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The Israeli Labor Market, 1995–2015

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13.1 Introduction

In Israel, the employment rate in the main working-age bracket, 25–64, climbed from 66.8 percent in 2002 to 77.6 percent in 2016. This dramatic increase followed more than a decade of falling employment rates. It was in 2003 that the trend changed; the employment rate among men began to rise, reaching 81.4 percent in 2016, and among women the rate rose from 56.5 percent in 1995 to 72 percent in 2016. By segmenting the upturn in employment, we find that the most significant increases in employment rates took place among Arab men, ultra-Orthodox women, older workers (55–64), and the poorly educated.

The increase in employment in Israel stands out particularly against the backdrop of trends elsewhere during that time. American and OECD employment rates plummeted in the aftermath of the 2008 economic crisis, and the slow recovery from it, and have not yet returned to their pre-crisis levels. Israel, in contrast, was hardly affected by the crisis and boasts a very high employment rate today, both relative to its own past and in comparison with other countries. The overall employment rate in Israel, 76.6 percent, exceeds that of the USA (73.9 percent) and the OECD average (73 percent). Today, there is no employment gap between Israel, the USA, and the OECD countries among men (aged 25–64). Among women (aged 25–64) the Israeli rate is 7.8 percentage points higher than that of the OECD average and 4.5 percent higher than the USA.

The increase in employment has of course been paralleled by growth in labor income among all types of households and in the share of labor wage out of total income, even as hourly wages hardly changed.

In this chapter, we attempt to answer one main question: What brought about the change of trend and the massive increase in employment rates among Israel's various population groups from

2002 onward? And why was this growth in employment, while typical of all segments of the population, tilted in the direction of groups of low earning ability? To answer, we estimate employment and wage equations using data from the Israeli labor force, income, and expenditure surveys conducted by the Israeli Central Bureau of Statistics. To examine changes in the coefficients over time, the model equations were estimated for the 2001–2015 period, en bloc and for each year separately. To separate changes in characteristics from changes in returns, we deconstructed the variance into different cross-sections – levels of education, age, and household structure and size – and conducted a separate analysis for the two special population groups: Arabs and ultra-Orthodox. The purpose of this deconstruction is to determine whether the increase in employment originated in demographic changes or in changes in returns that modified incentives.

Analysis of the models' estimates and the deconstruction shows that most of the demographic changes not only failed to abet the increase in employment but actually lowered employment rates. The only exception is an increase in individuals' levels of education, which contributed about 20 percent to the upturn in the employment rate of men and 40 percent of the increase in that of women. Population aging affected employment rates adversely even though raising the pension retirement age triggered a sizable increase in employment among older workers. Changes in household structure and size also affected employment negatively. The proportional growth of the ultra-Orthodox and Arab population groups also made a negative contribution to the total employment rate, even though the employment rates of both groups rose dramatically. Therefore, demographic changes in the aggregate cannot explain the increase in employment during the years in question.

We continue by testing another hypothesis: The increase in employment was triggered by changes in the wage return to education and experience. The results of our estimation show that the return to education was static during the research period at all levels of schooling other than master's degree and up, in which the return increased. The upturn in employment, however, focused specifically on the poorly educated population, as noted above. Examination of the return on experience also showed no major changes over time. Changes in household profile coefficients on the basis of affiliation with the Arab and

ultra-Orthodox populations were tested and also proved unable to explain the increase in employment.

Next, we tested the hypothesis that it was policy changes, particularly far-reaching revisions of benefit and tax policies in 2002 and 2003, that turned the trend around and allowed employment to grow. The period at issue did see dramatic policy changes in these fields: In July 2002, the criteria for unemployment benefits were toughened as part of an economic emergency program and the qualifying period for these benefits was extended from six months to one year. In 2003, unemployment compensation was cut back, its maximum payout term was shortened, and its eligibility terms were toughened. These legislative changes triggered a steep decrease in the population of persons eligible for unemployment benefits, reduced payouts of these benefits, and held payoff to a shorter term than before.

Concurrently, in 2003, the income support benefit was reduced and its terms of eligibility were revised. The same year, child allowances were slashed and the dependency of the benefit level on the number of children was revised. In this legislative change, the rising scale of per-child benefits commensurate with the number of children in the household was replaced with a lump sum per child, severely reducing benefits for large families.¹

The income tax reform that began in 2002 expanded in 2004. The reform, focusing entirely on those of low and median income, raised the tax threshold considerably by about 33 percent and gave a full income tax exemption to some 300,000 working people who had previously been tax-liable. Also in 2004, the statutory retirement age was raised from 65 to 67 for men and from 60 to 62 for women.

From 2005 onward, welfare-to-work programs for income support recipients were piloted. In studies that evaluated the trial programs, it was found that they had a positive effect on employment and labor income and induced cutbacks on welfare payments to those participating. However, they did not affect hourly wages or total income.² As for the programs' effect on total employment, it should be borne in mind that they were trial programs that were activated for a small part of the

¹ The reduction of child benefits had an adverse effect on productivity (Cohen et al., 2013).

² For elaboration on the outcomes of the trial programs see Myers–JDC–Brookdale (2008, 2010) and Schlosser and Shanan (2016).

relevant population; therefore, their impact on total employment was marginal.

Since 2008, too, low-wage working people have qualified for an Earned Income Tax Credit (“labor grant”), on a trial basis at first and, since 2012, countrywide. The level of the grant is determined in accordance with income, household situation, and number of children. Most recipients are working people who have children up to age 18, with a higher sum for those eligible who have three children or more, and working people aged 55+ and over who have no children. In 2014, the grant was paid to 255,000 persons, about 6 percent of all employees countrywide, at an annual average level of NIS 3,400. Although it boosted recipients’ earnings in 2012 by only about 3 percent of labor income, it has made a meaningful contribution to large and low-income households, which are also the program’s main benefactees (Bank of Israel, 2015; Strawczynski et al., 2015).

The policy changes described above focused on low-income workers, low-education individuals, and large families, those among whom the most meaningful increases in employment occurred. To support the hypothesis that these policy changes explain this outcome, we calculated the change in the share of benefits out of total income and the change in the share of tax out of labor income among households of various types, and examined the correlation between these changes and the increase in employment. We found that the greater the decline in benefits in a given type of household, the stronger was the increase in that type’s employment rate. Lowering the tax burden also helped to increase employment, although the effects of this change were smaller than those of the reduction in benefits and were spread more evenly among the different types of households.

In addition, the sample period was typified by a change of policy toward foreign workers, causing these workers’ numbers to fall steeply from 15 percent of total business-sector employment in 2002 to 11 percent in 2015 and stimulating demand for poorly skilled workers. Concurrently, the minimum wage was raised from 45 percent of the national median in 1995 to 60 percent, expanding these workers’ labor supply.

We conclude that most of the increase in the employment rates trace to the policy measures described above. The only demographic change that abetted employment was the increase in education, which, too, is attributable to a policy change – specifically, the opening of degree-

awarding colleges in the early 1990s under an amendment to the Council for Higher Education Law. This conclusion leads to a direct policy recommendation: to sustain the upward movement of employment rates, sustain the current policy measures.

Importantly, these policy measures raised the employment rates of the various groups without adversely affecting their income. Even as employment increased and relatively weak population groups joined the labor market, labor income rose in all deciles and among all population groups. Equalized total gross income also grew and disposable (net) income climbed as well, at rates of 33–47 percent. This demonstrates that even though labor income and benefits are mutually substitutable, the positive effect of employment on households' disposable income exceeded the adverse effect of the lowering of benefits. It is important to stress, however, that disposable income increased more quickly among non-Orthodox Jewish households than among Arab and ultra-Orthodox households. Therefore, the disparities between these groups widened, as did net inequality. This outcome was abetted by two important and typical factors that these groups share: lower employment and wage levels, and higher birth rates.

13.2 Cross-Country Comparison

Israel's employment rate has risen by nearly 10 percent since the beginning of this century. This dramatic increase, following several years of falling employment, stands out particularly in view of trends elsewhere at this time. Thus, in the OECD countries, the group of "benchmark countries,"³ and the USA, employment rates plummeted in the aftermath of the 2008 economic crisis and the slow recovery that followed and have not yet returned to their pre-crisis levels. In contrast, Israel was hardly affected by the crisis, and its current employment rate is very high both relative to its past and by cross-country comparison. Employment in Israel's main working-age group (25–64) rose from 66.8 percent in 2002 to 76.6 percent in 2016, surpassing that of the

³ A group of developed OECD countries that resemble Israel in size, level of openness to international trade, and human capital as the basis for growth, but that have larger per capita GDP and lower poverty rates than Israel's; therefore, we chose this group as a peer (or target) for Israel. The group comprises Sweden, Denmark, the Netherlands, Austria, Switzerland, Finland, and Ireland.

USA and the OECD countries (73.9 percent and 73 percent, respectively) albeit slightly below the benchmark group (78 percent).^{4,5}

Among men in the main working-age group, the employment rate fell from 80.7 percent in 1995 to 74.3 percent in 2002, and afterwards rose almost uninterruptedly to 81.4 percent in 2016. (The disparity relative to the OECD countries, 7.6 percentage points in 2002, was almost totally closed and the difference relative to the USA, even larger in the early 2000s, turned around in Israel's favor.) Among women in the same age group, the change was even more dramatic: their employment increased throughout this period, from 56.5 percent in 1995 to 72 percent in 2016. Until 2004, the employment level and its rate of increase resembled those of the OECD countries, whereas in the USA women's employment was higher and steady. From 2004 onward, women's employment accelerated briskly in Israel but continued to rise mildly in the OECD countries (apart from a slight decrease in the aftermath of the 2008 crisis) and fell in the USA as an outcome of the crisis, with no substantial recovery since then. Consequently, women's employment in Israel today exceeds that of the OECD countries and in the USA by 7.8 and 4.5 percentage points, respectively. Furthermore, whereas in Israel, as in the world at large, women's employment rates fall short of men's, the gender gap has been narrowing more quickly in Israel than in the OECD countries and the USA, standing at the time of writing at 9.4 percentage points as against 17.9 and 13.3, respectively.

The picture in labor force participation is similar. After a lengthy decrease in men's participation rates, the participation rate began to rise perceptibly in the early 2000s; today, men's participation rate is slightly higher in Israel than in the USA and is approaching that of the benchmark and OECD countries. The participation rate of women, which had risen moderately at rates similar to those in the OECD countries, spurted ahead in 2004. Today, it far surpasses corresponding rates in the USA and the OECD countries and is verging on that of the benchmark countries.

⁴ The total employment rate among those aged 15 and over shows a similar increase, from 53.2 in 2002 to a record 61.1 percent in 2016.

⁵ The years 2003–2004 were typified by economic growth that was powered by the exit from a recession in 2002. However, since the recession had little effect on employment, which oscillated at around 68 percent before the crisis (Figure 13.1), the recovery from the recession cannot explain the dramatic increase in employment.

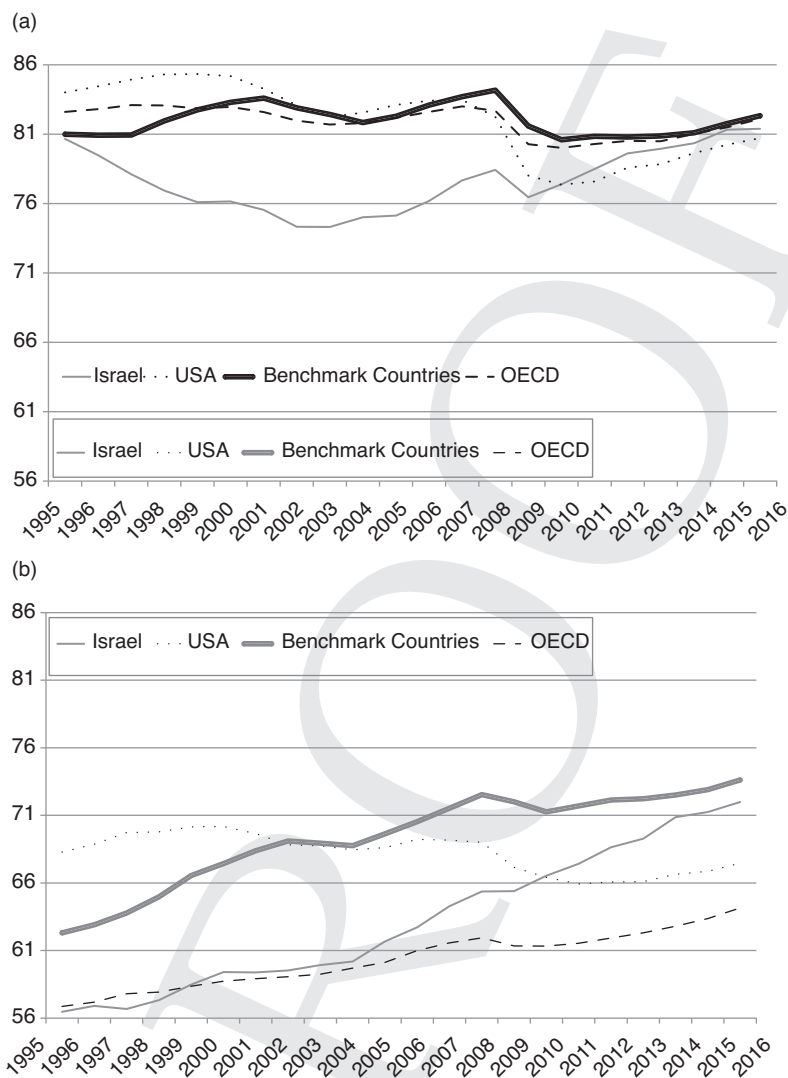


Figure 13.1 Employment rate, ages 25–64: A. Men; B. Women

We complete the tableau by observing unemployment rates during this time. In the early 2000s, unemployment in Israel spiked powerfully, in contrast to the benchmark countries and the USA, but has made a strong retreat since the middle of that decade. Since the effect of the 2008 crisis was relatively mild in Israel, the country’s unemployment rate today,

4 percent, is far below that of the benchmark and OECD countries and approximates that of the USA.

The participation rate does not reflect the dramatic changes in the labor market and the sometimes endogenous disengagement of unemployment from nonparticipation; therefore, the analysis going forward will focus on employment rates.⁶

13.3 Employment- and Wage-Equation Estimates

In this section we estimate the employment and wage equations, reduced-form equations derived from the model that describes households' employment decisions.⁷

13.3.1 Employment Equation

Here we use a linear probability model (LPM) to estimate individuals' employment decisions.⁸ The explanatory variables are individuals' education, experience, and household structure.⁹ The model is estimated on the basis of 2001–2015 data¹⁰ en bloc and for each year separately; it allows us to examine potential parameter changes over time. We also add dummy variables for Arabs and ultra-Orthodox Jews to the model equations.

In the reduced-form LPM, the dependent variable receives the value of $D=1$ if the individual is employed and 0 otherwise. The employment equation obtained is:

$$D_t^j = \alpha_{0j} + \alpha_{1j}education_t + \alpha_{2j}age_t + \alpha_{3j}family_structure_t + \alpha_{4j}population_group_t + \varepsilon_t^D \text{ for } j = f, m \quad (1)$$

⁶ Analysis of the change in weekly hours worked over time shows no change among women and only a very mild decrease among men. Therefore, we focus on the employment rate (extensive margin) and not on hours worked.

⁷ For the model and the mathematical development of equations (1) and (2), see Eckstein et al. (2018), Appendix C.

⁸ By using this model, we are able to compare the coefficients over time. A logit model for employment yielded coefficients of the same directionality as well as similar forecasts.

⁹ Lacking direct data on individuals' work experience, we use age as a proxy.

¹⁰ Education data based on the highest diploma earned are not available for 1995–2000.

where *education* represents the individual's education. We assume five possible education levels: up to secondary with no matriculation certificate; matriculation certificate; partial-academic (practical engineering, technician), baccalaureate degree; and master's degree and up. *Age* is composed of a dummy variable for the age groups. *Family structure* comprises nine dummy variables: household with one person and no children; 1–2 children, and 3+ children, where single-person households headed by women are separated from those headed by men, along with the three other possibilities: couple with no children, with 1–2 children and 3+ children. *Population_group* is composed of two dummy variables, one for Arabs and one for ultra-Orthodox Jews.¹¹

We also estimated equation (1) for each population group separately. Individuals' level of education has a strong effect on their employment choices, among the population at large and in each constituent group. The equation, however, does not allow for a distinction between the effect of the increase in demand for educated persons and the increase in supply of such persons. We return to this matter in our analysis of the wage equation. The effect of age on employment varies among the groups: It becomes negative earlier in the Arab population than among the non-Orthodox Jewish population, among both women and men. Among the ultra-Orthodox population, a stronger mix of the age and cohort effect is evident: all age coefficients are positive for men and negative for women and represent the change in intergenerational employment trends in this society.

Households that have two potential breadwinners typically have much higher employment rates than do single-person households, and their employment rates decline monotonically with the number of children for women and rise with the number of children for men. Single-person households, in contrast, whether headed by women or by men, are typified by lower employment rates and a negative effect of number of children on employment. The model for the entire population shows that when all the aforementioned demographic traits are controlled for, Arabs and ultra-Orthodox Jews typically have lower employment rates, with a stronger negative effect on ultra-Orthodox men and on Arab women.

¹¹ A household is defined as ultra-Orthodox if the last place of study of one of its members is a yeshiva.

13.3.2 Wage Equation

A standard Mincer equation is used to describe personal wage:

$$\begin{aligned} \ln w_t^j = & \omega_{0j} + \omega_{1j} \text{education}_t + \omega_{2j} \text{age}_t + \omega_{3j} \text{population_group}_t \\ & + \varepsilon_{jt}^W \text{ for } j = f, m \end{aligned} \quad (2)$$

with the explanatory variables defined as in the employment equation.

We estimated the wage equations with a Heckman correction for selection. Matriculation raises women's wages by 28 percent (for men: 12 percent) relative to non-matriculation, nonacademic post-secondary education raises wages by 36 percent among women (20 percent among men), a baccalaureate degree by 70 percent (52 percent), and a master's degree by 88 percent (63 percent). Interestingly, wage return on education is much higher for women than for men (in a model that makes no correction for selection, return on education is identical for women and men at all education levels other than the lowest). Wages are typically rather low in people's first years in the labor market (age 25–34) but rise vigorously with age among men, whereas among women wages climb as far as the 45–54 age group and decline among those aged 55–64. Wages of Arab women are 39 percent (Arab men 23 percent) lower than those of non-Orthodox Jewish women with similar characteristics. Ultra-Orthodox men's wages exceed those of non-Orthodox Jewish men of the same education attainment and age by 15 percent (as against 5 percent in the model that is not correct for selection), whereas ultra-Orthodox women receive the same wage as non-Orthodox Jewish women (as against 8 percent in favor of ultra-Orthodox women in the uncorrected model). This is an especially surprising outcome because ultra-Orthodox education is thought to be of lower quality than that of the Jewish population at large.

13.3.3 Employment Equations Parsed by Years

We estimated the employment and wage equations for each year separately. This allows us to estimate the change in employment that originates in (a) demographic changes that are included in the explanatory variables and (b) changes in the parameters that reflect changes in policy and technology (assuming that individuals' preferences remain relatively constant). For example, changes in the constant of the

employment equation reflect policy changes unless a large increase occurred in the constant of the wage equation.¹²

Figure 13.2, juxtaposing the constant of the employment equation with the employment rate, shows that the change in the constant follows the same trend as the change in the employment rate for both men and women. In the LPM model, the change in the constant reflects the estimate of change in the employment rate that is independent of the explanatory variables and does not originate in demographic changes (since the model controls for changes in education, age, household composition, and population composition). Therefore, the figure shows that the increase in employment stems largely from exogenous factors (policy changes) and not from demographic changes. In the next section, we obtain further support for this outcome by decomposing the increase in employment into demographic groups.

13.4 The Effect of Demographic Changes on Employment

The effect of demographic changes on employment is parsed to include changes in level of education and age structure, population groups (non-Orthodox Jews, Arabs, and ultra-Orthodox), and household structure (couples and singles with and without children). We present the effect of each of these variables on employment along with their total impact.

13.4.1 Education

The population's level of education has risen perceptibly in the past twenty years, to no small extent due to Amendment 10 to the Council for Higher Education Law, which made it possible to open degree-granting colleges in Israel (the law extended the number of institutions that are allowed to give a bachelor's degree from six to thirty-one). Figure 13.3 presents the distribution of education and employment at each education level. The figure illustrates the monotonic decrease in the share of individuals not entitled to a matriculation certificate along with the rising share of those with an academic education. The proportion of men with education up to secondary without matriculation fell

¹² The results of the regression show that the change in the wage-equation constants for men and women has been very small over the years.

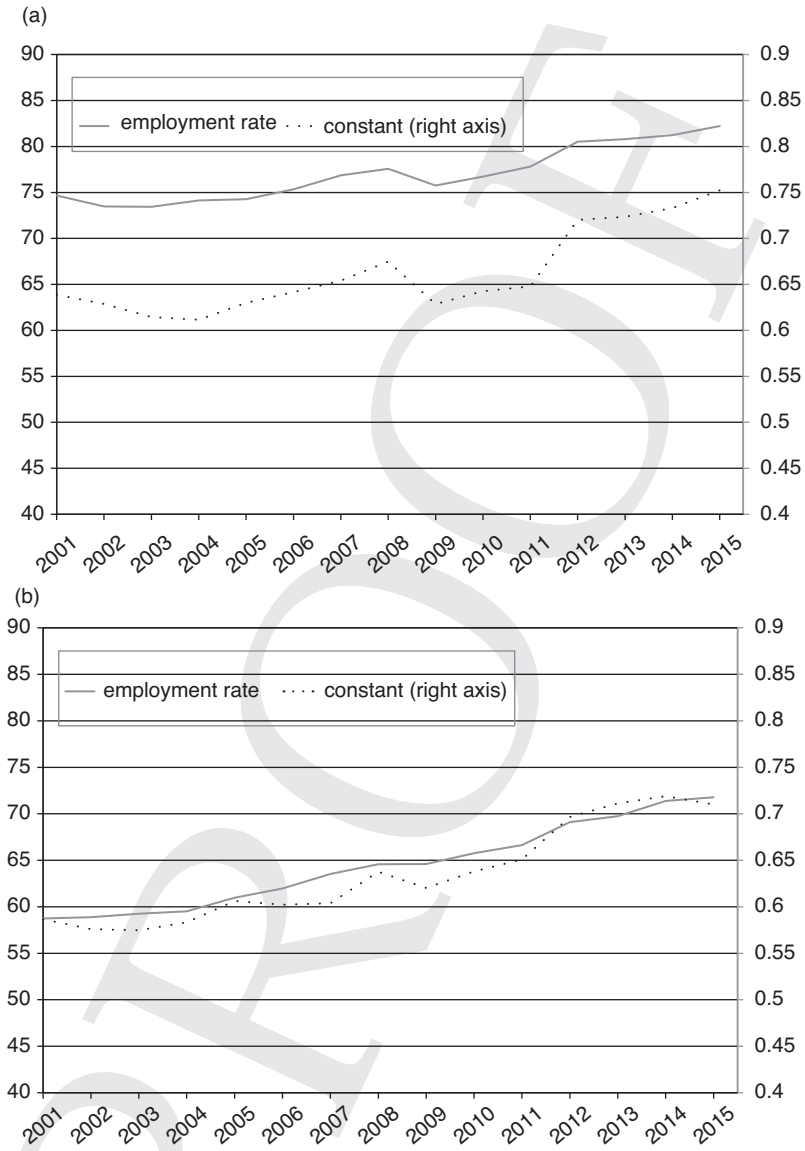


Figure 13.2 Employment rate and the constant of the LPM employment equation: A. Men; B. Women

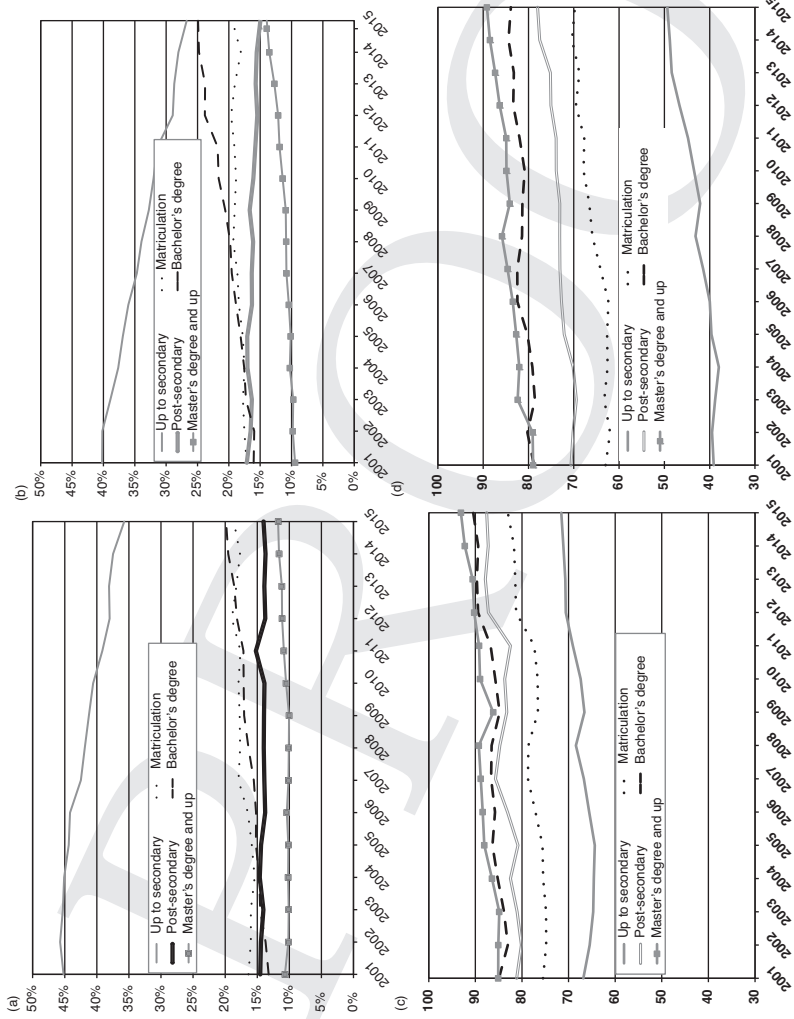


Figure 13.3 Distribution of education and employment rate by education, ages 25-64: A. Men - distribution; B. Women - distribution; C. Men - employment; D. Women - employment

from 45.7 percent in 2002 to 35.7 percent in 2015, whereas the proportion of men with baccalaureate degrees climbed from 13.7 percent to 19.9 percent. Among women, the share who had secondary education without matriculation fell from 40.2 percent in 2002 to 26.7 percent in 2015, while that of recipients of baccalaureate degrees climbed from 16 percent to 24.9 percent in the respective years. Furthermore, working-age women were better educated than working-age men in 2015: fewer had secondary schooling, with or without matriculation (46.2 percent of women as against 54.5 percent of men), and more had post-secondary and academic education.

The increase in the population's level of education helped to push employment up, of course, but, as Figure 13.3 shows, employment increased considerably in 2002–2015 at every level of schooling, among both men and women. It is commonly argued that the population of new participants in the labor market in recent years is typified by poor education and skills. This, however, is only partly so: The increase in employment stands out among matriculated men, from 74.8 percent in 2002 to 83.1 percent in 2015 (an increase of 11 percent), but is also evident among the other groups (up 9 percent). The clearly visible positive relation between education and employment persisted throughout the research period; among men, the employment disparity between the highest group (master's degree and up) and the lowest (up to secondary, no matriculation) was 21.5 percentage points in 2015.

Women's employment was lower than men's at all education levels and conspicuously so among women with up to secondary education and no matriculation: 22.2 percentage points lower than among men with the same level of schooling. (About one-third of these women are Arab.) This group also enjoyed the largest increase in employment, from 39.5 percent in 2002 to 49.4 percent in 2015 (a 25 percent boost). In the other groups, however, women's employment grew much like men's (by 5 percent for holders of baccalaureate degrees and 12 percent for all the others), leaving a large gap between the highest group and the lowest (39.8 percentage points in 2015).

Concurrent with the increase in employment, changes occurred in the distribution of employed persons' occupations and branches. The share of skilled workers among men (in manufacturing, construction, and other) fell from 37 percent in 1995 to 28 percent in 2011, whereas that of those in academic occupations, liberal professions, and

technical and managerial vocations climbed from 30 percent to 38 percent. The distribution by economic branches¹³ shows contraction in the share of men employed in manufacturing, from 27 percent in 1995 to 19 percent in 2011, whereas the share of those employed in business and financial services climbed from 12 percent to 19 percent. Among women, the changes were smaller but similar, giving further expression to the increase in the population's level of education and, particularly, to the upturn in the share of those with academic schooling.

Deconstructing the increase in employment in 2002–2015, we find that the most conspicuous constituent group, in all education categories, was that with secondary education, with or without matriculation.¹⁴ As stated, the share of the less-employed groups contracted during this time; therefore, even if the employment rate at each level of education had remained at its 2002 level, total employment would have risen, but by much less: to 75.1 percent for men and 64.1 percent for women, 7.5 percentage points lower for both sexes than the actual 2015 level. In other words, the increase in education contributed *some 20 percent to the increase in men's employment and 40 percent to the growth of women's employment*; the rest originates in employment growth within each education group. Much of the disparity between the predicted employment rates and actual employment in the foregoing scenario, 30 percent for men and 35 percent for women, traces to the increase in employment of persons with up to secondary schooling and no matriculation. This group contributes much more to the increase in employment than do the other groups.

To complete the analysis of the effect of education, we return to the wage regression in section 13.3 and ask whether changes in the wages of the various education groups, and in the return on education, may explain this phenomenon. Large wage disparities among the education levels are evident; wage increased during the review period only among those with academic schooling. The return on education obtained by

¹³ The classification of occupations and economic branches changed in 2012; therefore, to allow for consistent longitudinal comparison, we relate here to the 1995–2011 period only.

¹⁴ For the deconstruction, we calculated the employment rates that would be obtained if the share of persons employed in each group remained at its 2002 level, and then calculated the employment that would be obtained had the rate risen to its 2015 level in only one of the groups. In both cases, the total employment rate was weighted by the size of each group in the total population aged 25–64 in 2015.

estimating the wage equation for each year separately is constant at all levels of schooling except at master's level and above; thus, it cannot explain the increase in employment among persons with secondary education (with or without matriculation). Also, the constant in the wage equation did not change over the years, giving further indication that gross wage was not a meaningful precipitant of employment changes during that time.

13.4.2 Age Groups

The average age of the population in Israel, like that in most OECD countries, is gradually rising. The share of the 25–34 age group is contracting and that of the 55–64 bracket has been moving up, accounting for about one-fifth of the main working-age population in 2015.

It was also in the 55–64 age group, the group that had the lowest employment rates, that the most substantial increase in employment took place: from 60.9 percent in 2002 to 73.8 percent in 2015 among men and from 38.6 percent to 60 percent among women (Figure 13.4). The increase in older workers' employment rates originates, among other things, in the raising of the mandatory retirement age from 65 to 67 for men and from 60 to 62 for women, implemented gradually from 2004 onward. In addition to the direct effect of this change on employment, it probably also affected the decisions of workers in younger age groups to delay their retirement. Among men, differences in employment rates in the other age groups are also evident: those aged 35–44 worked more than people both younger than them and older than them, whereas the employment rates of women in the 25–54 range showed no variance among subgroups.

The change in the population's age composition not only fails to explain the increase in employment but actually *lowers* the total employment rate. Had the employment rate in every age group stayed at its 2002 level, the change in age composition would have reduced the employment rate of men (women) by 0.6 (1.0) of a percentage point.

13.4.3 Population Groups

According to one of the most widely expressed arguments in the analysis of Israel's labor market, the increase in employment in recent years originates

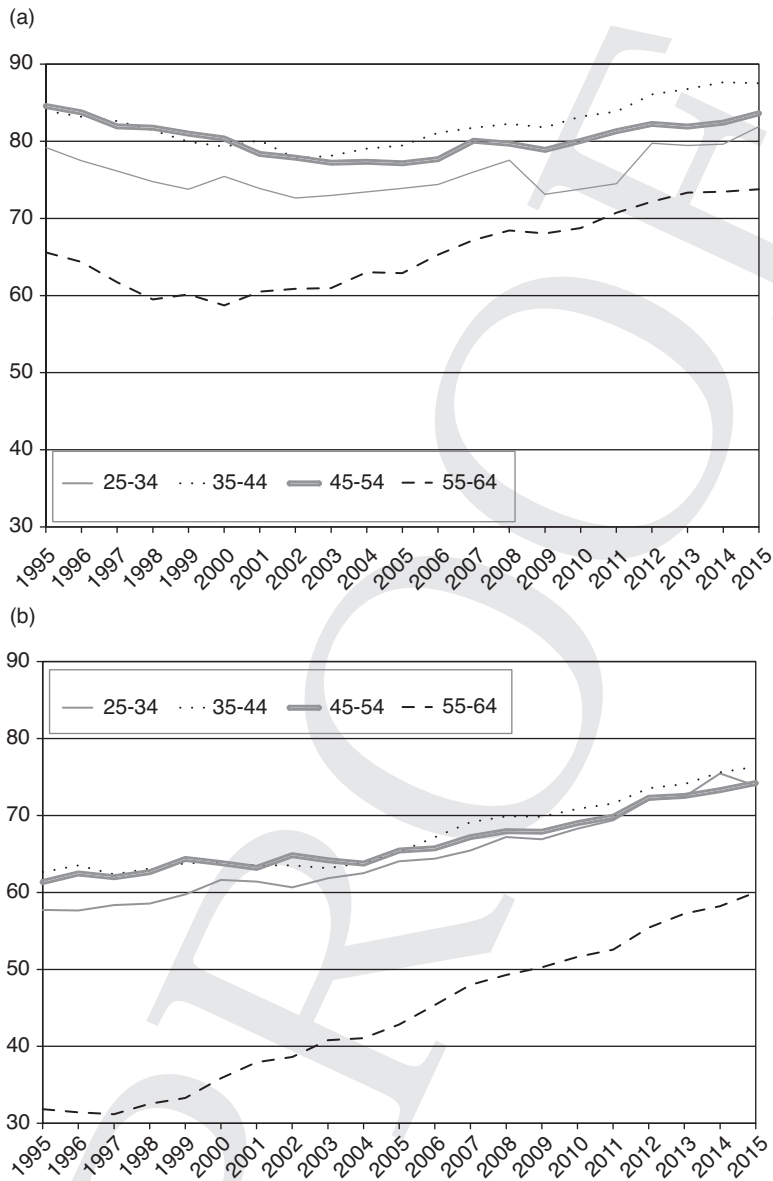


Figure 13.4 Employment rate by age: A. Men; B. Women

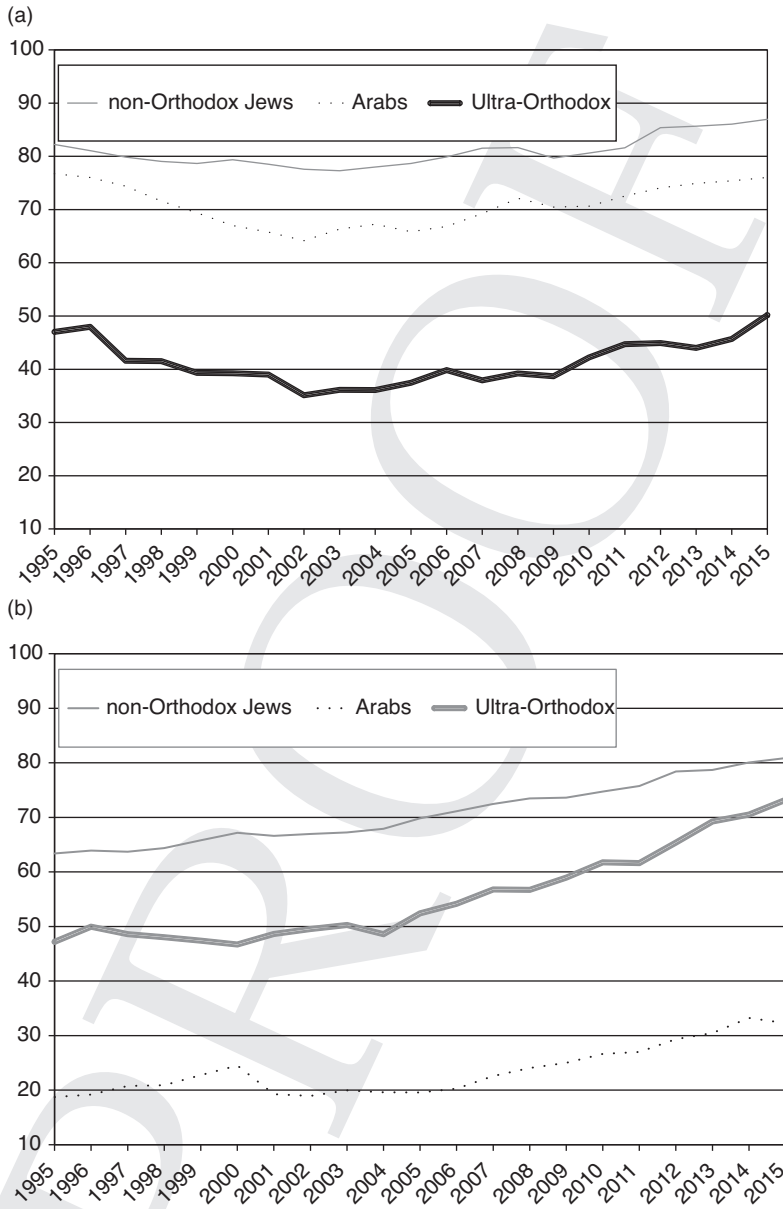


Figure 13.5 Employment rate by population group, ages 25-64: A. Men; B. Women

in greater integration of Arab men and ultra-Orthodox women into the labor market. This claim fails to tell the whole story by far. It is true that the employment rate of these two groups has gone up, as has their share in the population (ultra-Orthodox men: from 4.4 percent among all men aged 25–65 in 2002 to 7.4 percent in 2015, and Arab men: from 16.6 percent to 18.2 percent), but this is still low relative to the rest of the population. The employment rate of Arab men of main working age has indeed risen powerfully, from 64.2 percent in 2002 to 76.1 percent in 2015 (Figure 13.6) after falling for several years, but it remains far below that of non-Orthodox Jewish men, among whom, too, the employment rate has risen: from 77.6 percent in 2002 to 87 percent in 2015. Although ultra-Orthodox men's employment rates remain much lower, the pace of increase in their employment was the fastest: from 35.1 percent in 2002 to 50.2 percent in 2015, an increase of more than 40 percent. The impact of this growth was amplified by the strong increase in their share of the population during these years.

Among women, it is undisputed that the major influx of ultra-Orthodox women into the labor market – from 49.5 percent employed in 2002 to 73.2 percent in 2015 – an increase of nearly 50 percent (Figure 13.5) – is one of the most substantive changes that the labor market has experienced. Also noteworthy is the fact that unlike the other groups (and most of the Western world), employment of women far outpaces that of men in the ultra-Orthodox sector. Employment of non-Orthodox women, however, also increased during this time, from 18.9 percent to 32.3 percent among Arab women and from 67 percent to 80.9 percent among all other women. In relative terms, it should be noted that the growth rate was steepest among Arab women, who have the lowest employment level: an upturn of 71 percent between 2002 and 2015. This may be attributed, among other factors, to their having fewer and fewer children, given the inverse relation that exists between number of children and employment, as described below.

Deconstructing the increase in employment in 2002–2015, we find that the entry of Arab men and ultra-Orthodox women is not the main, let alone the only, source of the rising employment rate. Since the share of the less-employed groups has gone up, had the employment rate of each of the population groups remained at its 2002 level, total employment would have *fallen* to 72 percent among men and 57.3 percent among women. Furthermore, had only ultra-Orthodox women's employment risen and Arab and non-Orthodox Jewish women

maintained their 2002 employment rates, the share of employed women would have remained at its 2002 level of 58.9 percent; and had only the employment rate of Arab men risen, the employment level of men would have gone up by only 0.7 percentage point (and not by 8.8 percentage points, as actually happened).

Finally, we ask whether it was changes in wage returns among different groups that prompted employment in these groups to increase. Hourly wage among Arabs and ultra-Orthodox did not grow in 2002 (among Arabs it fell slightly). Furthermore, the wage gaps between the groups did not close during the period; they even became more negative among the Arab population. Thus, one cannot argue that it was the narrowing of wage gaps that caused these groups to join the labor force more intensively.

13.4.4 Household Structure

Marital status and the number of children are important characteristics that affect decisions on employment, leisure, and home production (mainly childcare). Given the different sizes and extents of change among the groups, here we analyze ultra-Orthodox, Arabs, and non-Orthodox Jews separately. Nearly all ultra-Orthodox households are composed of couples and more than half have three or more children (Table 13.1); these patterns hardly changed during the research period. Only 16 percent of Arab households are single-person and the number of children among couples has been trending downward (the share of couples with three or more children fell from 45 percent in 2002 to 37 percent in 2015), whereas among non-Orthodox Jews 30 percent of households are single-person and the number of children hardly increased during the research period.

Table 13.1 yields one main conclusion: As Arab women joined the labor force, they had fewer children. Their decline in fertility may have been a precipitant of the upturn in employment but is probably also a result of the increase. Employment rate of ultra-Orthodox women, in contrast, increased without a major decrease in household size.

As stated, employment decisions in households are a function of both spouses' characteristics, preferences, and opportunities. Therefore, it is important to present and analyze employment at the level of the entire household as well as at that of the individual only. For this purpose, we examined the employment of the head of household and his or her

Table 13.1 *Distribution of household composition by population group, head of household aged 25–64 (%)*

	2002				2015			
	Non-Orthodox		Ultra-		Non-Orthodox		Ultra-	
	Jews	Arabs	Orthodox	Orthodox	Jews	Arabs	Orthodox	Orthodox
Couple, no children	22.7	9.8	13.3	13.3	24.9	12.3	13.2	13.2
Couple, 1–2 children	32.9	26.7	23.4	23.4	28.7	32.5	22.7	22.7
Couple, 3+ children	13.4	45.1	57.1	57.1	15.3	36.6	55.8	55.8
Single-person households, man, no children	12.3	7.8	3.7	3.7	12.2	6.6	3.3	3.3
Single-person households, man, with children	1	1.6	0.4	0.4	0.7	2.2	0.6	0.6
Single-person households, woman, no children	11.9	5.7	1.3	1.3	9.7	5.2	1.5	1.5
Single-person households, woman, 1–2 children	4.9	1.1	0.3	0.3	4.5	1.8	0.5	0.5
Single-person households, woman, 3+ children	0.9	1.8	0.3	0.3	0.9	2	0.6	0.6

spouse and defined the total employment of the household thus: for a single-person household, 0 if the person is not working and 1 if working; for a household composed of a couple, 0 if neither spouse is working, 0.5 if one is working, and 1 if both are working. This analysis shows that employment increased in all household types and did so most meaningfully among households composed of single women with three children or more and couples with three children or more.

A more detailed analysis of employment patterns among couples shows that the share of working couples increased from 52.3 percent in 2002 to 65.8 percent in 2015, whereas that of couples in which only the male partner works fell to 20.1 percent and that of couples in which only the female partner works declined to 9.1 percent. (The complementary group, couples in which neither spouse works, also contracted.) The switch to two breadwinners took place in all groups, but at different scopes and paces. In more than half of Arab households, still only the male partner works, whereas in roughly one-third of ultra-Orthodox households the wife is the sole breadwinner.

Much like the demographic changes described in the previous two sections, changes in household structure do not explain the increase in employment. Had the employment of each of the household types remained at its 2002 level, total employment would have *fallen* by to 0.2 percentage point; this is due mainly to the rising share of couples with three or more children (among whom employment is relatively low) and the falling proportion of couples with one or two children (those with the highest employment rates). Thus, in this aspect of household structure, too, the entire increase in employment originates in change within each group.

In sum, the demographic changes in age composition, household composition, and population composition are affecting aggregate employment rates adversely, whereas changes in education composition explain 20 percent of the increase in men's employment and 40 percent of women's. Changes in the wage return to the exogenous variables also fail to explain the upturn in employment and, particularly, the increase in employment among low-earning-ability groups.

13.5 Wage and Income Trends

Amid the dramatic increase in employment, hourly and monthly wages largely stagnated between 2002 and 2015 (Figure 13.6). These

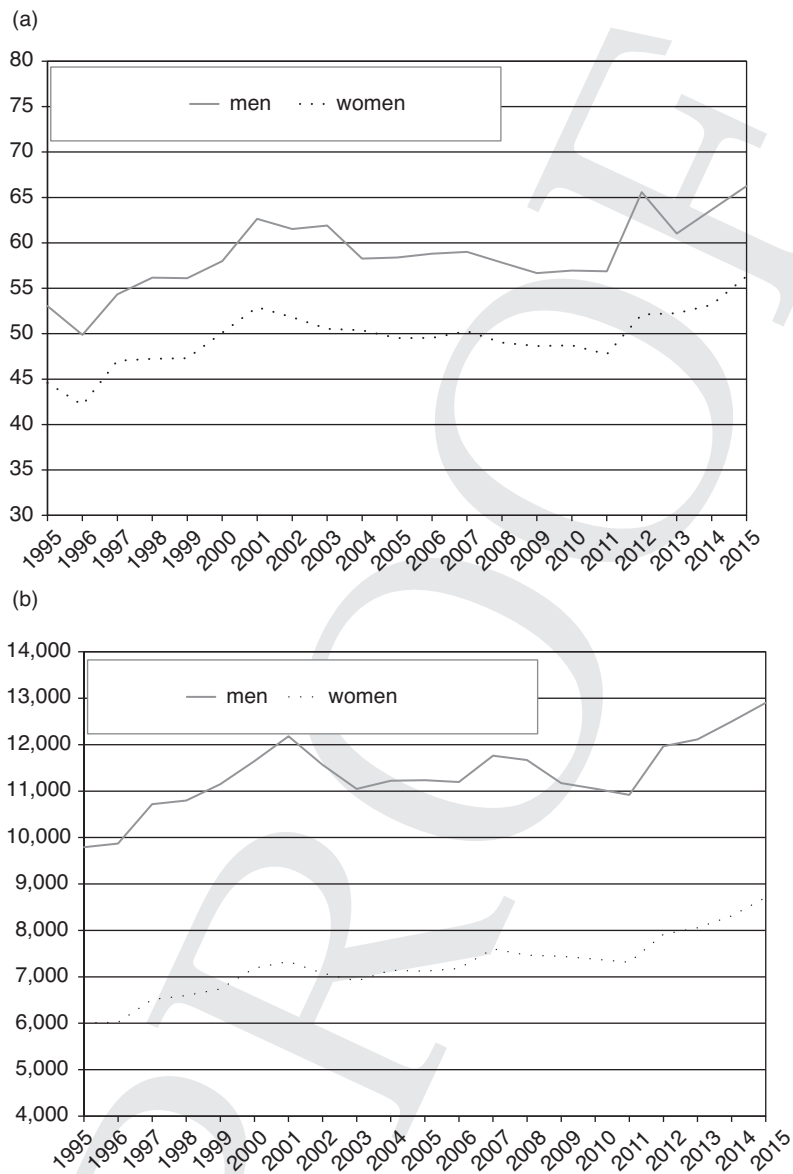


Figure 13.6 Hourly and monthly wage, ages 25–64 (2015 NIS): A. Hourly wage; B. Monthly wage

moments actually fell slightly until 2011 and only then began to rise among the non-Orthodox Jewish group only. The mild decrease in mean wage is attributable to the fact, described above, that many of those newly joining the labor market are relatively poorly schooled, advanced in years, or affiliated with lower-wage population groups.

The increase in employment-induced upturns in the proportion of households that have labor income and in the share of labor income out of gross household income, from 71.6 percent in 2002 to 78.1 percent in 2015.¹⁵ The ascending share of labor income among ultra-Orthodox and Arab households, to 62 percent and 75 percent, respectively, is particularly salient. Furthermore, in all population sectors, equalized labor income increased among households that had labor income even though those newly joining the labor force come from relatively weak population groups, at rates of 5 percent, 17 percent, and 28 percent among ultra-Orthodox, Arab, and non-Orthodox Jewish households, respectively. Concurrently, the share of social insurance benefits in gross household income has been falling.

Analysis of the changes in various kinds of household income and among the different groups and types (Table 13.2) yields three main conclusions. First, labor income¹⁶ increased in all households' types and all population groups, and most conspicuously among households that boosted their employment strongly (particularly couples with three or more children). Second, the across-the-board increase in household gross income shows that even though labor income and benefit income are substitutable and an upturn in household employment often triggers the loss of income support benefits, the overall effect of the increase in employment on household income has been perceptibly favorable. Third, the upturn in (net) disposable income shows that the heightened employment was accompanied by an improvement in households' measured standard of living (even though the loss of leisure, the increase in spending related to holding a job, the nonfinancial utilities of going to work, and the intergenerational effect are disregarded here). The gap between the rise in net income and that

¹⁵ Total gross income is income from all sources including labor, welfare benefits, capital gains, and institutional and personal support. Disposable income (net) is gross income less income tax, social security provisions, and national health tax.

¹⁶ Calculated in this table as average labor income for all households, meaning that households that have no labor income are weighted at zero.

in gross income reflects the lowering of income tax rates during this time (see below).

However, it is also important to emphasize the persistent disparities in income levels and growth rates among the population groups. Although the labor income of ultra-Orthodox and Arab households has risen slightly faster than that of non-Orthodox Jewish households, it remains far behind. In 2015, equalized labor income of ultra-Orthodox and Arab households was about one-third that of non-Orthodox Jewish household. Equalized disposable income, in contrast, advanced more swiftly among non-Orthodox Jewish households, by 47 percent as against 33 percent and 35 percent among ultra-Orthodox and Arab households; therefore, the disparities between them widened.¹⁷ According to 2015 data, equalized disposable income in ultra-Orthodox and Arab households is only 41 percent of that among non-Orthodox Jewish households (NIS 3,000 as against NIS 6,900). Two main factors abetted the slower growth rates and the widening of disparities between these two groups: lower employment and wage, and higher birth rates.

In the last row in Table 13.2, the change in labor income is shown to have been greater among the Arab and ultra-Orthodox populations, allowing inequality in labor income to narrow. The change in disposable income, however, was smaller among these population groups due to the slashing of welfare benefits, causing net inequality to widen.

13.6 Policy Changes

As we saw in section 13.4, neither demographic changes (composition of education, age, and household structure) nor the increase in employment among Arab or ultra-Orthodox population can explain the dramatic upturn in employment rates. Changes in the returns to education and experience also fail to explain it. In addition, as shown, the growth in employment was particularly appreciable among poorly educated persons and households with children. The alternative explanation proposed in this section addresses itself to policy measures that revised the set of incentives to join the labor force, specifically the cutback in income support and child benefits and the lowering of income tax rates.

¹⁷ For discussion of disparities and poverty in Israel, see Eckstein and Larom (2016), Dahan (2017), and Chapter 12 by Dahan, this volume.

Table 13.2 Total changes in income by population group and household composition, 2002–2015, head of household aged 25–64 (%)

	Change in labor income				Change in gross income				Change in disposable income			
	Non-Orthodox Jews	Arabs	Ultra-Orthodox		Non-Orthodox Jews	Arabs	Ultra-Orthodox		Non-Orthodox Jews	Arabs	Ultra-Orthodox	
			Orthodox	Ultra-Orthodox			Orthodox	Ultra-Orthodox			Orthodox	Ultra-Orthodox
Couple, no children	45	22	12	41	19	11	51	27	18	51	18	
Couple, 1–2 children	23	27	52	23	23	38	38	33	51	33	51	
Couple, 3+ children	53	41	68	49	18	32	59	25	35	59	35	
Single-person households, man, no children	30	20	37	37	17	46	50	28	28	50	28	
Single-person households, woman, no children	36	31	37	37	23	48	46	27	27	46	27	
Single-person households, man, with children	75	44	44	44	44	48	48	48	48	48	48	
All households	36	38	43	35	27	26	47	35	33	47	33	

Shadowed cells are not presented due to small number of observations.

These changes, which according to the economic model provided a positive incentive to employment, were more meaningful for the poorly educated and for households with children, who derived a larger share of total household income from income support and child allowances, than for others.

13.6.1 *Transfer Payments and Taxes*

At the beginning of the 2000s, the government initiated far-reaching changes in the welfare-payment and taxation system: income support and child benefits were lowered, and income tax structure and tax brackets were adjusted. These changes were mirrored in actual remittances to and by households (Figure 13.7): The average monthly income support benefit per household fell by 19 percent between 2002 and 2015; the average monthly child benefit per household dropped by 47 percent during this period;¹⁸ and the mean share of compulsory payments (income tax, social insurance, and national health tax) in household labor income dropped from 24 percent in 2002 to 18 percent in 2015.

The steep and protracted decrease in the proportion of households receiving income support, from 7.2 percent in 2002 to 2.7 percent in 2015, is not only an outcome of the increase in employment but also the main reason for the upturn. The toughening of eligibility terms for this benefit, coupled with the severe reduction in benefit levels in the early 2000s, incentivized households to join the labor market by decimating their welfare-benefit income. The income tax reduction acted in the same direction and encouraged low-wage individuals to take on jobs. Presumably, the process was also helped along by the implementation of proactive policy programs in the labor market starting in the second half of the 2000s and addressed to low-employment groups, particularly one-stop shops for the ultra-Orthodox and Arab populations, negative income tax, and welfare-to-work programs.

To reinforce the argument that changes in benefits figured importantly in the upturn in employment, we juxtaposed the change in

¹⁸ The benefit for a household with up to three children was essentially unchanged, whereas that for a household with four children declined by 26 percent, for a household with five children by 34 percent, and for a household with six children by 39 percent.

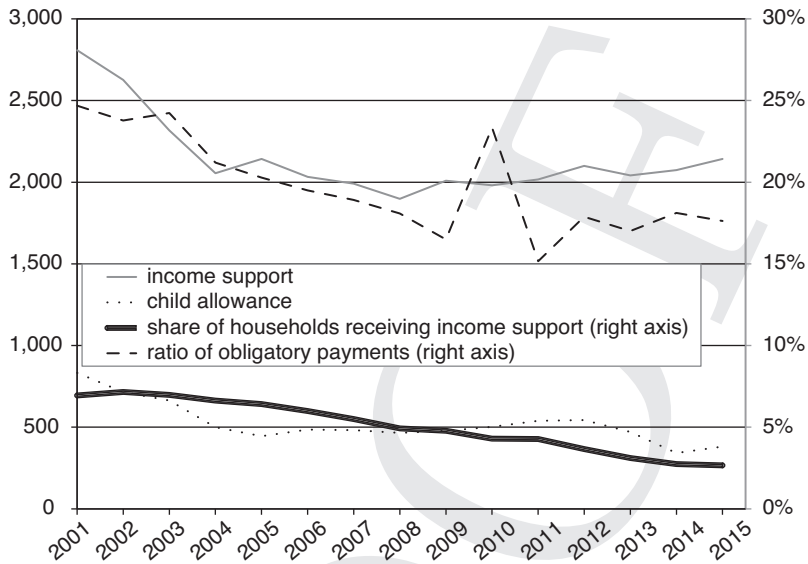


Figure 13.7 Income support, child allowance, and obligatory payments, head of household aged 25–64

employment with the change in the share of benefits and the levels of child allowance for the various types of households.

Table 13.3 shows how clearly the rate of decrease in benefits is related to the pace of the upturn in employment among the various households’ types. The falling share of benefits in income is monotonic and steep in relation to the number of children and so, accordingly, is the increase in employment rates among families with children. The decline in the share of benefits was steepest among ultra-Orthodox couples; accordingly, this population achieved the fastest rate of growth in employment.

13.6.2 Additional Policy Changes

Another policy change that may have affected employment generally, and that of poorly skilled workers particularly, concerns the treatment of foreign and Palestinian workers. From 2002 onward, the share of non-Israeli workers in the business sector fell considerably, from more than 16 percent at its peak in 1999 to 12 percent or less in 2004 and

Table 13.3 (cont.)

	Non-Orthodox Jews		Arabs		Ultra-Orthodox	
	Employment	Ratio of benefits of Child allowance	Employment	Ratio of benefits of Child allowance	Employment	Ratio of Benefits of Child Allowance
Single-person households, woman, no children	18	-30				
Single-person households, woman, with children	26	-56				

steady since then. Given the substitution effect between foreign workers and poorly skilled Israeli workers, cutting back on the supply of the former had a favorable effect on demand for the latter (Cohen Goldner, Forthcoming).

As government policy reduced the number of non-Israeli workers, the minimum wage was raised from 44 percent of the median hourly wage at the beginning of the period to 60 percent at its end. According to economic theory, an increase in the minimum wage may itself depress demand for poorly skilled workers. When the minimum wage rises at a time when such labor is in short supply (due to a cutback in the foreign-worker population), however, its effect on employment may be different. Furthermore, the minimum wage is not fully enforced.

In sum, after refuting the hypotheses that trace the increase in employment to demographic or wage-structure changes generally, and to wage return to education in particular, we find the definitive precipitants of the growth in employment in the policy measures that were taken, particularly the lowering of welfare benefits. The fact that employment rates have continued to rise in the past five years as well, after the welfare cuts were partly rescinded, proves that the other policy measures and proactive tools in the labor market also had meaningful effects on the growth of employment and the increase in labor income among low-income households. These results reinforce the economic argument that the continuation of active policies that encourage individuals and households to increase labor supply and earning ability will have a strong effect on their well-being, economic growth, and the country's economic and social resilience.

13.7 Summary and Conclusions

Two main processes have typified the Israeli labor market since the turn of the present century: a major increase in employment and upward movement of wage income. The employment rate in the main working-age bracket, 25–64, climbed from 66.8 percent in 2002 to 76.6 percent in 2016, surpassing the American and OECD averages. One reason for the closing of this gap is the still-ongoing slump in employment in these comparison countries due to the 2008 crisis, as against the negligible effect of the crisis on employment in Israel. The upturn in employment in Israel is an across-the-board phenomenon that spans sectors, education levels, and age groups. Employment among men aged 25–64 began

to rise in 2002 after several years of decline and came to 81.4 percent in 2016. The percent of working women remains lower than that of men, but the growth trend in employment has been faster and ongoing among women, their rate rising to 72 percent in 2016.

Contrary to the conventional wisdom, joining the labor market among Arab men (of whom 76 percent were employed in 2015) and ultra-Orthodox women (73 percent) – however meaningful and rapid it has been – is neither the only source of the powerful upturn in employment nor even the main one. Analysis of the increase in 2002–2015 shows that most of it, 68 percent among men and 73 percent among women, originates in the upturn in employment of non-Orthodox Jews. Even though employment has risen in all groups, intergroup disparities remain visible, particularly the low employment rates of ultra-Orthodox men (50 percent) and Arab women (32 percent).

Conventional wisdom also has it that the newly employed are poorly schooled. This, too, is true only in part. Yes, the increase in employment was fastest among those with secondary schooling, with or without matriculation, but the employment of people with post-secondary and academic education slanted upward as well. The disparities among levels of education remained large, particularly between the employment rate of those with matriculation and those lacking it (11.5 percentage points among men and 20.4 among women). Education levels rose considerably during the research period, particularly in the share of those with baccalaureate degrees, for reasons including the opening of degree-awarding colleges. The upturn in education is one of the most important factors behind the growth of employment, accounting for 20 percent of the total increase among men and 40 percent among women.

In another noteworthy and material process, the share of employed persons aged 55–64 escalated considerably along with growth in their share of the population. Thus, 74 percent of men and 60 percent of women in this age group were employed in 2015, as against 61 percent and 39 percent in 2002. This change is traceable, among other factors, to the raising of the statutory retirement age, which also influenced younger workers to delay their retirement. It is likely that changes in the system of social benefits, particularly the toughening of eligibility terms for disability benefits, also played a role in this.

Another important factor of influence on employment rates is household situation, since decisions on apportioning time between work

away from home and leisure/at-home work (foremost childcare) are made by both spouses and are dependencies, *inter alia*, of the utility gained from the quantity and quality of children and the expenses associated with raising them. The data show that the entry of Arab women to the labor market was accompanied by a decrease in their number of children; thus, the share of Arab households composed of couples with three children or more fell from 45 percent in 2002 to 37 percent in 2015. The reduction in fertility is not only a precipitant of the increase in employment but also, probably, an outcome of this increase. In contrast to Arabs, ultra-Orthodox women stepped up their employment considerably without seriously cutting back on household size. This special phenomenon entails further research. Another fact to take into account is that ultra-Orthodox women out-earn ultra-Orthodox men. Therefore, they should be allowed to acquire labor-market-suitable human capital and credentials on the widest possible scale and at the highest possible level. Among non-Orthodox Jewish households, no major changes took place except for a mild decrease in the marriage rate.

The increase in men's and women's employment also finds expression in household employment patterns. The share of two-breadwinner couples increased from 52 percent in 2002 to 66 percent in 2015; in contrast, the proportion of single-breadwinner or zero-breadwinner couple-based households dropped. This transition of households from one breadwinner to two is shared by couples with and without children and is particularly conspicuous among households with three children or more. It is important to analyze employment rates at the household level because labor income is divided among all members of the household, and it is equalized income that comes into play in analyzing the incidence of poverty and inequality.

Concurrent with the increase in employment and despite the enlistment of relatively weak population groups in the labor force, gross labor income also moved ahead among all deciles and all populations. Equalized total gross income headed upward as well, indicating that the total effect of the upturn in employment on household income was positive despite the substitutability of labor income and benefit income. Furthermore, equalized disposable (net) income increased by 33–47 percent, meaning that the growth of employment was accompanied by an improvement in households' standard of living. Importantly, however, the increase was faster among non-Orthodox

Jewish households than among ultra-Orthodox and Arab households, meaning that the disparities and net inequality among the groups grew. Two main factors contributed to this: lower employment and wages and higher birth rates among ultra-Orthodox and Arabs than among the others.

The share of labor income in total gross household income rose considerably, particularly among ultra-Orthodox and Arab households (by 62 percent and 75 percent in 2015, respectively), whereas the proportion of welfare benefits contracted and the rate of households receiving income support plummeted from 7.2 percent in 2002 to 2.7 percent in 2015. These changes are not only outcomes of the increase in employment but also the main reason for it. The toughening of eligibility terms and the sweeping cutbacks in income support and in child allowances changed the structure of incentives in the labor market and encouraged households, who saw their welfare payments fall, to join the labor market. The income tax cut acted in the same direction, that is, by encouraging low-wage individuals to accept jobs.

In sum, several main factors abetted the increase in employment: (a) an upturn in education levels, accounting for 20 percent of the total growth of employment among men and 40 percent of that among women; (b) the raising of the statutory retirement age, bringing on a major increase in employment among members of the 55–64 age group; (c) the reduction of income support and child benefits and the toughening of eligibility terms, incentivizing households to join the labor force by shrinking their benefit income; and the income tax cuts, which gave the well-educated and members of pre-retirement age groups, in particular, an additional incentive.

13.7.1 Predictions, Future Challenges, and Policy Recommendations

The aggregate picture of Israel's labor market today is quite auspicious: high employment rates, low unemployment, and rising hourly wages. This tableau, however, is composed of groups that are very different from each other and that, when one examines them in detail, reveal the challenges that Israel is facing. The Arab population, 20 percent of the country's total demographic today, is expected to grow to as much as 23 percent forty years ahead, by which time the ultra-Orthodox population is expected to grow from 10 percent to 20 percent. Thus, these two

groups will account for half of the total population. Therefore, it is important to ensure continued increases in these groups' employment rates until they match those of the non-Orthodox Jewish population. In this chapter, we showed that the policy measures implemented were highly successful in raising employment rates generally and those of these groups particularly. Therefore, we recommend the continued implementation of a pro-employment policy and an attempt to expand it. The labor grant (negative income tax) should be increased, welfare-to-work programs should remain in effect and made compulsory for benefit recipients who meet an employment test and elective for all others, and these programs should focus on the Arab and the ultra-Orthodox populations. By sustaining such policies, it may be possible to continue the upward movement of these groups' employment rates and total employment or, at least, to allow total employment to remain at its current high level.

Amid the upturn in employment, the hourly wages of Arabs, ultra-Orthodox, and those lacking academic schooling, showed no increase whatsoever during the research period. This trend, which protrudes against the background of the increase in the wages of non-Orthodox Jews and of those with academic education, widened the gaps – large to begin with – and intensified inequality. To raise these workers' wages, their productivity has to be improved. Therefore, we recommend the development and use of tools that will enhance human capital generally and that of the sub-median population particularly, foremost by means of technological and vocational higher education. Enhancing these workers' skills will not only boost their income but will also mitigate poverty and promote economic growth at large.

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