 4 and 6 children among Muslims in the south, and between 2.1 and 3.5 children among Muslims in the north, in comparison to a rate of between 2.1 and 2.9 children among the Druze, Christians and Jews.
- The Muslim share of the population is therefore expected to rise from 16.3% in 2005 to about 24% in 2030. Concurrently, the share of Jews will drop from 76% in 2005 to 71-72% in 2030.

- The small groups – Christians and Druze – will remain small, but the Druze are expected to be the larger of these in 2030 (about 1.7-1.8% of the population, versus 1.4-1.6% for Christians), a reverse of the situation in 2005.

1.1.2 Education

Education has a large impact on integration in the labour market. The scope and quality of education in the Arab sector are significantly lower than in the Jewish sector. Here are some key facts:

- Israeli Arabs are characterised by relatively low educational levels (see the distribution of years of study in Table A1 in the Appendix).
- Pupils in the Arab sector achieve much lower grades than their counterparts in the Jewish sector, both on international tests (according to OECD data) and on national feedback tests in primary education, as well as on the tests which determine School Efficiency and Growth Indicators (*Meitzav*).
- Dropout rates from the educational system are higher in the Arab sector—21% in grades 9-11, in comparison to about 11% in the Jewish sector.
- The rate of eligibility for a matriculation certificate in the Arab sector is relatively low – among twelfth-grade pupils it stood at 49.9% in 2011, versus 58.5% in the Jewish sector.
- Looking at threshold qualifications for admission to universities in Israel, the share of those qualifying in the Arab sector is relatively low – about 36% of all twelfth-graders, versus about 50% in the Jewish sector.
- The share of Arabs among the university student population in Israel is only half their share of the population—in 2011/12 Arabs accounted for only 10.8% of all university and college students in Israel. The rate goes down the higher the academic degree, and in PhD studies Arabs make up only 4.4% of all students.
- There is avoidance of study in fields where chances of finding employment are low.

The above points notwithstanding, it should be noted that over time there has been an improvement in Israeli Arab human capital and the differentials with Jewish society have narrowed. For example, the median years of study by Arabs has risen significantly and the difference between the two sectors, which stood at 7.4 years of study in 1961, has closed. In addition, over time the rates of eligibility for a matriculation certificate and of

those meeting the Israeli universities' threshold requirements have been rising continuously. The number of Arab students in Israeli universities is growing at double the rate of Jewish students, and as a result the share of Arabs among the whole student population has tripled in the course of the past 30 years.² One should also note the big rise in the share of women within the Arab university and college student population: from 40% in the early 1990s to about 66% recently.

Low output in the Arab education sector is also influenced by the inputs invested in education in the sector. For example, investment in education per child in Arab local authorities is 38% lower than in Jewish local authorities (Gal et al. 2009). The relatively low investment in Arab education results in, among other things, relatively large classes and a low number of teaching hours per pupil.

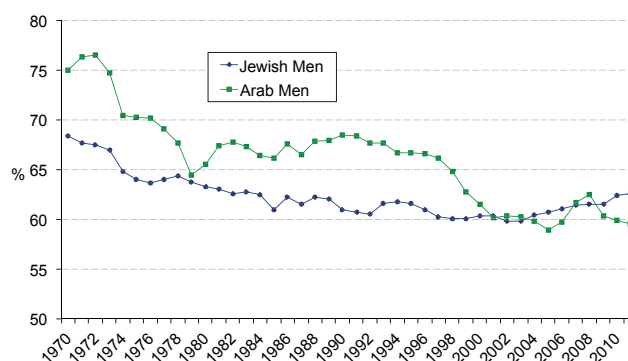
1.1.3. Participation in the labour force

The Arabs, who, as mentioned above, constitute 18% of the working-age population, comprise only 13% of the civilian labour force. Arab-Israelis' patterns of participation in the labour force are characterised by low participation rates of women and by early retirement among men.

When we look at Israeli Arabs' participation rates over time, it is evident that the participation rate of Arab men has steadily declined, while the participation rate of women has risen (Figures 1a and 1b), similar to the changes in many Western countries.

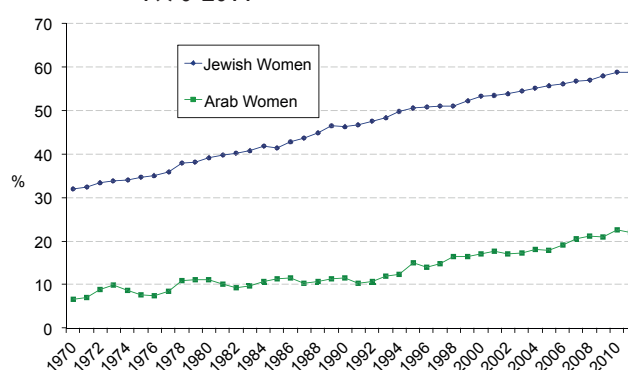
While the participation rate of Jewish men has also gone down, the decline among Arab men is more pronounced. In 1990 the participation rate of Arab men was five percentage points higher than that of Jewish men, but in recent years the situation has been reversed and the participation rate of Arab men is now lower. In 2011 it was about three percentage points below that of Jewish men.

Figure 1a Male labour force participation rate, 1970-2011



Source: Calculations based on CBS Labor Force Surveys.

Figure 1b Female labour force participation rate, 1970-2011



Source: Calculations based on CBS Labor Force Surveys.

A possible explanation for the sharp drop in participation rates among Arab men is the decline of the relative demand for uneducated workers – the outcome of technological developments, increased openness of the economy to imports, and the process of globalisation. A particularly steep decline was evident in the 1970s, perhaps due to replacement by Palestinian workers. The sharp drop in Arab men's participation rates at the beginning of the 1990s was also due to the entry of foreign workers into Israel.³ In the early 2000s, the sharp decline in participation rates was halted, probably due to extensive cuts in National Insurance benefits and the tightening of conditions for receiving the benefits.⁴ In recent years there was a certain rise back to the level at the start of the decade, but over the past two years a trend of decline in participation rates is discernible again.

Although Arab women's participation rates doubled from 1990 to 2011 – from about 10% to about 22% – they are still exceptionally low. The rise in the participation rate has been lower than among

² For more on these issues, see Jabareen (2007) and Mustafa and Arar (2009).

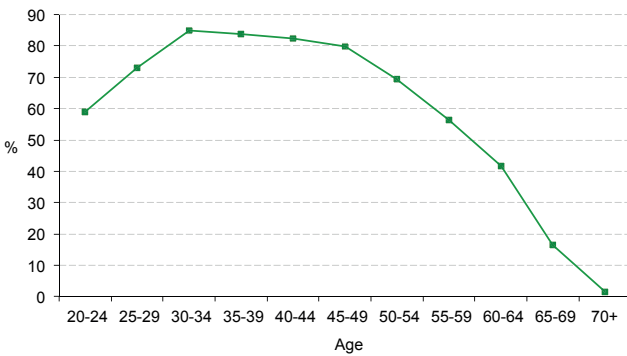
³ See Table b2 in Chapter 2 "Employment and Wages" of *Changes in Israeli Arabs' Employment in the Last Decade*, the 2004 Bank of Israel Report, pp. 127-129.

⁴ See the discussion in Chapter 8 "Issues in Welfare Policy" of the 2007 Bank of Israel Report.

Jewish women, and therefore the differential has widened since the 1970s.⁵

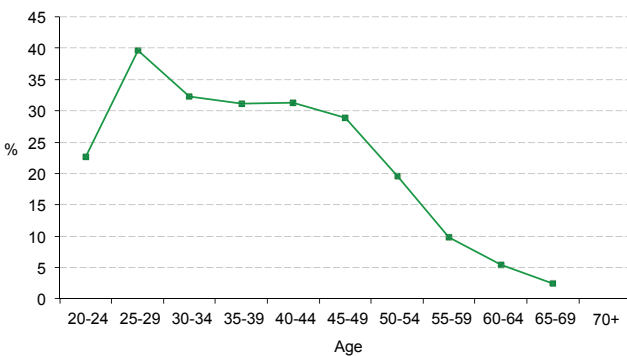
Looking at the labour force participation life-cycle profile, two central findings emerge: the participation rate among Arab men rises at first with age, but after the age of 45 it drops significantly. This early retirement phenomenon persists over time, across different cohorts, and in all educational groups, especially among the low-educated. The participation profile of Arab women is much lower, but it also includes retirement at a relatively early age (see Figures 2a and 2b).

Figure 2a Arab men's lifecycle participation rates, 2011



Source: Calculations based on CBS Labor Force Surveys.

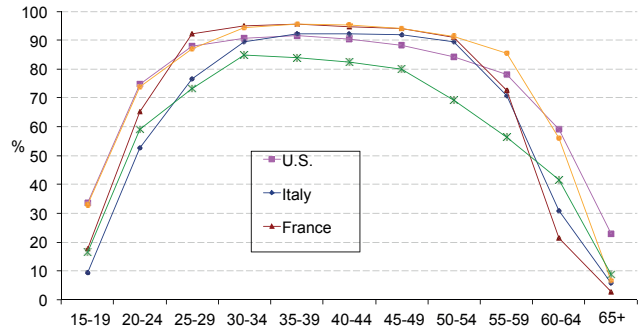
Figure 2b Arab women's lifecycle participation rates, 2011



Source: Calculations based on CBS Labor Force Surveys.

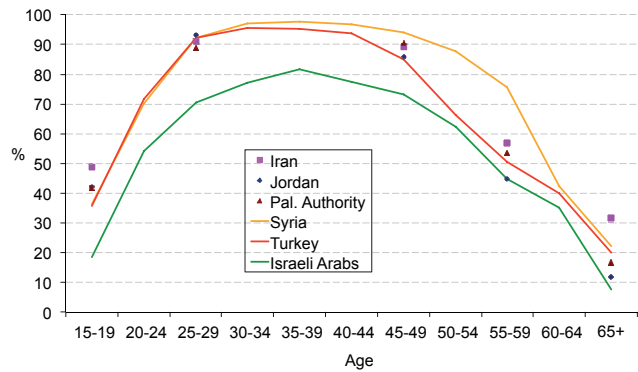
In order to assess the uniqueness of the participation profile over the life-cycle of Arab men in Israel, it is useful to compare it to the participation profiles of men in other economies (Figures 3a and 3b). The participation rate of Israeli-Arab men turns out to be lower than those found in Western countries, and is also lower than those in other Arab and Muslim countries.

Figure 3a Participation rates, men in western Countries and Arab-Israeli men, 2010



Source: OECD and calculations based on CBS Labor Force Surveys.

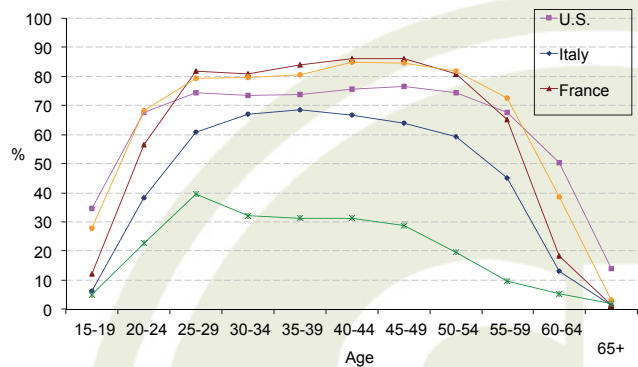
Figure 3b Participation rates, men in Arab and Muslim countries and Arab-Israeli men, 2010



Source: ILO, OECD and calculations based on CBS Labor Force Surveys.

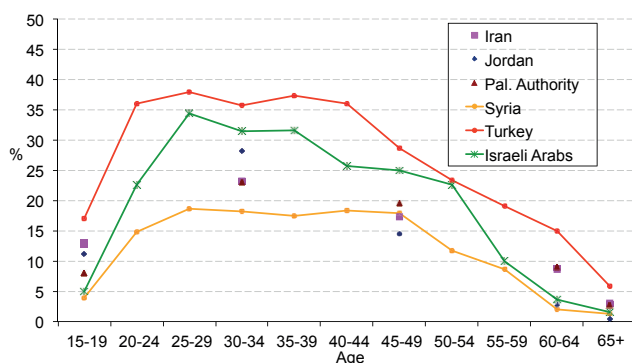
The participation rate of Arab-Israeli women is low in comparison to the levels found in Western countries and for Jewish women in Israel. However, it is essentially not different from the prevalent pattern in other Arab and Muslim countries.

Figure 4a Participation rates, women in western countries and Arab-Israeli women, 2010



Source: OECD and calculations based on CBS Labor Force Surveys.

⁵ For more on this, see Yashiv and Kasir (Kaliner) (2011).

Figure 4b Women in Arab and Muslim countries and Arab-Israeli women, 2010

Source: ILO, OECD and calculations based on CBS Labor Force Surveys.

Tables A2 and A3 break down the composition of the non-participant population among Arabs.

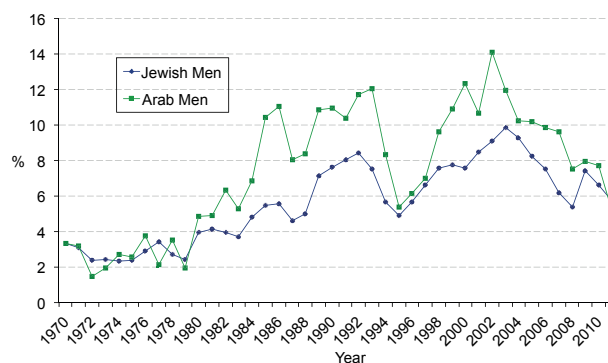
The analysis of the non-participant population reveals several interesting features:

- About 33% of women non-participants are unmarried, and about 9% are widows. This means that a considerable share of women non-participants (over 40%) do not live with partners, i.e. they have higher incentives to participate.
- About half of women non-participants are at prime work ages (between 25 and 54), i.e. at ages that are relevant to participation in the market.
- Almost 20% of men non-participants are aged 45-64, ages that are still very relevant to participation in the labour market. This is due to Arab men's early retirement from participation in the market.
- About half of the non-participants (both men and women) have had ten years or fewer of education. This figure attests to the importance of education, which is also confirmed by econometric studies (such as using participation regressions).

e. *1.1.4. Unemployment⁶*

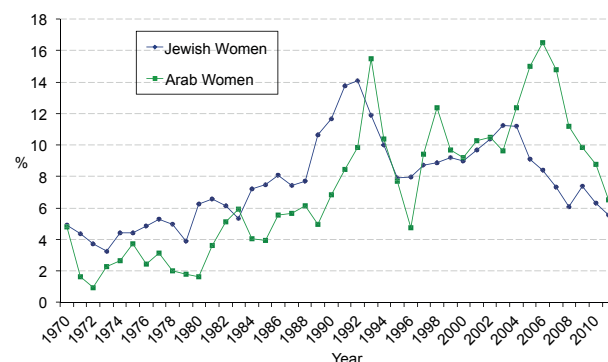
Arab men have, in most years, suffered from a higher unemployment rate than Jewish men, though the size of the differential has not been constant over time.

⁶ As mentioned above, in 2012 the Central Bureau of Statistics made a substantial revision to the Labor Force Survey. In the new survey, the unemployment rate of Arab men doubled and that of women tripled. Labour force participation rates changed too, with an increase in rates for Arab women. These changes reflect the revision of the sampling framework, which now takes into account smaller villages and communities. Regrettably, the new data cannot be compared to the older data and are available only from 2012 onwards.

Figure 5a Male unemployment rate, by sectors 1970-2011

Source: Calculations based on CBS Labor Force Surveys.

For women, a differential has developed over the years, with higher unemployment among Arab women in comparison to Jewish women. In most years up to the end of the 1990s, the unemployment rate of Arab women was lower than that of Jewish women, but towards the end of that period the relation was reversed and the unemployment rate of Arab women surpassed that of Jewish women. Note that the unemployment rate refers to women who actually participate in the labour market, not to the total population of women.

Figure 5b Female unemployment rate, by sectors 1970-2011

Source: Calculations based on CBS Labor Force Surveys.

A look at unemployment rates by educational level shows that, as in many countries, the unemployment rate declines with education.

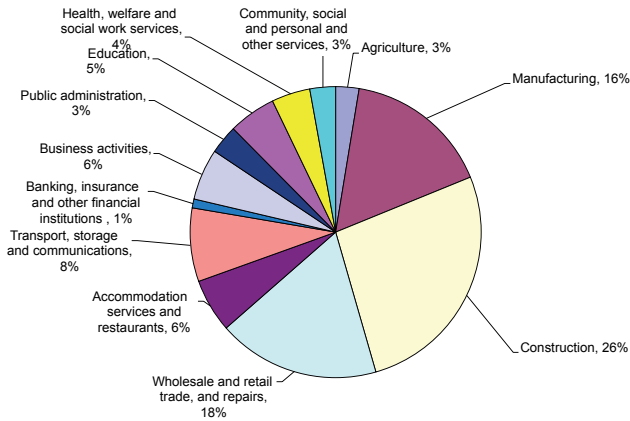
1.1.5. Employment

Table A5 displays the distribution of occupations among Arabs and among Jews, divided into men and women. The occupations have been classified into four groups. Figures 6 and 7 present the breakdown of employment by industry and by occupation, respectively.

Whereas about 40% of Jewish men are employed in occupations of the top skill group, only 15% of Arab men are employed in those occupations. The situation is reversed for occupations of the

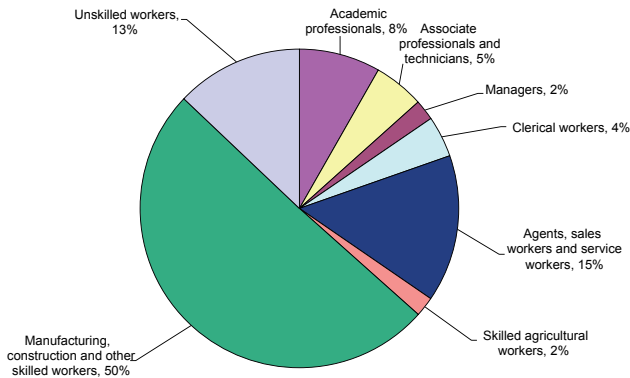
two bottom skill groups, in which Arabs are employed at a rate almost double that of Jews. Employed Arab men are thus concentrated in industries and in occupations characterised by relatively low skill levels: about 60% are employed in the construction, commerce and manufacturing industries. Employment in advanced industries and in public administration is of very limited scope. This concentration of men in occupations that require physical labour helps explain the patterns of early retirement discussed above.

Figure 6a Arab male employment, by industry, 2011



Source: Calculations based on CBS Labor Force Surveys.

Figure 6b Arab male employment, by occupation, 2011



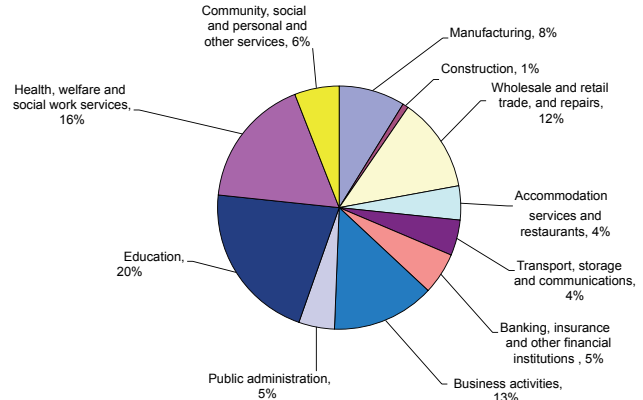
Source: Calculations based on CBS Labor Force Surveys.

For women, there is only a small differential between Jews and Arabs in the top group of occupations; in fact, the rate for Arab women (about 45%) is higher than that for Jewish women (40%). However, in the bottom group of occupations the share for Arab women 11%, while that of Jewish women is 6%. The industry distribution of Arab women is heavily concentrated, with 36% being employed in education or healthcare services

These findings point to the high employment concentration of Arab men in occupations and industries that do not require a higher education. By comparison, for Jewish men the concentration is in the top group of occupations. For women, there is an apparent dichotomy: on the one

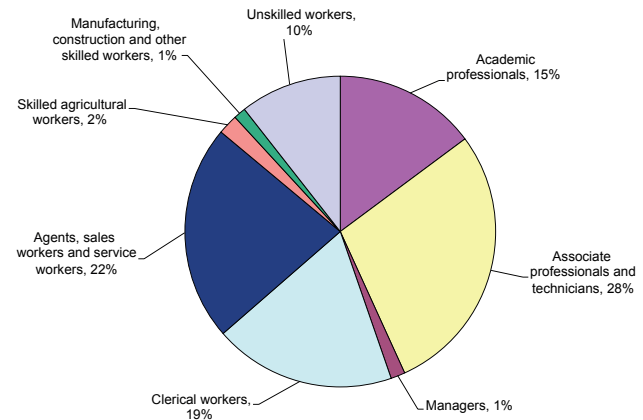
hand, like Jewish women, a significant share of all employed Arab women are engaged in occupations of the top group; but on the other hand, they also have a high share at the low end of the occupation distribution.

Figure 7a Arab female employment, by industry, 2011



Source: Calculations based on CBS Labor Force Surveys.

Figure 7b Arab female employment, by occupation, 2011



Source: Calculations based on CBS Labor Force Surveys.

Research conducted by the Bank of Israel (see the chapter on the labour market in the 2009 Bank of Israel Report) has shown that the employment tenure rate – i.e. months of employment as a percentage of potential working months – among Arab-Israeli women is only about 24%, as opposed to 64% among Jewish women. This means that on average, employed Arab Israeli women work about a quarter of their potential time (taking a long-term perspective).

1.1.6. Income

Table A6 shows data on income, hourly wages, and weekly work hours in the Arab and Jewish sectors, respectively.

The major findings that emerge from the table are as follows:

1. The average income of employed Arabs is significantly lower than that of employed Jews. This is mainly due to their lower hourly wage, thanks for the most part to of their concentration in occupations and industries situated at the bottom of the wage distribution. Among women, the low wages they receive are related to employment in part-time positions. The average hourly wage of Arab men is about 43% lower than that of Jewish men, while the average hourly wage of Arab women is about 21% lower than that of Jewish women.
2. The average hourly wage of Arab women is higher than that of Arab men, due to the selectivity of women who are employed.
3. The wage differential between the Arab and Jewish sectors is substantial in salaried labour: the average salaried Jewish man's income is almost double that of an Arab, while the average salaried Jewish woman's wage is a third higher than that of an Arab woman. Among the self-employed, however, the average income of a Jewish man is only about a third higher than that of an Arab man.
4. The share of families receiving National Insurance child benefits is relatively high in the Arab sector, due to their high numbers of children.
1. The Arab localities rank lower on the socioeconomic scale (which ranges from a low of 1 to a high of 6), with a median rank of 3 versus a median of 4 for mixed localities and a median of 6 for Jewish localities.
2. The municipal authorities in Arab localities have lower revenue per capita: about 5,100 new shekels (NIS) per capita on average, in comparison to 6,700 NIS in mixed localities and 7,165 NIS in Jewish localities. They also have a bigger budget deficit – almost 8% of revenue on average, in comparison to 4.5% in mixed localities and 4% in Jewish localities. One of the reasons for this is low revenue from property taxes: only 9% of an authority's total revenue in Arab localities comes from property taxes, in comparison to 34% in mixed localities and 28% in Jewish localities.
3. The educational situation in Arab localities is considerably worse than in Jewish localities. The percentage of twelfth-graders eligible for a matriculation certificate is 47% on average in Arab localities, as opposed to about 61% in Jewish localities.

Until recently, Arab localities suffered from poor transportation infrastructure. Table A8 presents the data.

Up to 2009, 41% of Arab localities had no public transportation at all, and 43% had only low-level public transportation services. These problems originated in the historical development of Arab localities, which started out as villages and grew considerably over the years. As a result, there is an appreciable shortage of internal infrastructure allowing the entry and regular operation of public transportation – an absence of roads or roads that are too narrow, no sidewalks, and so on. In 2011, a government plan came into effect to subsidise the operation of means of transport, with the intention being to apply it to all Arab localities. However, the road infrastructure of these localities still suffers from enormous deficiencies.

The transportation infrastructure problems (both of roads and public transportation) are directly related to and also aggravate the problems of employment. These problems greatly increase the costs of getting to work and therefore constitute a disincentive to participation in the labour market. In combination with cultural and social norms, this poses a cardinal issue for women, since by custom an Arab woman will not walk any great distance or drive alone to work. For a woman to get to work she must have access to appropriate transport enabling her to arrive there in reasonable time, but all of the problems delineated above constitute a significant barrier to that. Even inside

1.1.7 Geographical concentration and transportation problems

The high geographical concentration of Israeli Arabs in a relatively small number of localities should be noted. About 44% of the Arab population in Israel, with the exception of Jerusalem, lives in 14 localities, including the mixed population towns of Ramle and Lod. The largest are Nazareth, with about 66,000 inhabitants, Um el-Fahm with about 44,000, and Rahat with about 42,000. The Arab localities are concentrated in the Galilee (especially the western Galilee), the Triangle (central Israel) and the Negev.

By comparison, Jewish localities of a similar size to these Arab localities – between 20,000 and 70,000 inhabitants – number 50, and include such towns as Modi'in with about 67,000 inhabitants, Carmiel with about 45,000, Rosh Ha'ayin and Ramat Hasharon with about 38,000 each, and Dimona with about 34,000.

Table A7 shows data on Arab, mixed and Jewish localities using various economic and demographic indicators, based on the 2008 census.

Several features stand out from the table.

Arab towns and villages, as in Bedouin localities, it is difficult for women to travel from their home to the workplace or even to another location from which they could travel to work (Abu Bader and Gotlieb 2008).

1.2 Summary: Major problems in the labour market of Israeli Arabs

The data presented in this section indicate the following major problems facing **Arab women**:

- A low labour force participation rate (around 20%).
- High concentration of employment in education, health and welfare services.
- Especially low labour force participation rates among less-educated women (12 years of education or below) and women aged 45 and over.
- High rates of part-time employment.
- Short average distance to the workplace and low rate of employment outside one's place of residence, indicating limited employment opportunities.

The data indicate the following major problems facing **Arab men**:

- A high share of low-skilled, manual occupations.
- Relatively early retirement from the labour force for manual workers.
- Low average pay, largely as a result of the above problems.
- A high percentage of individuals with higher education not employed in their field of study.

2 Policy alternatives

2.1 Introduction

The problems described in the previous section are numerous and complex. Since not all of them can be solved quickly or simultaneously, government efforts to handle them must set priorities. The following recommendations distinguish between short-, medium- and long-term policies and present the budgetary implications of each.

Extensive effort has been made in recent years to encourage Arab participation in the Israeli labour force, yet differentials between Jews and Arabs are still considerable.

2.2 The rationale for government policy intervention and its aims

Why is government policy needed to handle the problems facing Israel's Arab citizens, especially in the labour market? We believe the question has several answers, all of which may serve as appropriate objectives for government policy.

- Israel's Arab population ranks comparatively low on every labour market outcome (participation, productivity, pay, etc.) and is especially poor as a result. A government concerned for the well-being of its citizens and with the reduction of economic inequality must act to change these circumstances, especially given their prolonged duration. Economic poverty often brings with it social disadvantage and psychological distress; emergence from poverty often improves these problems as well.
- The free market cannot correct the above problems on its own. Discrimination, cultural gaps, and various market hindrances to employment (job search costs, low accessibility, inadequate human capital among job-seekers, etc.) may be offset, alleviated, or resolved by government action.
- It is not only the Arab sector but the entire Israeli economy that stands to benefit from higher employment and productivity of Israel's Arab citizens. The resultant growth in GDP is likely to lead to improvements in other respects as well, such as greater welfare, freedom and leisure. Higher economic equality will also contribute to Israel's social cohesion and national resilience.

Government efforts to solve these problems will have to contend, however, with several obstacles:

- The Arab sector has suffered from years of neglect. Rapid improvement is therefore unlikely. To achieve long-term results, government policy will need to be comprehensive, consistent and unrelenting.
- Israel's Arab and Jewish populations are separated by considerable cultural differences, and cultural differences also exist within the Arab population. The government must exercise great caution when attempting to subject this population to the norms and values of the Jewish majority, for example with regard to labour force participation and employment patterns.
- Jewish attitudes towards the Arab minority are marked by cultural norms and prejudices. Government policy has often reflected

these, albeit unofficially and unconsciously. According to Smootha (2010), these attitudes have deteriorated in recent years, especially since the events of October 2000. To note just one example, the percentage of Jews expressing reluctance to work under an Arab employer increased sharply between 2003 and 2009. New government policies must take into account these attitudes and the realities they both reflect and create.

- d. Successful government action within a minority population depends on the presence of an effective minority leadership keen to find solutions and on the availability of strong community organisations and associations. Israel's Arab citizens have weak community organisations that need encouragement to cooperate with the government.

Given these obstacles, we propose the recommendations listed in the following section. Limiting our purview to economic and labour force issues, we recommend these policies in order to achieve the following objectives:

- Raise employment and labour force participation rates among Israel's Arab citizens.
- Increase productivity and pay.
- Increase mobility and expand the range of job opportunities open to Arab individuals.
- Reduce poverty and increase income.

2.3 Policy alternatives

We propose policy measures in eleven areas of government policy, specifying the desirable budget for each recommended policy over three time horizons.

We then propose policy when only a limited budget is available, listing priorities with reference to different groups within Israel's Arab population.

Finally, we offer simulations of future women labour force participation and GDP increases as a result the proposed policy. To analyse the return, we compare the costs with the benefits in terms of GDP increases. The internal rate of return on policies promoting employment among Arab women is considerable even according to conservative assessments, at around 7% annually.

The following recommendations aim at increasing employment and labour force participation, but they also have bearing on broader aspects of economic and social life, including education,

family life, career choices and the geographical location of firms. The recommended policies are comprehensive and far-reaching, yet their aim is to expand the range of opportunities available to Arab individuals rather than to force any particular choices. Their overall objective is to remove both demand- and supply-side barriers to employment.

2.3.1 Increasing the demand for Arab workers

Increasing the demand for Arab workers should be an important part of government policy. Most of the recommendations in the following sections address the supply of workers, but a real barrier to employment is often deficiency in demand among potential employers.

Two government resolutions adopted in recent years (Resolution 2579 dated 11 November 2007 and Resolution 4436 dated 25 January 2010) recognised the importance of increasing the number of Arab workers in the public sector, but have hardly been implemented; the number of Arab applicants has remained very low. To encourage applications, it is crucial both to implement the existing resolutions and to increase awareness of available jobs among potential Arab workers.

The demand for Arab workers in the private sector can be increased using a number of 'classic' measures. The government can:

- a. Set up infrastructure for industry in relevant geographical areas, for example by building new industrial parks (including hi-tech industries) near Arab towns with a supply of potential workers.
- b. Develop the unrecognised Bedouin settlements in the Negev, especially by planning commercial centres and industrial parks. At present, infrastructure suitable for these purposes is almost non-existent.
- c. Offer Arab entrepreneurs training and counselling on such topics as setting up a business, worker recruitment and management, financial management, and sales and purchase forecasting.
- d. Help borrowers obtain loans by (i) helping them submit credit applications to banks and other lenders, and (ii) expanding the availability of government funds, especially in the form of loan guarantees.
- e. Make government assistance to employers conditional upon their willingness to hire Arab workers at a rate proportionate to the share in the population, subject to adequate skills.

2.3.2 Welfare-to-work programmes

A welfare-to-work programme entitled Lights to Employment (*Orot le-Taasuka*, previously *Mehalev*) was offered in Israel until April 2010. The programme was a standard welfare-to-work scheme initially modelled on a programme implemented in the state of Wisconsin in the US. Its scope was limited, however, and it was offered for a relatively short period of time. A study published in May 2010 by the Brookdale Institute and the National Institute of Social Security points to several achievements, including high placement rates for Arab men. The programme was widely criticised, however, for alleged features such as inefficiency, distorted incentives for the private contractors, fictitious placements and high attrition rates. Some problems were fixed in the transition from *Mehalev* to Lights to Employment, but the programme was eventually cancelled. Since then, the Finance Ministry and the Ministry of the Economy have devised a new programme, which is still pending approval by the *Knesset*. The proposed programme was discussed a number of times in the course of 2013. Renewal of the programme must be subject to comprehensive research, however, in order to examine its advantages and disadvantages. Any attempt to renew the programme must consider the following facts:

- The programme was run on an experimental basis in some parts of Israel. It should be expanded to cover the entire country, as originally planned. Its success in the Arab sector suggests that the programme should open special centres and programmes targeting the Arab population, with preference for Arabic-speaking staff members who are familiar with the social and cultural features of the Arab sector.
- Attempts to target the Arab population must take into account the programme's experience in Nazareth, in particular the extent to which the programme's placement was sustainable over time (i.e. the degree to which workers persevered in their new jobs).
- The renewed programme may have to undergo modifications based on the programme's implementation in other countries (see, for example, the recommendations of the Tamir Commission). In particular, it may be advisable to run the programme in collaboration with the public employment service, to monitor the participating workers more closely, and so on.
- Any attempt to renew the programme must consider its possible effects on individuals and groups other than the participating job-seekers. The same caveat applies to other government resolutions, for example, the five-year plan

of 2010 and the recommendations of the Trajtenberg Committee of 2011.

2.3.3 The negative income tax

The negative income tax has been in effect in Israel since 2012. The take-up rate in the Arab sector has been relatively low, probably due to lack of information. The benefit for eligible working parents was increased in 2013 following the recommendations of the Trajtenberg Committee, yet it remains low relative to comparable benefits in the US, the UK and other countries. These deficiencies make the programme less effective. To increase its effectiveness, the benefit needs to be increased to the level in the US. The wider repercussions of such a step need to be considered, as increasing the negative income tax is likely to increase subsidies for the entire eligible population, not only those in the Arab sector. It is important to raise awareness of the benefit among the Arab population, preferably in collaboration with local leadership.

2.3.4 Education

Education is a significant determinant of labour market performance (participation, occupational status, productivity, etc.) and is therefore crucial to improving the economic standing of Israel's Arab population. The Israeli-Arab education system suffers from underinvestment, resulting in rundown infrastructures, low pupil achievement, and high dropout rates. The 'effective' education of Israeli-Arab pupils is probably at a lower level than their formal education. Improving the effective level of education would increase skills, productivity, and pay, and would help diversify Arab employment, which, especially for men, is currently heavily concentrated in a handful of occupations and economic sectors.

Various policy steps can be taken to achieve these aims. Budgets should be increased at all levels of education, with an emphasis on pre-school and elementary education. Greater integration of Arab pupils in Jewish schools would help Arab job-seekers find employment later in life. Such integration can be achieved by encouraging regular contact between Jewish and Arab pupils and teachers, and by having Jewish teachers teach at Arab schools and vice versa. These steps would do much to reduce the cultural barriers and prejudice that afflict both populations.

The following recommendations are partial and may be supplemented by others. We distinguish between short-, medium- and long-term recommendations:

Short-term recommendations

- a. Job-matching centres should match university graduates and teaching jobs in Arab schools.
- b. A task force should characterise the main problems of the Arab education system, prioritise Arab schools on the basis of need, determine the required budget for each school, and choose a limited number of concrete issues on which to focus at each school.
- c. Larger budgets should be allocated to the lowest achieving schools (i.e. schools scoring lowest on the matriculation, *Meitzav* or *Mashov* exams). Schools receiving assistance should be monitored and assessed by specially appointed committees to identify how the supplemental budgets should be best used (e.g. for teacher recruitment, purchase of outside programmes, computer and communications infrastructure upgrades, physical renovations, added school hours per pupil, etc.).
- d. Curriculums should emphasise helping pupils and students to join the labour force upon graduation, with a focus on Hebrew fluency.
- e. Schools should make greater efforts to prevent attrition.
- f. Most education budgets are allocated by the government through local municipalities. Due to the inefficiency of many Arab municipalities, the budgets do not always reach the pupils in full. It is thus important to find alternative routes for budget allocation.
- g. The education system should fund and encourage informative activities among parents to reduce school dropout rates and obtain information on their economic and transportation-related causes.

Medium-term recommendations

Two major problems can be addressed in the medium-term: inadequate resources and low teaching quality. To address these problems, the aforementioned task force must define them clearly and set well-defined goals. Resources should be increased using the approach described above: on a school-by-school basis, based on need, with an appointed committee to monitor and assess the process. It is crucial to set clear objectives, allocate a well-defined budget to achieve them, and periodically monitor the programme's effectiveness using measurable parameters. Assessment teams can include representatives from the Ministry of Education, the Brookdale Institute, JDC, and so on.

Improving teaching quality is a harder and longer-term task. In the short term, teacher training programmes must be improved and expanded, and teacher placement in schools must be made more efficient. In the medium term, teachers could be offered financial incentives, for example for participating in advanced teacher training university programmes and for being willing to teach at low-achieving schools. In addition, schools may be encouraged to purchase external teaching programmes, especially in areas of weakness.

Another possible course of action is to set up new learning centres in major urban areas (modelled, for example, on the Scientific Education Center in Tel Aviv) and provide bus services from Arab schools. The teachers at such centres would be highly paid university graduates. The centres would provide supplementary education in math, physics, chemistry, biology, English, and so on.

In addition, a new subject could be added to the high school curriculum – the labour market. Pupils would become acquainted with the basics of the labour market: the possible range of careers and occupations, the education relevant to each, career and compensation tracks, etc. The goal would be to encourage participation in occupations with a current low concentration of Arab workers and provide information on the career-related returns on education. High school counselling services may direct the graduates to jobs and/or to higher education. Such centres could provide diagnostic career counselling and assistance on such topics as choosing an occupation, and applying and interviewing for jobs.

Long-term recommendations

In the long term, the Arab education system should undergo fundamental reform at all levels, from childcare to higher education. Reforms should include the establishment of new institutions, additional support for existing institutions, and improvement of teaching quality at all levels. Comprehensive reform of this sort would require a budget of around 5 billion NIS. We propose 3 billion NIS in cumulative annual budgets and a one-off expenditure of 2 billion NIS.

New institutions

- Specialised schools, such as schools for the sciences, the arts, and special education.
- A college or university in the Galilee, with an early focus on certain fields (e.g. physics, biology and chemistry in the natural sciences, psychology, social work, business administration and economics in the social sciences).
- Vocational and professional training centres (e.g. a centre for scientific education).

Further support for existing institutions

- Physical renovation of schools, including new classrooms (to decrease the number of pupils per class) and new infrastructure for computer labs.
- A comprehensive campaign to renew textbooks and curriculums in Arabic.
- A comprehensive campaign to update the curriculum in Arab schools, with an emphasis on maths, languages, computer skills, and acquaintance with the labour market.
- A support system for Arab university students to help them cope with the language barrier and with inadequate preparation for higher education.

Teaching improvements

- A comprehensive assessment of all teachers.
- One-week to one-month teacher training courses for all currently employed teachers, with an emphasis on new curriculums and textbooks.
- Career counselling centres should refer suitable university graduates to the school system in order to meet the growing demand for teachers of maths, physics, biology and English in both Arab and Jewish schools.
- Lectures by guest experts on topics such as innovative teaching methods and experience in other countries.
- The Ministry of Education should set up a new information centre for teachers to disseminate information on innovative teaching methods, internet sources, and so on.

It should be noted that many programmes are already in place and budgeted by the Israeli government. However, the road to full implementation of the above recommendations is still long.

2.3.5 Vocational training and counselling

Several steps should be taken to achieve a more diverse occupational distribution of male Arab workers and to reduce their concentration in manual occupations with a high rate of early retirement. To achieve these aims, the government should increase its investment in elementary, secondary and higher education, offer career retraining programmes to help manual workers find non-manual jobs, and provide training courses to help skilled Arab workers adjust their skills to employers' needs.

Professional training and retraining programmes have been shown to be ineffective without proper attention to content and to the identity of the participants. To succeed in practice, such programmes must be designed with great care—a difficult task given the dearth of relevant experience in Israel.

Other programmes should help skilled workers find jobs, for example, by helping job candidates write CVs and prepare for interviews. Employment centres at the micro-level modelled on the Lights to Employment centres may also be considered.

2.3.6 Replacing foreign workers with Israeli-Arab workers

Foreign and Palestinian workers often compete for the same jobs with Israel's Arab citizens. This is especially true of male workers in construction, agriculture, and certain branches of manufacturing. The substitutability of these groups has been evident in construction, where Israeli Arabs were largely replaced by foreign workers during the 1990s but enjoyed a partial 'comeback' in the 2000s with the decline in the number of foreign and Palestinian workers permitted to work in Israel.

The government can encourage the replacement of foreign with local Israeli-Arab workers by:

- Implementing government resolutions concerning foreign workers, especially with regard to taxation.
- Boosting enforcement against the illegal employment of foreign workers.
- Subsidising the employment of Israeli Arabs in certain sectors of the economy and/or making the employment of foreign workers more costly to employers.

Two committees headed by Professor Zvi Eckstein (former deputy governor of the Bank of Israel) published a series of recommendations concerning foreign workers in September 2007 and in January 2010. The Israeli government adopted the recommendations, of which the most relevant to our topic are the recommendations to reduce the number of foreign construction workers to zero and to limit the number of seasonal foreign agricultural workers to 18,900 by 2015. Another important recommendation was to introduce technological changes in order to increase productivity and reduce the labour-intensive nature of these sectors of the economy.

Recommendations are one thing, but implementation is another. Two major problems hinder implementation at present: (i) Palestinian and illegal foreign workers are still employed in construction in significant numbers; and (ii)

implementation in agriculture is slow and has been postponed for years. In 2011, Government Resolution 3453 postponed to January 2016 the projected reduction of the quota for foreign construction workers from 8,000 to 5,000. A projected reduction in the quota for agricultural workers (from 26,000 to 24,500) was also postponed by a year, and was eventually replaced in 2012 by a plan to reduce the quota to 18,900 by 2015. Then, in 2013 the government decided to increase the quota from 21,600 to 25,000.

It should be noted in this context that technological changes in construction and agriculture may have serious implications for the employment of Israeli Arabs. To help them cope with such changes and keep up with technological innovation, further investment in education is crucial.

2.3.7 Promotion of employment of Arab women

Arab women in Israel are characterised by low employment and labour force participation rates. To promote their employment in the short run and the long run, the government could:

- a. Set up employment centres in Arab towns and villages. Some towns already have employment centres, which can provide information, refer job-seekers to employers, and offer transport services to work. In doing so, such centres can help job-seekers overcome two significant and interrelated types of barriers to work – cultural and geographical.
- b. Reduce the costs of taking up a job, for example by subsidising childcare. As noted above, the Israeli government has recently increased its funding of such programmes.
- c. Incentivise work, for example by subsidising workers' pay or increasing the negative income tax for eligible workers.
- d. Increase awareness of the importance of labour force participation, women's rights, and so on, for example through high school curriculums targeting both male and female students. Collaborating with local leadership may increase the success of educational programmes of this sort.

2.3.8 Improving workplace accessibility

Geographical concentration and limited transportation are a major problem for Israel's Arab population. Many Arab towns and villages suffer from underdeveloped infrastructures – the road system is deficient, and public transportation is inadequate, both within Arab towns and from the towns to Israel's major urban areas. The resultant

geographical inaccessibility is a major factor explaining the low labour force participation rate among Arab women. Improving workplace accessibility requires major investment in adequate transportation infrastructures. In the short run, government subsidies to employers, potential workers, and transportation companies may help. In the long run, major infrastructural improvement is indispensable to the effort to bring down the costs to potential workers.

As delineated above, a plan to increase workplace accessibility has been implemented in recent years. The plan has specific provisions for various towns and includes both infrastructural investment (within and between towns) and cost subsidies. According to the plan, all Arab towns in Israel will eventually be connected to the public transportation system. This plan must be supplemented, however, by additional investment in roads.

2.3.9 Removing geographical barriers

Much of the Arab population is concentrated in relatively peripheral geographical areas. As a result, Arab job-seekers live far from Israel's major centres of employment. To help solve this problem, the government should:

- Develop transportation to existing centres of employment.
- Help create jobs in Arab population centres, for example by encouraging firms to move to locations accessible to Arab job-seekers. Preference should be given to hi-tech and/or knowledge-intensive firms, but even firms in less advanced sectors of the economy could play an important role. Such steps are especially important given the fact that land shortage and poor physical infrastructure often present the main barriers to firms' relocation.
- Encourage a wider geographical spread of Israel's Arab population. This is a complex, long-term goal achievable by establishing new Arab towns or by encouraging Arabs to live in 'mixed' or Jewish-dominated cities.

2.3.10 Anti-discrimination legislation and enforcement

Most developed countries legislate and enforce anti-discrimination laws and strive to raise public awareness of the related issues. Israel can follow their lead and rely on their considerable experience in order to fight discrimination against Arab workers and job-seekers. The following steps, among others, should be taken:

- a. Anti-discrimination legislation and enforcement:

- Discriminating employers should be penalised by fines, de-licensing, or imprisonment, depending on the gravity of the offence and their prior record.
 - The government needs to set up an effective enforcement mechanism, including inspectors, prosecutors, and fine collectors to enforce new or existing laws.
 - Affirmative action policies should be adopted, especially for Arab women.
- b. To raise public awareness of discriminatory practices and anti-discrimination legislation and enforcement, the government can:
- Advertise the available data on discrimination, such as comparable employment and pay data for Arabs and Jews. The government can also encourage relevant research to collect the data.
 - Launch publicity and information campaigns designed to raise awareness among employers. For example, the government can advertise its anti-discrimination laws and the relevant penalties.
 - Distribute codes of conduct (e.g. proper recruitment and management practices) to employers.
 - Inform workers of their rights, for example by placing ads in Arab newspapers or launching publicity campaigns in Arab population centres.
- c. To encourage workers to battle discrimination, the government can:
- Provide free legal assistance (including legal counselling, investigative support and legal representation) to workers interested in suing or filing complaints against discriminating employers.
 - Simplify and shorten the relevant legal procedures.
 - Increase compensation in case of successful lawsuits.

In many OECD countries, such steps were taken as recently as the last decade. In the US. and the UK such legislation is longer standing. In the US, equal opportunity laws were legislated during the 1960s (equal pay laws in 1963, the Civil Rights legislation in 1964), while in the UK they were legislated mostly during the 1970s (laws against racial

discrimination in 1976, for example). Legislation in other countries (e.g. in the former Soviet Block) has been more recent, and much of it under the influence of the European Union. Israel can rely on these valuable precedents when adopting the legislation, penal codes and publicity campaigns recommended above. A team with representatives from the Ministries of Justice, Finance, and the Economy should study legislation and enforcement efforts from other countries and apply them to the case of Israel's Arab population. Legislators, cabinet members and government officials should then base their legislation and budgeting decisions on the team's work.

Such steps would require considerable budgets. For example, adding ten inspectors to help enforce the laws would require an annual budget of 1.2 million NIS to cover employment costs alone (not including training and administrative costs). Dozens of teams with the requisite administrative infrastructure would easily require a budget of several dozen million NIS. Additional costs to cover legislation, publicity campaigns, legal assistance and further enforcement would require upwards of 100 million NIS.

2.3.11 Employment of university graduates

As noted above, Arab university graduates often find it difficult to find jobs in their fields of study. Policies designed to improve the fit between educational credentials and occupational attainment will increase both productivity and worker satisfaction. Other side-benefits may include greater educational opportunities for the children of gainfully employed Arab individuals.

One firm that employs Arab university graduates in significant numbers is the Israeli branch of the American hi-tech company Intel. The company has a policy of diversity in employment and actively promotes Arab employment. It does so by placing job ads in Arab media and newspapers, by including Arabic-speaking interviewers in job interviews, by fostering ties between the firm's Arab workers and their local communities, and so on. Intel's example shows that where there is a will, there is a way. The company's experience with its Arab workers has been positive, and other firms should be encouraged to follow its lead. The government can provide such encouragement in the form of informative programmes and financial incentives.

2.4 Population heterogeneity and policy objectives

Government policy tends to be more effective the more narrowly it targets specific population groups; this is especially true of labour market

policy. In our case, special attention should be given to the differences between (i) men and women, and (ii) different religious, ethnic, and geographical groups within the Arab population (Muslims in Northern Israel and the 'Triangle' area, Muslims and Bedouins in Southern Israel, Druze and Circassians in Northern Israel, and Christian Arabs).

Below, we prioritise the above-recommended policies along these gender, religious, ethnic, and geographical dimensions.

2.5 Budget breakdown

In this section, we provide a breakdown of the short-term, medium-term and long-term budgetary implications of the above recommendations. We delineate both annual budgets and one-off expenditures. The recommended annual budgets are designed to permanently augment budgets; the proposed one-off expenditures are designed to bridge existing 'gaps'. The recommended budgets are not small, yet we believe they are necessary to produce the requisite change. The current problems are the result of chronic underfunding; correcting them cannot be done on the cheap.

We do not discuss possible sources for our proposed budgets. Our aim is simply to budget the various programmes and policies we recommend. If the recommendations are adopted, it will of course be necessary to determine their importance relative to other priorities and whether they should be funded by cutting other expenditures or by raising taxes. Let us emphasise, however, that our recommendations do *not* imply an increase in the government deficit or debt.

Table A11 presents the expenditures required by the programmes proposed in the two previous sections.⁷ We provide a budget range (in billion NIS) for each of several time spans: "short-term" refers to permanent annual budgetary increases over a period of 2-3 years, "medium-term" refers to permanent annual budgetary increases over a period of 5 years, and "long-term" refers to permanent annual budgetary increases over a period of 10 years. The sums are inclusive; that is, the budget for each time span includes the budgets specified for the shorter time spans. This means the increases in the budget are phased-in gradually. "One-off" refers to one-off, non-renewed expenditures. The numerical ranges (in billion NIS) specify lower and upper limits for each type of expenditure.

The total budget for the measures unique to the Arab sector reaches 5.3 billion NIS in the highest evaluation for the long term, which is approximately \$1.5 billion at current exchange rates, or 0.7% of GDP. The highest evaluation for the one-off expenditure is 3 billion NIS (roughly \$0.8 billion) or 0.4% of GDP.

Additionally, measures not unique to the Arab sector reach 0.7 billion NIS (approximately \$0.2 billion) in the highest evaluation for the long term, or 0.09% of GDP. The highest evaluation for the one-off expenditure here is 1 billion NIS (roughly \$0.3 billion) or 0.12% of GDP.

2.6 The policy payoff

One major issue of interest is the payoff to the proposed policy measures. The previous sections outlined the government expenditures needed, so it is natural to ask what will be the return on those government investments. In this section we simulate alternative scenarios of this payoff in terms of increases to Israel's GDP. The essential idea is to look at Arab *women* and simulate the potential increase in employment and therefore in output, under the assumption that policy promotes labour force participation and employment over and above any increase that may arise due to non-policy factors.

This simulation exercise is fraught with uncertainty, with questions such as: What is the expected working age population growth? What would be the policy-induced increases in employment versus non-policy-induced increases? How would demographic, cultural, social and political factors, as well as economic incentives influence the latter? How much more output will be produced by the additional workers?

In what follows, we make the following assumptions in order to deal with some of this uncertainty. These are intentionally conservative assumptions designed to achieve a relatively low rate of return on the investment. Thus, the results constitute a lower bound on the return.

We assign half the costs delineated in the plan above to Arab women and assume that the increase in their participation rate is a multiple of 1.05, 1.06 or 1.07 of the expected, non-policy-related future rise in participation. We assume unemployment among Arab women remains as it has been since 1995 and that output per worker grows at the rate it has grown since 1995.⁸ Moreover, we assume the output produced by an Arab woman is lower than that of a Jewish woman by a factor that

⁷ No budget is delineated for the issues of geographical dispersion.

⁸ We refer to data since 1995 as these data have formed consistent series since a major revision in CBS surveys undertaken in 1994.

reflects the ratio between Arab and Jewish wages. The latter is a strong assumption whereby wages reflect productivity and Arab women get lower wages because they produce less and not because of discrimination. This, too, biases our results towards low returns.

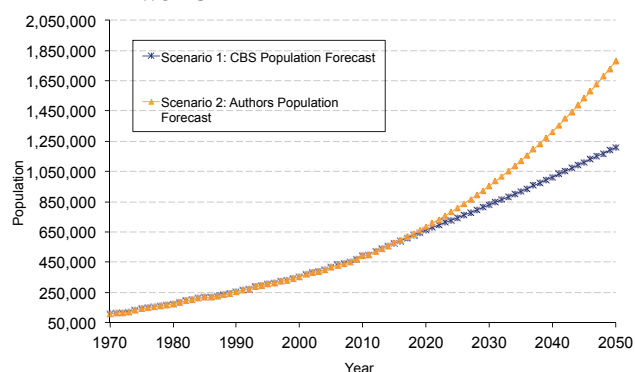
The following discussion presents the simulation, step by step, using figures and tables.

2.6.1 Population and participation rates over time

In order to simulate future Arab women participation rates, we do the following:

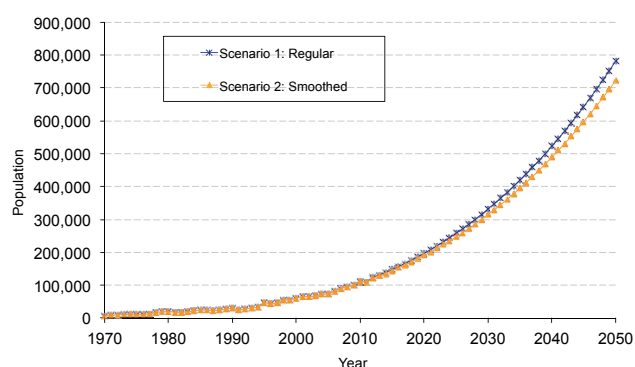
- Project future working age population. This is shown in Figure 8a, plotting CBS projections (their so-called “medium scenario”)⁹ and our own projections,¹⁰ as well as the actual, past working-age population series from 1970.
- Project future Arab women participants. This is shown in Figure 8b, using two, alternative future scenarios.¹¹ It also shows the actual participants series from 1970.
- Project the future rates of labour force participation of Arab women by dividing each of the alternatives in Figure 8b by each of the alternatives in Figure 8a. As a result, we get four simulated projections. In order not to present a figure which is too cluttered, in Figure 8c we show one of these four series – the smoothed projection (scenario 2) from Figure 8b divided by the CBS population projection (scenario 1) from Figure 8a. The figure also shows two policy scenarios: in one we multiply the projected rate by 1.06, and in the other we multiply the projected rate by 1.07. Table A14 reports results also for the series that were omitted here. In addition, we mark by a red square the government employment target for 2020, which is an employment rate of 41%. It is clear that our projections are conservative, as the red square lies well above the projected schedules.

Figure 8a Working age population forecast, Arab women



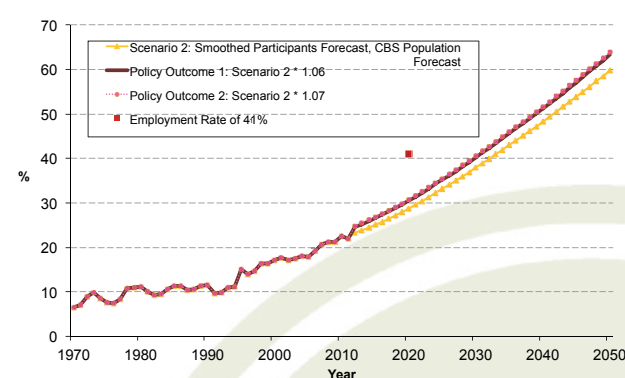
Source: CBS medium scenario population forecast and author's forecast.

Figure 8b Labour force participation forecast, Arab women



Source: CBS medium scenario population forecast and author's forecast.

Figure 8c Labour force participation rate, Arab women, forecast and simulation



Source: CBS medium scenario population forecast and author's forecast.

Note: 1 The red square refers to age 25-64, while the other data in the figure refer to age 15 and above.

The basic picture that emerges from the three figures is that over a 40-year horizon, the rate of Arab women participation is expected to grow by roughly 10 percentage points every decade from a baseline of almost 22%, reaching 60% by mid-century. Our very conservative policy estimates indicate that policy-induced participation will raise these numbers by 2 to 4 percentage points.

⁹ This scenario envisages a growth rate of 3.5% in 2010-15, 3.1% in 2015-20, 2.6% in 2020-25 and 2.3% in 2025-40.

¹⁰ This projection is based on a regression of population on a cubic time polynomial and envisages a growth rate of 3.3% in 2010-15, 3.4% in 2015-20, 3.4% in 2020-25 and 2.8% in 2025-40.

¹¹ The two scenarios are based on a regression of Arab women participants on a cubic time polynomial. In scenario 1 the dependent variable is the number of women, and in scenario 2 the dependent variable is the Hodrick-Prescott filtered number of participants.

2.6.2 Output gains

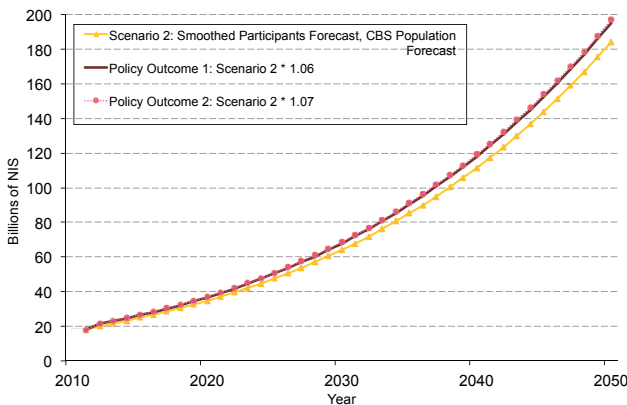
We now use the assumptions outlined above and apply the following equation to compute how much more output (ΔY) the added participants are going to produce:

$$\Delta Y = \Delta L * (1-u) * (F/E) * k * (1+g)$$

where ΔL are the added women participants; $(1-u)$ is the fraction of the added participants who will not be unemployed (u) (i.e. who will be employed); (F/E) is output per worker; k is the factor that we use to account for the assumption that Arab women produce less than the average worker;¹² and $(1+g)$ is one plus the growth rate of output per worker.¹³

Figure 8d shows annual GDP produced by Arab women computed using the above equation. The figure shows the same three scenarios outlined in Figure 8c.

Figure 8d Annual GDP of Arab women, simulation, 2011 prices



Source: CBS medium scenario population forecast and author's forecast.

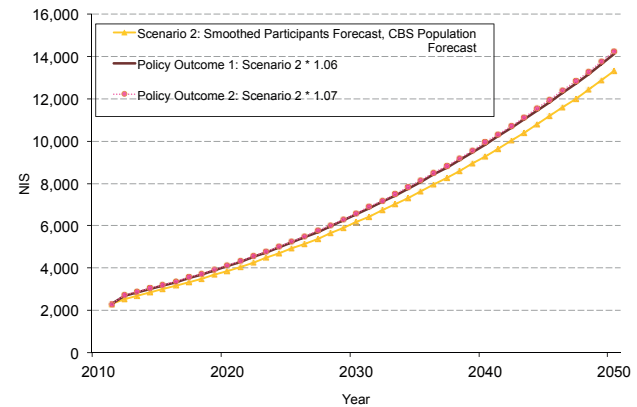
The figure uses constant, 2011 prices so there is no confounding here of the effects of inflation. Figure 8e shows the same but now expressed in NIS per capita, so this is total annual GDP of Arab women divided by the entire population of Israel.

Table A13 shows the data of Figures 8b-e in numbers and also total cumulative GDP.

The basic picture that emerges from Figures 8d-e and Table A13 is that over a 40-year horizon, the annual contribution of Arab women to GDP is expected to grow from 18 billion NIS to 35 billion NIS by 2020, to 64 billion NIS by 2030, to 111 billion NIS by 2040 and to 184 billion NIS by 2050. Cumulatively, this is an addition of 3.11 trillion NIS over four decades. Our very conservative policy estimates indicate that policy-induced

participation will raise these GDP numbers, starting by 2 billion NIS a year in 2020 and reaching an additional 13 billion NIS per annum by 2050. Thus, cumulatively, output will increase by close to 3.3 trillion NIS (rather than 3.11 trillion NIS) by 2050.

Figure 8e Annual GDP of Arab women per capita, simulation, 2011 prices



Source: CBS medium scenario population forecast and author's forecast.

2.6.3 Rates of return

Table A14 presents the payoff for this policy. It shows six rates of return that cover the three possible policy effects we had considered (multiples of 1.05, 1.06 and 1.07 of the projected participation rates) and the two participation forecasts (shown in Figure 8b). In computing the internal rates of return, the revenue is the added GDP computed as explained above, and the costs are half of those delineated in Table A11 (as the simulation refers to women only). In computing the costs, we allow for productivity growth and take into account the time schedules outlined in Table A11.

Even though the simulation uses very conservative estimates, most of the rates of return are sizeable and indicate a high payoff. Note that other economic gains, such as reduced benefit payments and higher tax revenues for the government, and additional income to households or additional profits for firms, are *not* part of this computation. Table A14 considers just added total GDP as compared to total costs. The median and average returns in the table are a little over 7%, a sizeable lower bound.

Conclusions

Arab participation in the Israeli labour market should be a cause for concern. Israeli Arabs make up one-fifth of Israel's population. Their labour force participation rate is relatively low, those who do participate have difficulty in finding suitable jobs and suffer from high unemployment, and most workers are concentrated in a narrow range

¹² We use the ratio of hourly wages of Arabs to that of total workers for 2011 to derive the factor.

¹³ Thus, we use the data-based values of $u = 0.105$, $k = 0.7$ and $g = 0.011$.

of low-paying occupations. As a result, Israeli Arabs suffer from economic hardship and high poverty rates. Their limited participation in the labour market exacerbates their sense of alienation from Israeli social and political life, makes Israel's GDP grow below potential, and impedes the Israeli economy in general.

The difficulties experienced by Israeli Arabs in the labour market therefore have severe implications not only for their own socioeconomic standing, but also for Israeli society at large. To solve these difficulties, the Israeli government needs to assist Israeli Arabs in their efforts to join the labour force and find employment. This Policy Insight has characterised the main labour-related problems facing Israeli Arabs and has recommended government policies to help solve them. The magnitude of these problems calls for major steps and considerable investment in education, transport infrastructure, childcare, job creation in certain geographical regions, labour law enforcement, and more. Only a comprehensive programme could bring about the desirable change and help Israeli Arabs integrate successfully into the Israeli labour force. The benefits would be immense, not only for Israel's Arab citizens, but for the Israeli economy as a whole.

References

- Abu Badr, Suleiman and Daniel Gottlieb (2008). "Poverty, Education, and Employment in Arab-Bedouin Society: A Comparative Perspective", Jerusalem: Van Leer Institute and the Institute of Social Security.
- Bank of Israel (various), *Annual Reports*.
- Brookdale Institute and the National Institute of Social Security (2010), *An Assessment of the Orot LaTaasuka Program, Final Report*, May.
- Central Bureau of Statistics (2005), *The Social Survey*.
- Central Bureau of Statistics (2008), *Statistical Abstract of Israel*.
- Central Bureau of Statistics (various), *Labor Force Surveys*.
- Gal, J. M, Ajzenstadt, A. Ben-Arieh, R. Holler and N. Zielinsky (2009), "Israeli Child Policy and Outcomes", Social, Employment and Migration Working Papers, OECD, Paris.
- Jabareen, Y. (2007), "Employment Development Strategies for Israel's Arab Population: Expanding the Israeli Middle Class", Samuel Ne'eman Institute.

Manna, A. (ed.) (2008), *Arab Society in Israel: Populations, Society, Economy 2*, Jerusalem: Van Leer Institute.

Mustafa, M. and K. Arar (2009), "Minority Accessibility to Higher Education: The Case of Israel's Arab Population", in R. Khamaisi (ed.), *Arab Society in Israel: Populations, Society, Economy 3*, Jerusalem: Van Leer Institute.

Smootha, S. (2010), "Index of Arab-Jewish Relations, 2003-2009", The Jewish-Arab Center, University of Haifa.

Yashiv, E. and N. Kasir (Kaliner) (2011), "Patterns of Labor Force Participation Among Israeli Arabs", *Israel Economic Review* 9(1), pp. 53-101.

Yashiv, E. and N. Kasir (Kaliner) (2013), "Arab Women in the Israeli Labor Market: Characteristics and Policy Proposals", *Israel Economic Review* 10(2), pp. 1-41.

Appendix

Table A1 Years of schooling, rates of matriculation eligibility, and rates of satisfying university entrance requirements (by population groups), 2011

	Arab	Jewish
Years of schooling, population aged 15 and over:		
0-8 years	23.1	7.5
9-10 years	15.9	8.3
11-12 years	37.2	35.2
13 years and more	23.7	48.8
Rate of matriculation eligibility, pupils in 12th grade	49.9	58.5
Rate of 12th grade pupils that satisfy university entrance requirements	36	49.7

Table A2 Rate of non-participation in the labour force in the Arab population, by age and schooling, 2011

	Aged 25-64 ¹	Under age 65, over 12 years of schooling ²	Under age 65, under 10 years of schooling ²
Men	20.8	37.4	27.7
Women	16.9	57.9	34.5

Notes: 1) The percentage of non participants aged 25-64 out of the total non participant population of all ages. 2) The percentage of non participants aged 65 and lower in the group out of all groups of schooling.

Table A3a Rate of non-participation in the labour force in the Arab population, by age and gender, 2011

Men			Women		
Age	Number	Percentages	Age	Number	Percentages
15-17	49,826	24.5	15-17	49,375	12.7
18-24	49,727	24.5	18-24	79,079	20.3
25-29	15,787	7.8	25-29	31,176	8
30-34	8,216	4	30-34	39,369	10.1
35-44	16,514	8.1	35-44	67,880	17.4
45-54	16,628	8.2	45-54	51,416	13.2
55-59	10,172	5	55-59	20,283	5.2
60-64	8,574	4.2	60-64	15,411	4
65-69	10,483	5.2	65-69	12,990	3.3
70-74	7,253	3.6	70-74	9,852	2.5
75+	9,876	4.9	75+	12,809	3.3
Total	203,056	100	Total	389,640	100

Source: Calculations based on CBS Labor Force Surveys.

Table A3b Number of non-participants in the labour force, Arab population, by schooling and gender, 2011

Men			Women		
Years of schooling	Number	Percentages	Years of schooling	Number	Percentages
0	8,662	4.3	0	38,860	10
1-4	11,204	5.5	1-4	19,070	4.9
5-8	35,766	17.6	5-8	66,915	17.2
9-10	38,418	18.9	9-10	63,492	16.3
11-12	69,790	34.4	11-12	139,785	35.9
13-15	25,067	12.3	13-15	42,616	10.9
16+	11,885	5.9	16+	17,326	4.4
Unknown	2,264	1.1	Unknown	1,576	0.4
Total	203,056	100	Total	389,640	100

Source: Calculations based on CBS Labor Force Surveys.

Table A3c Number of non-participants in the labour force, Arab population, by district and gender, 2011

Men			Women		
District	Number	Percentages	District	Number	Percentages
Jerusalem	36,579	18	Jerusalem	77,634	19.9
North	92,198	45.4	North	173,962	44.6
Haifa	29,059	14.3	Haifa	56,024	14.4
Center	17,346	8.5	Center	33,045	8.5
Tel-Aviv	3,017	1.5	Tel-Aviv	2,755	0.7
South	24,749	12.2	South	46,016	11.8
Judea and Samaria	108	0.1	Judea and Samaria	204	0.1
Total	203,056	100	Total	389,640	100

Source: Calculations based on CBS Labor Force Surveys.

Table A3d Number of non-participants in the labour force, Arab population, by marital status and gender, 2011

Men			Women		
Marital status	Number	Percentages	Marital status	Number	Percentages
Married	81,196	40	Married	215,239	55.2
Married, living alone	526	0.3	Married, living alone	3,255	0.8
Divorced	1,482	0.7	Divorced	6,791	1.7
Widower	3,093	1.5	Widower	34,369	8.8
Single	116,759	57.5	Single	129,986	33.4
Total	203,056	100	Total	389,640	100

Source: Calculations based on CBS Labor Force Surveys.

Table A4 Unemployment rate, Arab population, by gender and schooling, 2011

Years of schooling	Men	Women
0-8	9.4	14.4
9-10	7.8	10.1
11-12	4.5	9.5
13-15	3.1	2.4
16+	1.1	3.6

Source: Calculations based on CBS Labor Force Surveys.

Table A5 Employed persons, by occupation groups, 2011

Thousands					
	Total	Group 1	Group 2	Group 3	Group 4
Jewish men	1,244,188	522,378	325,634	312,076	84,100
Jewish women	1,260,036	506,114	643,418	35,616	74,888
Arab men	279,370	43,176	53,440	146,668	36,086
Arab women	101,062	45,162	41,822	3,382	10,696
Percentages					
	Total	Group 1	Group 2	Group 3	Group 4
Jewish men	100	42	26.2	25.1	6.8
Jewish women	100	40.2	51.1	2.8	5.9
Arab men	100	15.5	19.1	52.5	12.9
Arab women	100	44.7	41.4	3.3	10.6

Notes: Total: The sum of all occupations which are classified as 1 to 9 (first digit), not including unknown occupations; Group 1: Academic occupations, associate professionals and technicians and managers; Group 2: Clerical workers and agents, sales workers and service workers; Group 3: Skilled agricultural workers and manufacturing, construction and other skilled workers; Group 4: Unskilled workers

Source: Calculations based on CBS Labor Force Surveys.

Table A6 Income, hourly wages and weekly work hours, by gender and population, 2011

	Jewish		Arabs	
	Men	Women	Men	Women
Average Income from Wage Earnings (NIS)	11,107	6,819	5,982	4,749
Average Weekly Work Hours per Worker	44	36	44	33
Hourly Wages	57	44	33	35
Average Income of Self Employment (NIS)	11,428	7,403	8,080	5,152
Percentage of Social Security Beneficiaries, by type:				
Child Benefits		17.7		22.7
Work Injury Compensation		0.3		0.2
Disability Benefits		4		4
Unemployment Insurance		0.9		0.9

Source: Calculations based on CBS Labor Force Surveys.

Table A7 Economic and demographic indicators of Arab, mixed and Jewish localities

Arab Localities	Population (Thousands, End of 2007)	Local Authority Revenue Per Person	Deficit/ Revenue Ratio	Ratio of Property Taxes to Total Revenue	Social Economic Rank	Ratio of Government Participation to Revenue	Ratio of Expenditures on Education to Total Expenditures	Percentage of matriculation eligibility, pupils in 12th Grade (2006/2007)	Car Accidents With Casualties, 2007	Gini Index, wages, 2006
Average	12.68	5,100	7.8	8.8	2.75	57.9	26.2	47.3	10.8	0.34
Median	9.2	4,962	3.6	8.8	3	57.9	25.2	46.3	6	0.335
Standard Deviation	10.98	1,039	10.1	3.9	1.02	7.8	7.2	9.7	13.7	0.031
Maximum	65.5	7,864	45.1	19.8	6	75.1	42.1	74.4	86	0.412
Minimum	1.9	2,866	0.1	1.5	1	41.6	10.4	25.5	1	0.259
Mixed Localities	Population (Thousands, End of 2007)	Local Authority Revenue Per Person	Deficit/ Revenue Ratio	Ratio of Property Taxes to Total Revenue	Social Economic Rank	Ratio of Government Participation to Revenue	Ratio of Expenditures on Education to Total Expenditures	Percentage of matriculation eligibility, pupils in 12th Grade (2006/2007)	Car Accidents With Casualties, 2007	Gini Index, wages, 2006
Average	205.6	6,737	4.5	34.1	5	29.3	16.2	49.1	549.3	0.415
Median	65.95	5,864	3.9	34.6	4	30.4	16.7	47	77.5	0.381
Standard Deviation	238.8	2,017	2.1	8.4	1.5	10.1	3.1	10.3	756.6	0.059
Maximum	747.6	11,042	7.8	51.5	8	74.4	20.6	64.7	2,275.00	0.508
Minimum	21.2	5,146	2.6	19.7	4	10.1	11.6	33.3	14	0.354
Jewish Localities	Population (Thousands, End of 2007)	Local Authority Revenue Per Person	Deficit/ Revenue Ratio	Ratio of Property Taxes to Total Revenue	Social Economic Rank	Ratio of Government Participation to Revenue	Ratio of Expenditures on Education to Total Expenditures	Percentage of matriculation eligibility, pupils in 12th Grade (2006/2007)	Car Accidents With Casualties, 2007	Gini Index, wages, 2006
Average	35	7,165	4	28.2	5.99	31.6	21.5	60.9	61.1	0.431
Median	18.2	6,570	2	28.5	6	28.9	20.4	61	15	0.429
Standard Deviation	47.16	2,440	4.3	11.1	1.93	15.4	6.7	12.6	103.8	0.043
Maximum	224.3	17,414	15.7	50.2	10	70.3	43	91.8	491	0.561
Minimum	1.3	3,726	0	6	1	3.7	8.6	26.7	1	0.341

Source: Calculations based on CBS 2008 Census.

Table A8 Level of public transportation service, December 2008*

Type of Service level	Localities	Percentage	Inhabitants	Percentage
0	60	41%	103,456	10%
1	39	27%	284,879	28%
2	23	16%	422,470	41%
3	25	17%	212,302	21%
Total	147	100%	1,023,107	100%

Notes: Level of Service 0: No public transport services; Level of Service 1: Low level of public transport services (less than 5 rides a day per 1,000 inhabitants); Level of Service 2: Low level of bus service, regular taxi service; Level of Service 3: 5 or more rides a day per 1,000 inhabitants.

Source: Israeli Ministry of Transport, National Infrastructures and Road Safety slideshow.

Table A9 Policy proposals, by gender

Men	Women
1. Manufacturing infrastructure development; increased firm subsidies	1. Employment Centres
2. Subsidies for workers to substitute foreign workers	2. Providing better accessibility to workplaces
3. Firm employment incentives for university graduates	3. Day Care Centres
4. Anti-discrimination legislation and enforcement	4. Increase of the Negative Income Tax

Table A10 Policy proposals, by religious group

Bedouins in the South	Muslims in the North and in the Triangle Zone, Druze and Circassians	Christians
1. Infrastructure development, esp. in unrecognised localities	1. Manufacturing infrastructure development; increased firm subsidies	1. Firm employment incentives for university graduates
2. Employment centres	2. Employment centres	2. Anti-discrimination legislation and enforcement
3. Improved workplace accessibility	3. Improved workplace accessibility	3. Transportation infrastructure
4. Educational infrastructure, policy to prevent dropping out	4. Firm employment incentives for university graduates	

Table A11 Fiscal summary: Budget breakdown of policy proposals, billion NIS

Policy measures unique to the Arab sector				
	Short Term	Medium Term	Long Term	One-Off
1. Demand for Workers	0.1-0.2	0.2-0.3	0.4-0.6	0.4-0.5
2. Employment Centres	0.1-0.2	0.2-0.3	0.3-0.4	
3. Education	0.2-0.3	0.8-1.0	2.5-3.0	1.5-2.0
4. Professional Training	0.1	0.2	0.3	
5. Promotion of Women Employment	0.1	0.2	0.3	
6. Transportation Infrastructure		0.1	0.1	0.3-0.5
7. Anti-discrimination Legislation and Enforcement	0.1	0.2-0.3	0.3-0.4	
8. Employment of University Graduates	0.1	0.2	0.2	
TOTAL	0.8-1.1	2.1-2.6	4.4-5.3	2.2-3
Measures not unique to the Arab sector				
	Short Term	Medium Term	Long Term	One-Off
1. Negative Income Tax	0.2-0.3	0.5-0.7	0.5-0.7	
2. Subsidies for technological changes				0.8-1.0

Table A12 Breakdown of limited budget (1.5-2 billion NIS)

	Limited Budget (billion NIS)	Distribution (percentage)
Demand for Workers	0.2-0.3	15
Negative Income Tax	0.2-0.3	15
Employment Centres	0.2-0.3	15
Employment of University Graduates	0.2-0.3	15
Transportation Infrastructure	0.2-0.3	15
Education	0.5	25

Table A13 Simulation results

Base Year Data			
	Participation rate of Arab women	Total GDP (NIS, billions)	GDP per capita (NIS)
2011	21.9	871.8	111,251
	Total GDP of Arab women (NIS, billions)	Total GDP of Arab women, per capita (NIS)	
2011	18.1	2,304	
Participation Rate (%)			
	Basic scenario	Policy scenario 2	Difference between policy and basic scenarios
2020	29	31	2
2030	38	41	3
2040	48	52	3
2050	60	64	
Total Annual GDP of Arab Women (NIS billions, 2011 prices)			
	Basic scenario	Policy scenario 2	Difference between policy and basic scenarios
2020	35	37	2
2030	64	69	4
2040	111	119	8
2050	184	197	13
GDP of Arab Women, per capita (NIS, 2011 prices)			
	Basic scenario	Policy scenario 2	Difference between policy and basic scenarios
2020	3,864	4,135	270
2030	6,164	6,595	431
2040	9,285	9,935	650
2050	13,312	14,244	932
Total Cumulative GDP of Arab Women (NIS billions, 2011 prices) ¹			
	Basic scenario	Policy scenario 2	Difference between policy and basic scenarios
2020	243	260	17
2030	739	791	52
2040	1,623	1,736	114
2050	3,112	3,329	218

Note: 1) The cumulative GDP of Arab women is computed starting from the beginning of 2012.

Table A14 Annual rate of return on policy measures; 40-year horizon; alternative scenarios

Policy Effect Participation Forecast	Number of Participants Growth Rate * 1.05		
	Number of Participants Growth Rate * 1.06		
	Number of Participants Growth Rate * 1.07		
Option 1 - Regular Forecast of Participation	3.5%	7.7%	12.6%
Option 2- Smoothed Forecast of Participation	2.2%	6.5%	11.0%

Nitsa (Kaliner) Kasir is the Head of Labor Market and Welfare in the Research Division of the Bank of Israel. She has taught at the Hebrew University of Jerusalem and at various other institutions, and has been awarded numerous teaching prizes. Kasir earned her BSc in Mathematics and Economics (*magna cum laude*), and her MA in Economics (*summa cum laude*), at the Hebrew University of Jerusalem.

Her research interests include the integration of various population groups, including Arabs, ultra-Orthodox, disabled people, and single mothers into employment; new immigrants' absorption in the labour market and their impact on the economy; issues in poverty and inequality; and minimum wage and transfer payments. She lectures and has published policy papers on these topics.

Kasir has served on many government committees, including chairing the Economics and Employment subcommittee of the 2014 Alalouf Committee to Combat Poverty. She also serves on the Forum for Diversity in Employment and as a member of the Taub Center Research Forum. She volunteers as a mentor to non-profit organisations.

Eran Yashiv is a Professor of Economics at the Eitan Berglas School of Economics at Tel Aviv University. He is also a Research Fellow of the Centre for Economic Policy Research (based in London, England) and at the Centre for Research and Analysis of Migration of University College, London and member of the Center for Macroeconomics at the London School of Economics. He currently heads the Economics and National Security program at the Institute of National Security Studies (based in Tel Aviv, Israel).

In 2012-13 he served as Chair of the Department of Public Policy and Director of the Institute for Regulation Policy at Tel Aviv University.

Yashiv has published over 40 papers, including papers in the *American Economic Review*. He is a macroeconomist, mostly interested in issues relating to the labour market. His research spans a number of themes, including search and matching in the labour market (which was the major topic of his work in recent years), the labour market and financial markets, immigration issues and exchange rate economics.

In recent years, Prof. Yashiv has been a consultant to the Bank of England and to the Bank of Israel on issues regarding labour markets. These were projects involving both academic, empirical work and policy prescriptions.

The Centre for Economic Policy Research (CEPR) is a network of over 900 research economists based mostly in European universities. The Centre's goal is twofold: to promote world-class research, and to get the policy-relevant results into the hands of key decision-makers. CEPR's guiding principle is 'Research excellence with policy relevance'. A registered charity since it was founded in 1983, CEPR is independent of all public and private interest groups. It takes no institutional stand on economic policy matters and its core funding comes from its Institutional Members and sales of publications. Because it draws on such a large network of researchers, its output reflects a broad spectrum of individual viewpoints as well as perspectives drawn from civil society.

CEPR research may include views on policy, but the Trustees of the Centre do not give prior review to its publications. The opinions expressed in this Policy Insight are those of the authors and not those of CEPR.