Research Department   **Bank of Israel**

The Minimum Wage, Wage Distribution and the Gender Wage Gap in Israel 1990–2009

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Abstract

The ratio of the minimum wage to the average wage increased considerably during the years 1996 and 2003. The increase was gradual following the most recent adjustment to this ratio under the Minimum Wage Law in 1997 (with the exception of a one-time increase in the minimum wage in 2003). The analysis shows that the main reason for the gradual increase in the minimum wage ratio was the slower pace of increase of the nominal wage in the economy.

The wage income of women in the lowest wage quintile rose much faster than that of women in the higher quintiles, and evidence was found that the change in the minimum wage played a major role in this development. A large part of the change in wage income cannot be explained by changes in personal characteristics (e.g., education level) or by changes in the return on those characteristics. Moreover, the pay of women in the lowest quintile is almost fully correlated with the minimum wage. Based on these findings, we assess that the minimum wage contributed considerably to the increase in the wages of women earning relatively low pay, and also made a considerable contribution, although to a lesser extent, to the increase in the wages of relatively low-paid men.

Despite the rapid increase in the wage of women in the lowest quintile—compared with the pay of men and the pay of women in the remainder of the wage distribution—the contribution of the minimum wage to reducing the average gender wage gap in the private sector was low in absolute terms.

It should be noted that in the current study we did not focus on the effect of changes in the minimum wage on total employment, or specifically on the employment of low-wage earners. Thus we cannot rule out the claim that the positive effect of an increase in the minimum wage on the wage distribution may in certain circumstances be reduced or offset.

שכר המינימום, התפלגות השכר ופער השכר המגדרי בישראל 1990-2009

יובל מזר אסנת פלד

תקציר

בין השנים 1996-2003 עלה משמעותית היחס שבין שכר המינימום לשכר הממוצע במשק. העלייה ביחס זה התרחשה בהדרגתיות לאחר שהעדכון האחרון של יחס זה על פי חוק שכר מינימום היה ב-1997 (למעט שינוי חד פעמי בסכום שכר המינימום ב-2003). מהניתוח עולה כי הסיבה העיקרית להדרגתיות עלייתו של יחס זה הייתה האטת קצב עלייתו של השכר הנומינלי במשק.

שכרן של נשים בחמישון התחתון עלה בקצב מהיר בהרבה משכרן של נשים בחמישונים גבוהים יותר ואנו מוצאים עדויות לכך שלשינוי בשכר המינימום הייתה תרומה משמעותית להתפתחות זו. חלק גדול מהשינוי בשכר אינו מוסבר על ידי שינוי בהרכב המאפיינים האישיים או על ידי שינוי בתשואות לאותם מאפיינים. בנוסף, שכרן של נשים בחמישון התחתון מתואם באופן כמעט מלא עם שכר המינימום. בהסתמך על אלו, אנחנו מעריכים כי שכר המינימום תרם במידה ניכרת לעליית השכר של נשים שהשתכרו שכר נמוך יחסית, וכן תרם במידה ניכרת, אך משמעותית פחות, לעליית שכרם של גברים שהשתכרו שכר נמוך יחסית.

למרות העלייה המהירה יחסית בשכרן של נשים בחמישון התחתון – הן בהשוואה לגברים והן בהשוואה לנשים בשאר התפלגות השכר, תרומתו המוחלטת של שכר המינימום לצמצום פער השכר המגדרי הממוצע בכלל המגזר העסקי הייתה נמוכה.

יצוין כי המחקר הנוכחי לא התמקד בשאלת השפעתו של שכר המינימום על התעסוקה במשק בכללותו ועל התעסוקה של משתכרי שכר נמוך בפרט. לפיכך, אין בו כדי לשלול את הטענה כי העלאת שכר המינימום תביא בנסיבות מסוימות לפגיעה בתעסוקה והשפעתו החיובית על התפלגות השכר תצומצם או תתקזז.

1. Introduction and review

The minimum wage is intended to facilitate a fair and respectable level of existence for the lowest paid earners and to reduce the extent of poverty and inequality, in particular in households that have breadwinners. In Israel and the developed countries, most of the poor live in households with at least one breadwinner, a phenomenon that is spreading continually. Since stipulation (and enforcement) of an appropriate minimum wage is likely to be one of the most important devices for reducing this phenomenon, it could have far-reaching implications for the standard of living of employed persons and for employment in both the short term and the longer term.

In the present study we will examine how a gradual increase in the ratio between the minimum wage and the average wage has affected the lowest wage earners in Israel in the last two decades. For the purpose of the analysis, we use cross-sectional data on wage earners in the private sector from annual Income Surveys of the Central Bureau of Statistics. We describe and analyze the changes in the composition of employment and wages while distinguishing between men and women. The analysis shows that the increase in the ratio between the minimum wage and the average wage had a positive effect on the group of lowest wage earners in Israel—an effect that was created mainly by the remuneration channel and less by the employment channel.

By definition, and in view of its purpose, setting a minimum wage implies a higher wage than that which would have been determined at equilibrium. Accordingly, it may have a negative effect on the employment of those whom it is intended to protect—workers at the lowest end of the pay scale, lower skilled or lower educated workers, and workers whom employers, rightly or wrongly, perceive as less productive. The impact of the minimum wage on the labor market and on the entire economy is strongly affected by the economic environment in which it is applied, so an analysis of the implications of the minimum wage should take into account the specific economic conditions that may affect these implications. Thus, findings from studies of the effect of the minimum wage on the employment of low wage earners and on inequality are not uniform.

Women account for a large proportion of low wage earners, in Israel and worldwide. Stipulation and enforcement of a minimum wage and changes in it are therefore likely to have a greater impact on women than men, and as a result will affect wage disparities between women and men. Numerous studies show that the wage structure, its lower levels in particular, has a dominant effect on wage disparities between women and men, while changes in the composition of employment (from the aspect of gender, education and other personal characteristics) have a secondary effect. These findings are common both to comparisons over time and to comparisons between countries (see the series of studies conducted by Blau and Kahn, for example). However, Mulligan and Rubinstein (2008) show that the main contribution to the reduction of wage disparities between women and men from the 1970s until the 1990s derived from an increase in wage inequality among women, which led to a change in the composition of employment of women. In other words, wage disparities among women themselves increased concurrent with the decrease in the gender wage gap.

The potential effect of the minimum wage on inequality in the economy

Many factors will determine the extent to which the minimum wage affects the wage structure, inequality and the gender wage gap (Freeman 1996). Weighted together, these factors will determine whether inequality decreases and the wage distribution will be biased more in favor of low income earners (and/or women), or whether the income of the weak strata will actually decrease due to their exclusion from employment and the labor market.

One of the main factors studied in the literature with regard to the minimum wage is the question of the minimum wage payment burden—whether, and to what extent, higher payroll expenses will be reflected in higher prices of goods (with the burden falling on those consuming the products manufactured by minimum wage earners), lower profits (with the burden falling on the employers of low-wage earners), or the reduced employment of minimum wage recipients. Among these three potential effects, the employment effect has attracted the most extensive attention in the relevant literature for over seven decades. The broad theoretical framework is usually based on a search model—see Eckstein and van den Berg (2007) for a review of such models. Empirical findings on this subject are numerous and diverse, and in particular, do not provide concrete proof of the existence or absence of an employment effect.[1] The complexity of the subject and disagreement between authors derives *inter alia* from the fact that in this case as well, the extent of the effect of the minimum wage is largely dependent on the economic environment. In any case, key studies in the US found that even when employment elasticity relative to the minimum wage is negative, it is close to zero (Card, 1992 a, b; Katz and Krueger, 1994; Neumark and Wascher, 1994; Card and Krueger, 1995). In the UK as well, it was found that the abolition of Wages Councils (which were responsible for setting the minimum wage) led to a decrease in pay but did not contribute to a growth in employment (Dickens et al., 1993, 1995; Machin and Manning, 1994, 1996). Later reports, following the re-introduction of the minimum wage in the UK, also show that the negative effect of the minimum wage on employment was limited (Low Pay Commission Report, 2011).

These findings concerning low or practically zero employment elasticity cannot be generalized across the board, and cannot be construed as proof that a large increase in the minimum wage or a very high level of minimum wage will not harm employment, or that even a moderate increase in the minimum wage may not harm specific industries. In Israel, for example, it was found that the minimum wage did not affect employment in the food services industry (which is not tradable) but had a negative effect in the textile industry as representative of the tradable industries (Flug, Kasir and Rubinstein, 2000). Nevertheless, as long as employment elasticity with respect to the minimum wage is less than one an increase in the minimum wage will have the overall effect of reducing inequality since total wages paid to low-wage earners will be higher.

Apart from the impact of the minimum wage on employment via the demand for labor, it may also affect the composition of employment, via the supply of labor. For instance, an increase in the minimum wage could contribute to growth in the labor supply of secondary breadwinners in middle-class households (principally women and youth who would not

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[1] The reference here is to the negative effect of the minimum wage on employment. It should be noted that if an employer has monopsonistic power in the recruitment of workers, the minimum wage is likely to have a positive effect by increasing both workers' pay and employment.

have entered the labor market at the equilibrium wage). If there is such an effect, it will contribute to increased income inequality.[2]

The extent of the effect of the minimum wage on inequality is also largely dependent on the existence and the structure of other policy instruments. For example, in countries that maintain an Earned Income Tax Credit program ("Negative Income Tax" programs), the manner in which the program is devised and the synchronization between the minimum wage and EITC settings are of major importance. On the one hand, subsidies to low wage-earners could divert responsibility from the employer to the government. (The employer might reduce the wages of workers who are eligible for a negative income tax (EITC) grant, such that their net wages will not change). The existence of a minimum wage at a suitable level will prevent this phenomenon from occurring. On the other hand, setting a high minimum could lead to a reduction in the grant due to the workers, with only a slight change in their total income, meaning that the effective rate of tax applying to them will be high, and may create a poverty trap. In a situation such as this, responsibility is transferred from the government to the employers, the consumers and low-wage earners themselves (if a negative effect on employment exists).

Another factor determining the extent of the effect of the minimum wage is the composition of employment in the economy as a whole and at the bottom of the pay scale in particular. The question arises therefore as to who is affected by changes in the minimum wage. The proportion of women and young people among low-income earners is considerably higher than their share in the population and even more, than their share in employment. In addition, a large proportion of low-income earners are secondary breadwinners. This is one of the reasons why a substantial proportion of low-income earners in Israel and worldwide do not belong to the lowest income quintiles and are not poor. Moreover, many of the poor are children, disabled, unemployed and persons outside of the labor force—groups that will not be directly affected by changes in the minimum wage (nor by work-dependent allowances and incentives). Here too, the extent of the effect of the minimum wage on inequality is dependent on the economic environment in which it is applied.

Another dominant factor is the extent to which the minimum wage is enforced. Obviously, the greater the extent of enforcement, the stronger will be the effect of the minimum wage, all other variables being constant. Gottlieb et al. (2009, 2011) discussed this issue extensively.

Empirical findings regarding the effect of the minimum wage on inequality worldwide and in Israel

DiNardo, Fortin and Lemieux (1996) showed that in 1979 the minimum wage in the US raised the bottom end of the wage distribution there while creating a "spike" in the distribution around the minimum wage, which was especially significant for women. From the beginning of the 1980s through 1988, this effect waned completely and inequality increased, particularly at the bottom end of the wage distribution. The authors attribute this

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[2] It is difficult to predict the effect of such a development on wage gaps between men and women. On the one hand, men with low productivity and pay will be excluded from employment, which will increase the average wage of men. On the other hand, the effect on women's average wage is unclear; it may fall because of higher participation of women in the lowest pay tiers, or it may rise as the result of the increase in the minimum wage.

development mainly to the erosion in the federal minimum wage in that period. Lee (1999) supported these findings. Autor, Manning and Smith (2010) showed that the minimum wage has a significant effect on the bottom end of the wage distribution, and that the erosion of the minimum wage led to an increase in inequality. However, they showed that this effect is less than that reported in the previous two studies, and that for men it is almost negligible.

The Low Pay Commission in the UK has issued an annual report on the effect of the minimum wage since its implementation in UK in 1999. The Commission's reports indicate that the minimum wage has had a significant effect on the relative wage of the lowest-paid in the UK and an even greater effect on the income of women, which reduces the gender wage gap.

The rest of this study contains four parts: The second part describes the development of the minimum wage in Israel relative to the average wage in the economy. The third part presents an analysis of the income of low-paid employees in comparison with the changes that occurred in the minimum wage. The fourth part contains an analysis of the gender wage gap in comparison with the changes in the minimum wage. The fifth part summarizes the study.

2.   Development of the minimum wage relative to the average wage in the economy

In 1968, the minimum wage in Israel was set at a level of 39 percent of the average wage in the economy, and gradually it was raised to 45 percent of the average wage in April 1988. In April 1997, an amendment to the Minimum Wage Law increased the level of the statutory minimum wage to 47.5 percent of the average wage per employee post. The amendment also stipulated that the minimum wage is to be revised on April 1 every year in accordance with the average wage in the economy.[3] The minimum wage is also updated in accordance with the cost-of-living increment and another wage increment that is paid to most unionized workers under any collective work agreement. Accordingly, the minimum wage was raised in January 2003 by 2.1 percent in respect of the cost-of-living increment. A revision of the Minimum Wage Law went into effect on June 1, 2006, and in addition to the legally prescribed indexation mechanism, it stipulated three dates for a graded increase in the minimum wage: to NIS 3,585 on June 1, 2006, NIS 3,710 on April 1, 2007, and NIS 3,850 on July 1, 2008. The law specified that these amounts would remain valid for as long as they were to exceed 47.5 percent of the average wage.

Figure 1 presents the development of the minimum wage relative to the actual average wage. This ratio might have been expected to be more or less constant around its statutory rate. However, the ratio increased considerably from 1995 and until 2003 due to the manner in which the minimum wage was revised and the development of the average wage. More precisely, between 1995–1998, two parallel effects were apparent: an increase in the statutory ratio between the minimum wage and the average wage from 45 percent to 47.5

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[3] The average wage that is calculated for the purpose of setting the minimum wage is the average wage per employee post in the last three months for which the Central Bureau of Statistics has data at the time of the revision. This means that the revision of the minimum wage in every month of April should be based on the average wage per employee post in the months September-December of the previous year. As a result, the mechanism whereby the minimum wage is revised once a year and with a lag of a quarter creates a gap between the statutory ratio of the minimum wage to the average wage, and the actual ratio.

percent, concurrent with a rapid increase in the nominal (and the real) average wage. As a result, even though the minimum wage was revised several times a year and not only in April, it lagged behind the development of actual average wage. The ratio between the minimum wage and the average wage was therefore less than the statutory ratio for most months of the year and on an annual average. Since the effect of the increase in the statutory ratio was greater between 1995–1998 the ratio between the minimum wage and the average wage in the economy rose considerably. Between 1999 and 2000, the lag in the revision mechanism had a greater effect, with the result that the ratio between the minimum wage and the average wage began to fall. From 2001, when the economy entered a recession, the rate of increase in the average wage fell sharply, and in 2003 the average wage declined by 2.5 percent. In that year, despite the decrease in the average wage, the minimum wage rose by 2.1 percent due to the cost-of-living increment. Because of these developments, the ratio between the minimum wage and the average wage rose considerably and reached its statutory rate. From 2002 to 2009, the average real wage remained practically unchanged. As a result, the ratio between the minimum wage and the average wage ranged around its statutory rate of 47.5 percent because when the average real wage is relatively stable, a delay in the revision of the minimum wage has little effect on the ratio.

Figure 1: The minimum wage relative to the annual average wage[1]
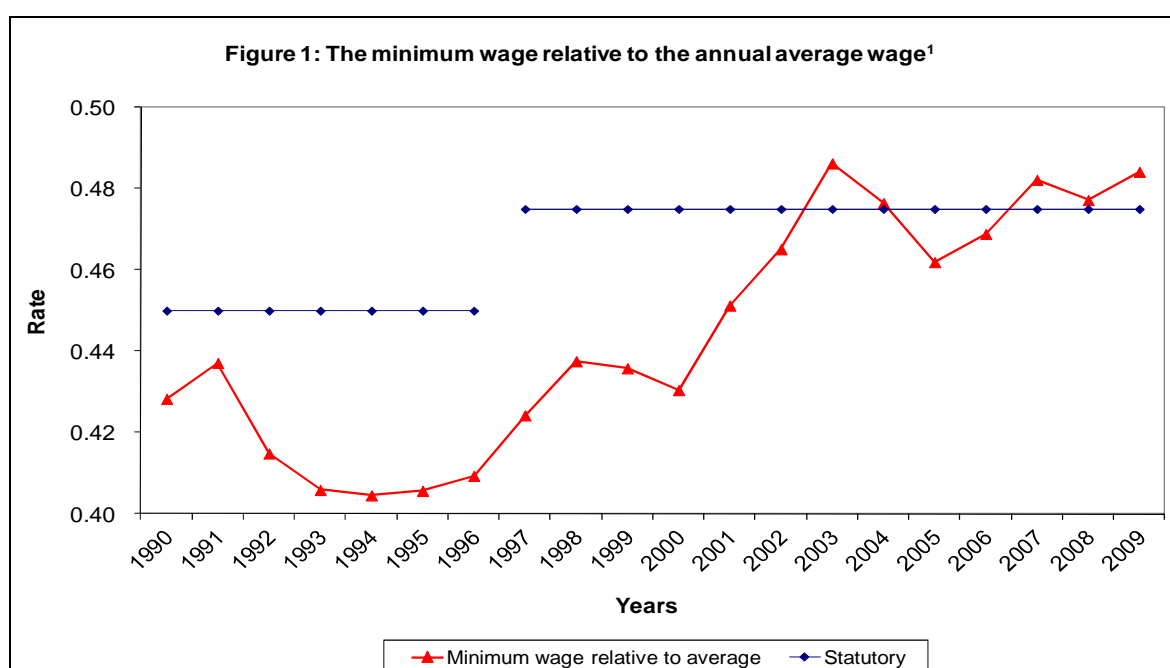
The average minimum wage per calendar year divided by the average wage in the same calendar year.

Figure 1.a: Development of the minimum wage and the average wage, 2004 prices
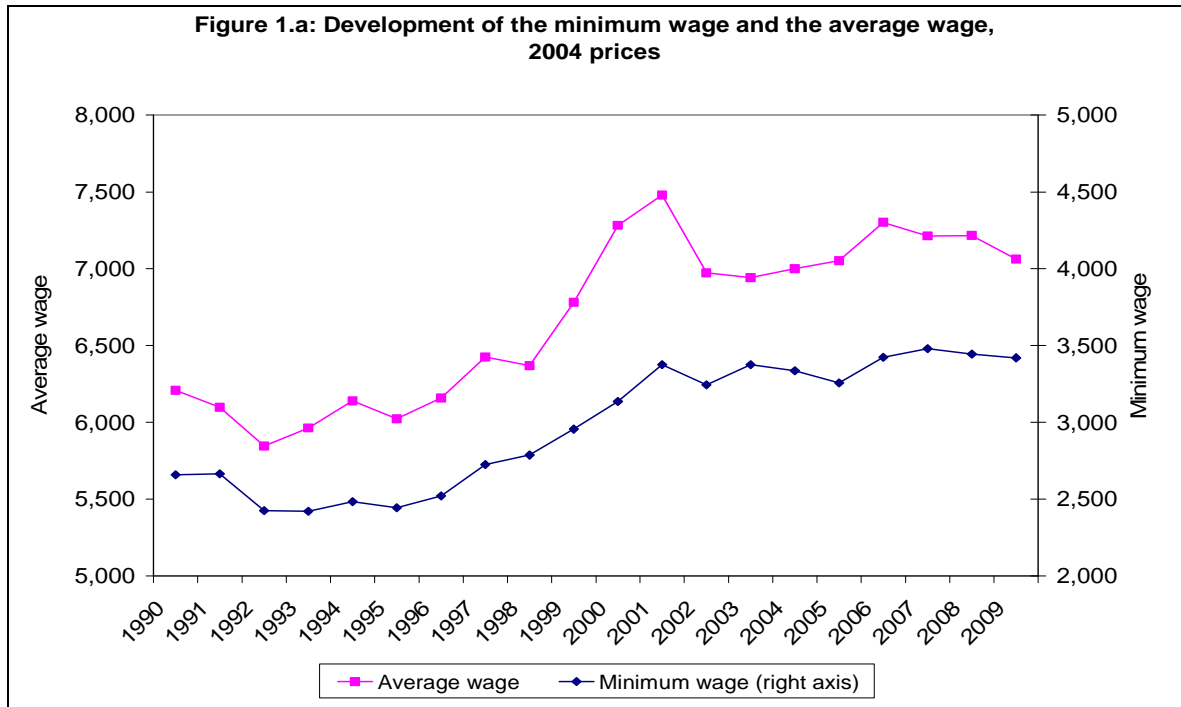
SOURCE: **Average wage per employee post—Central Bureau of Statistics (from National Insurance Institute administrative data).**
Minimum wage— National Insurance Institute.

3.   Increase in the minimum wage and income of low-paid workers

3.1 Sources of the data

Data for this study came from Income Surveys for the years 1990 to 2009. Israeli Income Surveys contain data on Israeli individuals and households (and do not include data on foreign workers). The following analysis refers to salaried employees only. Part-time salaried employees working for less than 10 hours a week were excluded from the sample. An exclusion of this type is accepted in the literature, and is intended to prevent errors deriving from reporting inaccuracies and from exceptional cases.

   Since the Income Surveys are based on telephone interviews with the respondents rather than on administrative data, doubts may arise regarding the reliability of the data. A critical assumption is that respondents' reporting errors and their wage for the period t are not correlated, or formally:

$$\hat{W}h_t - Wh_{r,t} \equiv \varepsilon_t \perp t$$

Where $\hat{W}h_t$ is the self-reported hourly wage and $Wh_{t,t}$ is the actual wage.

The income survey data have some weaknesses which are relevant to the present study. The main weakness is that we only have data on gross wages, without any details of the wage components. Under the Minimum Wage Law, a number of wage components, such as overtime and bonuses, are not included for the purpose of calculating the minimum wage. This means that some salaried employees may be affected by changes in the minimum wage but will not be identified as minimum wage earners according to Income Survey data. Although this phenomenon is more common in the public sector, which is not covered by

the discussion in this study, it also exists in certain industries and in the case of certain occupations in the private sector. As stated, this could lead to an under-estimate of the number of minimum wage earners. In addition, it will not be possible to identify from the survey data minimum wage earners who work overtime and are legally entitled to higher pay for overtime hours. This problem will also lead to an under-estimate of the number of minimum wage earners. Since these two phenomena act in the same direction, it is reasonable to assume that the number of minimum wage earners derived from the Income Survey data ia a lower limit for the real number. Thus, minimum wage may have a bigger effect on people at the bottom of the wage scale—more than is apparent from the survey data. Moreover, it is generally assumed that changes in the minimum wage will affect salaried employees earning more than the minimum wage, and practically all those on the lower part of the wage distribution. Accordingly, assessment of the effect of the minimum wage with reference only to actual minimum wage recipients will produce an under-estimate of its effect in practice.

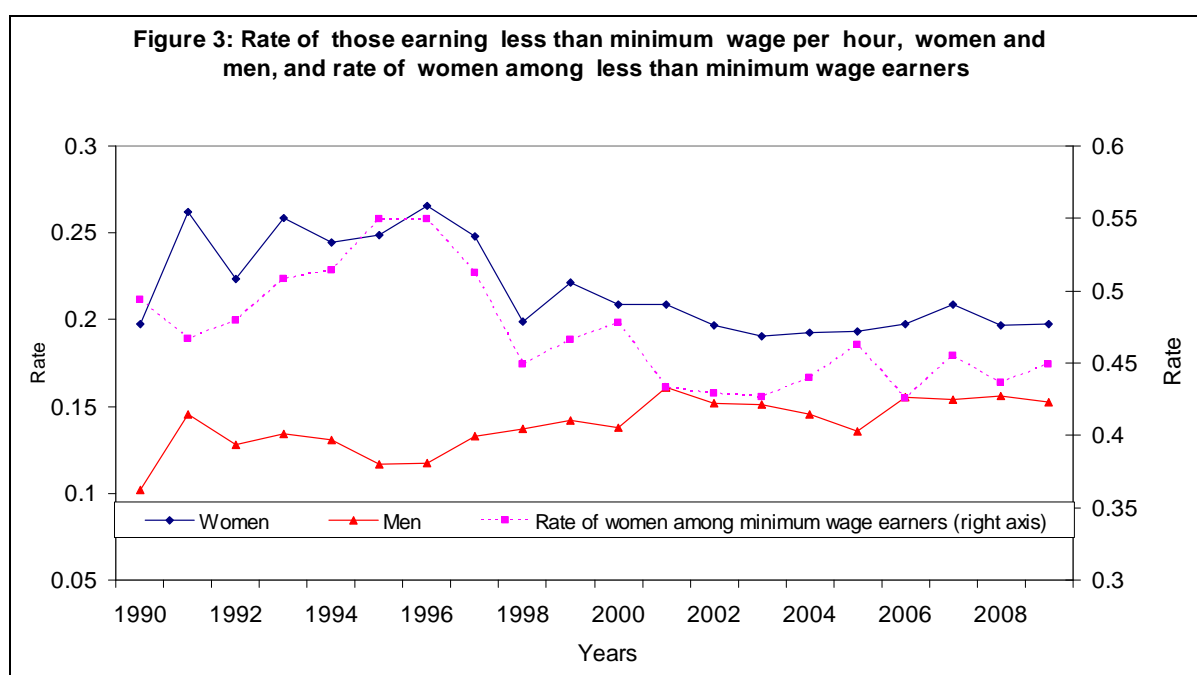## 3.2 The minimum wage and minimum wage earners over time

Figure 2 presents the proportion of workers in the private sector earning the minimum wage or less (hereinafter: minimum wage earners), together with the development of the ratio of the minimum wage to the average wage.[4] Although the increase in the ratio of the minimum wage to the average wage might have been expected to lead to a corresponding growth in the proportion of minimum wage earners, it can be seen that despite the rise in the ratio between the minimum and the average, the proportion of minimum wage earners <u>did not increase</u> in a similar manner.

Figure 2: Minimum wage relative to average wage and rate of those earning minimum wage and less
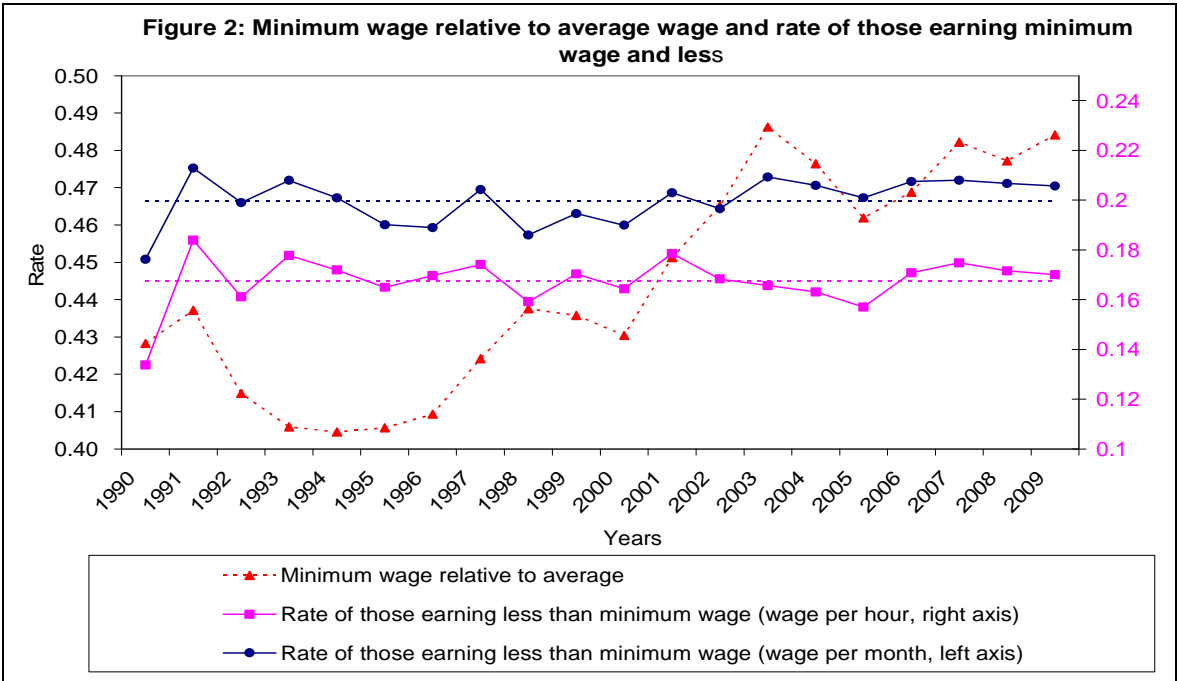
SOURCE: Central Bureau of Statistics Income Surveys, National Insurance Institute data and the authors' calculations.

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[4] As is usual, the analysis is focused on the business sector alone because the wage determination mechanisms in the public sector operate in a different manner. Moreover, no trend was recorded during the period reviewed in the wage gaps between men and women in the public services.

From the gender perspective (Figure 3), a downtrend is apparent until 2001 in the proportion of minimum wage earning women to total female salaried employees in the private sector, concurrent with a moderate uptrend in the proportion of minimum wage earning men. After 2002, relative stability was recorded in the proportion of minimum wage earners among both men and women. As a result of these developments, the proportion of women among low-wage earners decreased until 2001, but remained much higher than their proportion among salaried employees in the private sector. Moreover, the downtrend in the proportion of women among minimum wage earners is counter to the uptrend in their proportion among all private sector employees, which rose to 38 percent from 35 percent in 1995. Gottlieb et al. (2009, 2011) present similar findings.

Figure 3: Rate of those earning less than minimum wage per hour, women and men, and rate of women among less than minimum wage earners

SOURCE: Central Bureau of Statistics Income Surveys and the authors' calculations.

From the aspect of minimum wage earners by industry distribution, it is concluded that most of the increase in the proportion of male minimum wage earners between 1995 and 2001 derived from the construction industry. (In the sample period, an average of 12 percent of male minimum wage earners were employed in that industry). Note that the construction industry was heavily affected by changes in labor force composition and particularly by foreign workers' entry to the industry. (Foreign workers are not included in Income Survey data, but their entry to the industry contributed to a decrease in the wages of Israeli employees on the same occupational level). No uptrend is noticeable in the proportion of women earning the minimum wage or less when observing each industry by its own.

It is therefore apparent that men were more affected than women by the structural changes in the economy that led to pressure to reduce the pay of low wage earners, but were concurrent with the changes in the minimum wage. However, as is shown in this study, the effect of these changes on the proportion of minimum wage earners was significant only until 2001.

Another possible reason for the stability in the proportion of minimum wage earners, despite the increase in the minimum wage and its ratio to the average wage, could be more stringent enforcement, which would have helped increase the pay of low-wage earners. Although we have no direct data on the extent of enforcement in the years of the sample, an examination of the budgets directed at enforcement of the labor laws does not indicate that changes in these budgets had any significant effect on the extent of enforcement. The enforcement budgets are very low,[5] and for most of the years enforcement activity was limited and inadequate (State Comptroller Report, OECD Report). While enforcement budgets and the number of job slots for supervisors were increased during recent years, the number of supervisors is still very low by international standards, at approximately one quarter of that prescribed by the ILO. We therefore assume that the extent of enforcement was not the main factor behind the increase in the minimum wage and its ratio to the real average wage.

Stability in the proportion of workers earning less than the minimum wage could therefore reflect one of two separate developments, or a combination of both. In the first case, the pay of workers earning slightly more than the minimum wage (between the previous minimum wage and the new minimum wage) is highly correlated with the minimum wage. In this case, when the minimum wage increases, so too will the pay of these workers, and the proportion of workers earning less than the minimum wage remains fixed, like the composition of the labor force at the low wage levels. (Hereinafter: the wage scenario). In the second case, an increase in the minimum wage contributes to the exclusion of workers with particularly low pay and productivity. At the same time, all those whose pay is between the previous minimum wage and the new minimum wage are now within the category of "those earning the minimum wage or less". In this case, the participation of those earning less than the minimum wage remains similar. But since the total number of employed persons and the composition of employment will have changed, more highly skilled workers will be found among minimum wage earners (the employment scenario).

Panel data analysis, which makes it possible to monitor the employment status and pay of individuals over time, could have facilitated identification of channel via which the minimum wage affects the wage distribution. This would be by determining whether the stability in the proportion of minimum wage earners throughout the period derived from an increase in the pay of those earning slightly more than the minimum wage as well, or from a negative effect on the employment of individuals at the bottom of the pay scale.

In the absence of panel data in Israel, we will use two indirect methods. First, we will analyze the characteristics of existing workers on the basis of the annual Income Surveys. Second, we will compare the characteristics of the employed with the unemployed by using Labor Force Surveys. The purpose of this analysis is to investigate what changes occurred in the composition of the characteristics of low wage earners (who earn minimum wage or

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[5] The budget for the enforcement of the labor laws is located in the "labor relations" budgetary item, which was the preserve of the Ministry of Employment until 2004 and subsequently, the Ministry of Trade and Industry. (The number of the item was 230310 until 2004 and 361310 thereafter). Another budgetary item is "supervision of labor laws". (The number of the item was 230315 until 2004 and 361315 thereafter). Actual expenditure under the first item at 2009 prices amounted to NIS 3 million in 1998, fell to NIS 2.5 million in 1999, increased to an annual average of NIS 4 million between 2000 and 2004, rose again in 2004 and a high and exceptional observation was recorded in it in 2009. Actual expenditure on the second item doubled from NIS 8 million to NIS 16 million until 2002, but has been highly volatile since then. Anyway, both the items are very small and the changes in them do not appear to have affected enforcement of the Minimum Wage Law.

less), at both the absolute level and in comparison with higher-wage earners and with unemployed people. If no major change occurs in the characteristics of low-wage earners, we will be able to deduce that the dominant effect was exerted via the "wage scenario"—meaning that even if the minimum wage had a negative effect on employment, it was not dominant in its effect on the wage distribution.

Table 1 presents the characteristics of workers who earned less than the minimum wage compared with those who earned more than the minimum in the same years, separately for men and women. The characteristics that were selected are the worker characteristics that are frequently used in wage equations as a proxy for the workers' productivity.

Table 1**

Avarage hourly wage	Avarage monthly wage	Educated share	Years of schooling	Tsabar share	Immigrants share	Married share	Arabs share	Age	Work Hours	Years
Workers who earn less the than minimum wage										
10.0	1,735	0.16	12.2	0.58	0.33	0.42	0.14	32.2	39.5	1999-1996
13.2	2,226	0.19	12.4	0.54	0.40	0.44	0.11	32.7	38.6	2004-2000
13.7	2,266	0.19	12.5	0.48	0.38	0.42	0.09	33.3	37.6	2009-2005
Workers who earn above the minimum wage										
31.7	5,392	0.30	13.2	0.44	0.19	0.64	0.03	36.9	39.1	1999-1996
37.1	6,372	0.36	13.6	0.41	0.23	0.64	0.03	37.1	39.2	2004-2000
38.4	6,683	0.39	13.8	0.38	0.24	0.63	0.02	38.2	39.2	2009-2005
The ratio					**The gap**					
31.6%	32.2%	0.14	1.0	-0.14	-0.14	0.22	-0.12	4.7	-0.4	1999-1996
35.5%	34.9%	0.17	1.1	-0.14	-0.17	0.20	-0.07	4.4	0.6	2004-2000
35.6%	33.9%	0.20	1.4	-0.10	-0.13	0.21	-0.07	4.9	1.6	2009-2005
The medians' ratio										
43.7%	41.4%									
48.4%	44.3%									
49.1%	43.2%									

Avarage hourly wage	Avarage monthly wage	Educated share	Years of schooling	Tsabar share	Immigrants share	Married share	Arabs share	Age	Work Hours	Years
Workers who earn less than the minimum wage										
9.9	2,056	0.13	11.4	0.62	0.30	0.45	0.22	32.7	46.2	1999-1996
13.3	2,728	0.13	11.7	0.54	0.27	0.47	0.30	33.3	47.0	2004-2000
14.0	2,846	0.14	11.8	0.42	0.22	0.46	0.33	33.9	46.2	2009-2005
Workers who earn above the minimum wage										
39.6	8,192	0.27	12.6	0.57	0.17	0.75	0.18	39.4	47.6	1999-1996
44.6	9,246	0.32	13.1	0.47	0.20	0.75	0.15	39.7	47.5	2004-2000
44.4	9,171	0.34	13.3	0.41	0.20	0.74	0.15	40.5	46.9	2009-2005
The ratio					**The gap**					
24.9%	25.1%	0.14	1.2	-0.06	-0.13	0.30	-0.04	6.7	1.4	1999-1996
29.8%	29.5%	0.19	1.4	-0.07	-0.07	0.28	-0.16	6.4	0.5	2004-2000
31.5%	31.0%	0.20	1.6	-0.01	-0.02	0.28	-0.18	6.7	0.8	2009-2005
The medians' ratio										
37.5%	34.9%									
42.2%	41.2%									
45.7%	45.0%									

SOURCE: Income Surveys for the years 1996 to 2009, workers who declared that they worked less than 10 hours a week.

** Definitions:

Work hours—average number of work hours a week.

Immigrants—those who immigrated since 1990.

Sabras—native-born Israelis.

Educated—workers with at least 15 years education.

Wages—at 2004 fixed prices.

Table 1 clearly presents the situation with respect to men: The productivity characteristics of salaried employees earning the minimum wage and less <u>eroded</u> slightly in comparison with workers earning more than the minimum wage. Nevertheless, their relative—to the average and median—pay increased. This means that the increase in the pay of those earning the minimum wage and less derived not from a change in the composition of that group, but from a genuine increase in pay. Moreover, given the change in the composition of the group, their relative pay would have been expected to fall, while in practice it actually rose.

The situation with respect to women is more complex. While the increase in the average number of years of education of women earning the minimum wage and less was smaller than the same increase among female workers earning more than the minimum wage, the decrease in the proportion of Arab female workers (whose relative pay is lower) was greater. As was the case with men, the pay of women earning less than the minimum wage increased more rapidly than the pay of those earning more than the minimum wage.

In order to substantiate the claim that the changes in the composition of labor force at the low-wage levels actually had the effect of reducing the remuneration of those at the bottom of the pay scale, we ran binary regressions that estimate the parameters affecting the changes of earning the minimum wage and less (Table A.1 in the appendix). The regressions were run separately for each year, and we then compared the parameters over the years. Like the findings in Table 1, this test showed that changes in the labor force composition of minimum wage earners actually led to a decrease in their pay. As an example, it was found that over the years the negative effect of education on the chances of earning the minimum wage or less intensified, mainly for men (see the diagram enclosed with Table A.1 in the appendix). This means that given the other explanatory variables, the relative chance of educated workers to earn minimum wage or less decreased over the years, or in other words, workers earning less than the minimum wage became relatively less educated. Hence, we showed that an increase in the relative pay of minimum wage earners did not appear to derive from the employment effect—retrenchments of low-paid workers concurrent with a change in the labor force composition.

In order to support the claim that the minimum wage was a major factor behind the increase in the earnings of those at the bottom of the pay scale, we adopted an additional approach. With the help of simple Mincerian regressions, we began by calculating the predicted hourly wage of each worker, and in particular that of minimum wage earners. We then compared the predicted wage of the group of people that actually earn minimum wage or less with the predicted wage of those who actually earn more than the minimum wage. The predicted wage of both groups increased at a very similar rate over the years. (Appendix table A.2 presents the variables and their estimates in annual wage regressions).

We then compared the *actual* pay of the worker with their *predicted* wage. Figure 4 presents the ratio between the actual pay and the predicted wage of minimum wage earners over the years. As expected, it can be seen that this ratio was very small throughout all the years, meaning that the actual pay of these workers was less than their predicted wage.[6] More interesting is the development of this ratio, which was very similar for men and for

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[6] The regression passes through a line of the averages, meaning that the coefficients of such characteristics as education and age reflect the average return on those characteristics. Pay is also affected by unobserved characteristics (such as ability). It can be assumed that among low-wage earners, the unobserved characteristics have the effect of reducing their pay (relative to their contribution among high-wage earners). Accordingly, the pay of workers in the bottom pay quintile will be less than their predicted wage.

women, and had a high correlation to the ratio between the minimum wage and the average wage. That is, the higher is the minimum wage relative to the average wage; the higher is the ratio between the actual pay of minimum wage earners and their predicted wage. That means that the unobserved characteristics had a weaker negative effect on wages. It should be noted that a similar calculation for those in the bottom pay quintile (instead of minimum wage earners) produced a result identical to that presented in Figure 4. However, a calculation for those earning more than minimum wage produced a completely different result. This finding substantiates (but does not prove) the claim that an increase in the minimum wage led to a genuine increase in the pay of those earning the minimum wage and less, and that a change in composition alone can't explain the development of the wage structure.

Figure 4: Ratio between actual pay and the predicted wage of workers earning less than the minimum wage
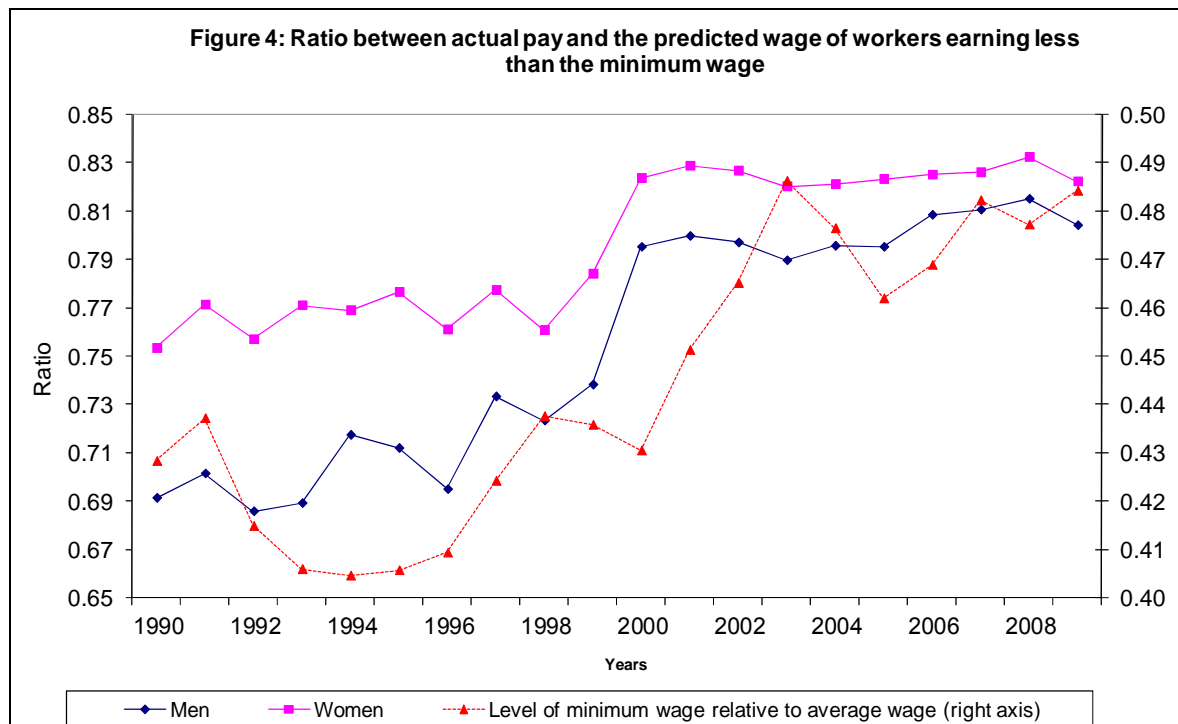
SOURCE: Income Surveys for the years 1996 to 2009; workers who declared that they worked at least 10 hours a week (predicted wage and National Insurance Institute data (minimum wage).

Notwithstanding the above-mentioned, were it not for the increase in the minimum wage, the characteristics of low-paid workers might have eroded even more than that observed in comparison with the rest of the population. The increase in the minimum wage may therefore have led to retrenchments of workers with low productivity. Were it not for the increase in the minimum wage the actual erosion of the characteristics of low-paid workers might have been even greater.

It would have been better to examine this issue by means of panel data as well. In the absence of such data, we tested whether it is possible to estimate the remuneration of low-paid workers on the basis of personal characteristics and to examine whether the variance in the personal characteristics of low-wage earners was correlated with the chance of being employed during the period. The test showed that personal characteristics can't explain the variance in the chances of low-wage earners to be employed (R^2-square of less than 8 percent).

In contrast, personal characteristics provide quite a good prediction of pay and the pay variance **between** the quintiles. Hence, we estimated for each year, for each wage quintile, and for men and women separately, the chance of being employed and the chance of being unemployed of an individual whose characteristics are similar to the average characteristics of the same quintile.[7] The characteristics are: education, age, being an immigrant (dummy variable), and being a member of a minority (dummy variable). Details of the results of the parameters of those regressions for a number of selected years can be found in Appendix table A.3. It is thereby possible to calculate the relative chance of being employed or of being unemployed in each year, while comparing between individuals whose characteristics are similar to those of low-wage earners (the lowest wage quintile—hereinafter those with low income-earning ability), and those whose characteristics are similar to high-wage earners (hereinafter those with high income-earning ability).

We found that for women with low income-earning ability, the relative chance of being employed or the relative chance of being unemployed is <u>not correlated</u> at all with the development of the ratio between the minimum wage and the average wage of women, but is partly correlated with the development of the ratio between the minimum wage and the general average wage (0.55 and 0.59 Pearson coefficients respectively for the chances of employment and unemployment). Among men with low income-earning ability however, the relative chance of being employed <u>was found to be correlated</u> to a considerable extent with the development of the ratio between the minimum wage and the average wage of men (0.82), and with the development of the ratio between the minimum wage and the general average wage (0.81). But no high correlation was found between the relative chance of men with low income-earning ability being unemployed, and the development of the ratio between the minimum wage and the average wage of men and the general average wage (0.54 and 0.43 Pearson coefficients respectively). These developments are presented separately for men and women in Figure 3.

It is possible to conclude by saying that throughout the entire period studied, the relative chance of employment for high income-earners (among both men and women) increased, in comparison to workers with low income-earning ability. This development was concurrent with the increase in the ratio between the minimum wage and the average wage. These findings could be indicative of a negative employment effect of the increase in the minimum wage, mainly with respect to men. Nevertheless, during the same period a number of additional factors could have contributed to the reduced chances of employment for individuals with low income-earning ability:

An increase in the relative demand for skilled and/or educated workers: Globalization and liberalization, together with high-tech oriented structural changes led to an increase in the relative demand for educated workers and to a drop in demand for poorly-educated workers (*inter alia* due to the opening up of the economy to competing imports in the textile industry and in other traditional industries). The ratio between the foreign trade and GDP, which is an index for the extent of the economy's openness, rose during the period and had a high correlation with the relative chance of men with high-wage earning ability being employed. The increase in the relative demand for workers with a high level of human capital could intensify the effect of changes in the minimum wage on the employment of workers with a low level of human capital.

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[7] We used Labor Force Survey data for the purpose of calculating the "chance of employment" equation.

Competition from non-Israeli workers: Most of the non-Israeli (foreign and Palestinian) workers employed in Israel are employed in low skills industries and occupations—the type of posts for which Israelis with low-wage earning ability compete. The proportion of non-Israel workers in the total labor force in Israel is relatively high, but stable since the end of the 1990s, and it is not correlated with the reduced relative chance of employment described below.

Changes in the social security system and in policy for the encouragement of employment: During the last decade, far-reaching changes were made in the allowances system. Most of the changes were aimed at reducing income from allowances, which was intended to have the effect of increasing the supply of labor on the part of allowance recipients, by encouraging more people with low income-earning ability to participate in the labor market. Without a mandatory minimum wage, a change of this type would have had the effect of increasing the employment of those with low income-earning ability and reducing the wage in the quintile—in the opposite direction to the wage developments which we have reported.

Figure 5 presents the development of the hourly minimum wage and the average hourly wage in the bottom wage quintile (both in real terms). The high correlation between them derives from the high proportion of minimum wage earners[8], whose pay is probably affected directly by the minimum wage. It can be said that most of the findings presented below support the hypothesis that the minimum wage had a major impact on the actual pay of those with low income-earning ability, while its effect on their chances of employment, if there was any such effect, was less significant.

Figure 5: Development of the minimum wage and pay in the bottom quintiles

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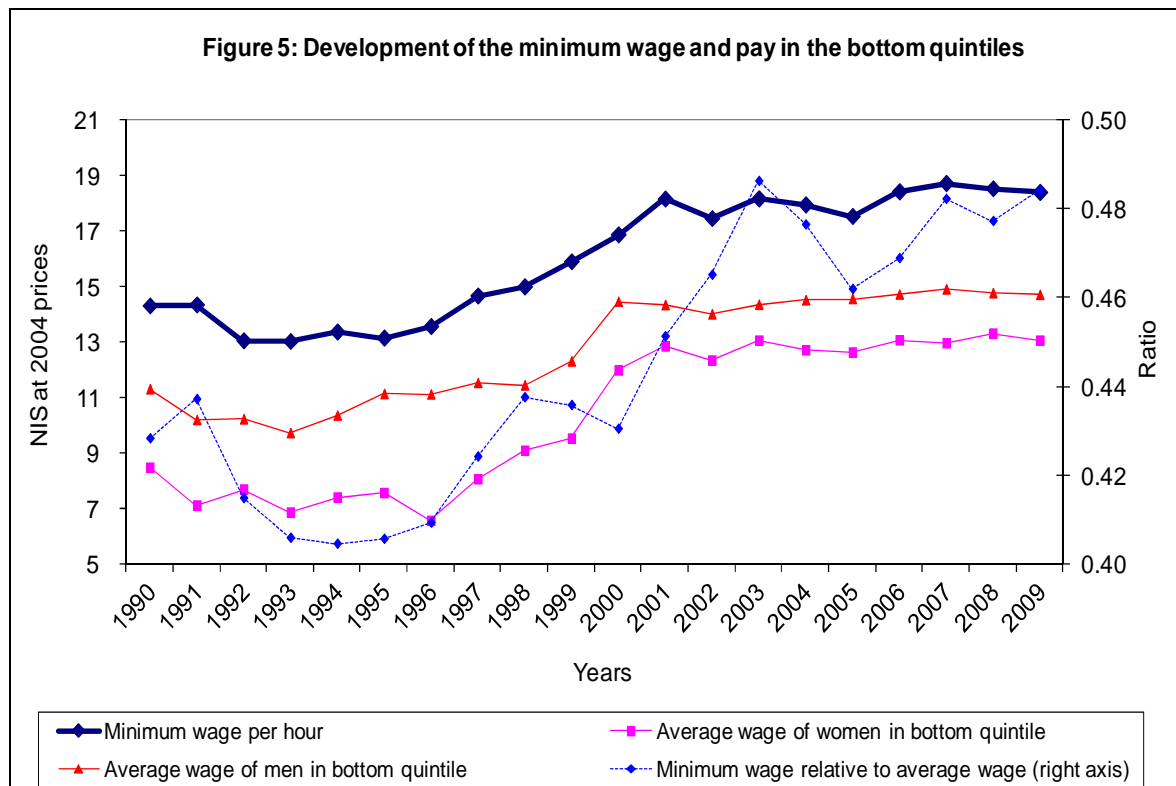
[8] Those who earn minimum wage or less.

## 4. Increase in the minimum wage and the gender wage gap

Figure 6 shows the development of the real hourly average wage for men and women between 1996 and 2009. The development of women's pay was highly correlated with the development of men's pay, although women's pay rose more than that of men: During the period, men's pay increased by 34 percent in real terms and women's pay increased by 51 percent, rates reflecting average annual increases of 2.1 and 3 percent, respectively. The ratio between women's and men's hourly wage, which was 72 percent in 1995, rose to 85 percent in 2006, and then fell to 81 percent in 2009.

In the following analysis we will present evidence of the contribution of the minimum wage to the decrease in the gender wage gap. The analysis presented is qualitative and not quantitative, because in the absence of panel data it was not possible to isolate the effect of the minimum wage from other factors that affected the wage gaps in the same period. The analysis shows that although an increase in the minimum wage has the effect of reducing the gender wage gap in the private sector, its affect is relatively minor.

Figure 6: Average wage of men and women in the business sector

SOURCE: Central Bureau of Statistics Income Surveys.

Most of the wage variance can be explained by the individual's characteristics (such as age, education and occupation). Accordingly, much of the raw difference in wages and the changes in this gap can be attributed to differences in individual characteristics between women and men, and to different developments of the composition of employment from the aspect of these characteristics. Figure 7 presents raw difference in hourly wage against the estimated coefficient of the dummy variable "man" in a wage regression, with and without control for other individual characteristics. Even when controlling for other individual characteristics, there is a continuous decrease in gender gap, although the gap remain significant. This means that men had unobserved characteristics which conferred them with higher pay throughout the entire sample period.

Figure 7: Effect of "man" variable on pay

Legend: "Man" — "Man" - without control over the individual's criteria
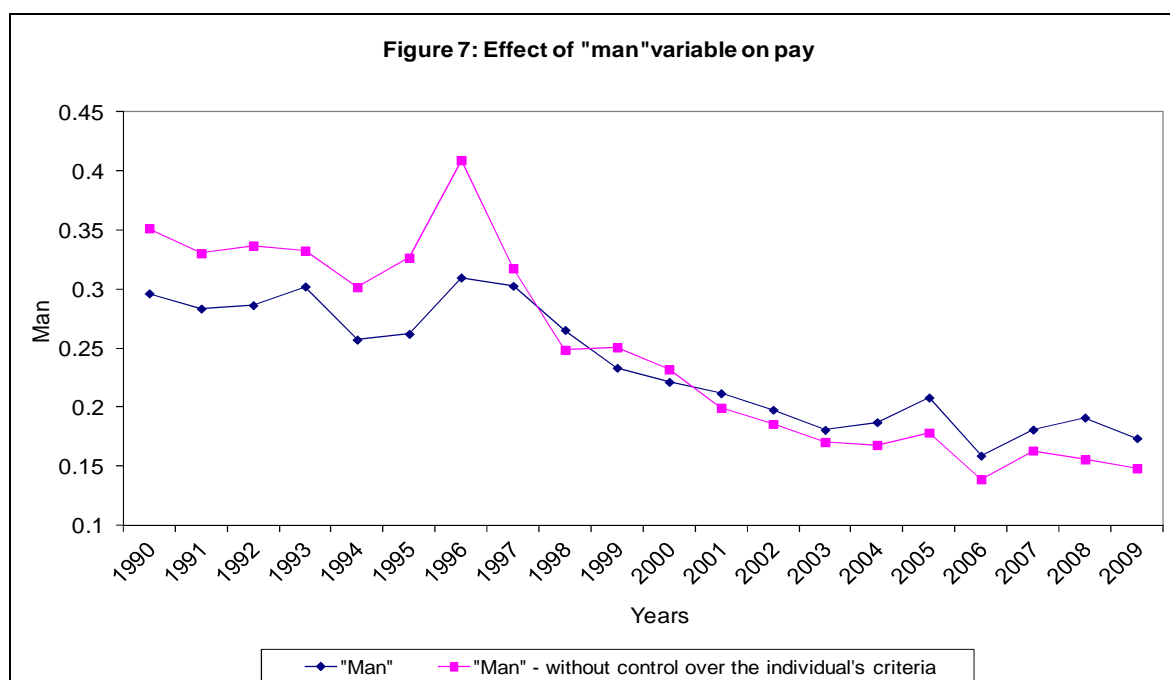
SOURCE: Central Bureau of Statistics Income Surveys.

The coefficient of the "man" dummy variable sums up all the gender differences in return to personal characteristics (such as education and seniority). We break down the gender wage gap into two components: the part of the gap that may be attributed to different personal characteristics, and the part that may be attributed to other factors. In order to do so we will estimate what women's pay would have been had they received the same return on their characteristics as men. An analysis of this type is called decomposition (Oaxaca, 1973).

The analysis shows that the differences in the return on the characteristics of men and women are dominant in explaining the gender wage gap, and the change in them explains the decrease in the gap throughout the period. This finding conforms to the findings relating to the development of the gender wage gap in the developed countries, which is explained mainly by the wage structure and to a lesser extent, by changes in the composition of the characteristics mentioned. The most notable change during the period was the increase in the return on the number of work hours of women,[9] while no significant change was observed in other returns.

The increase in the return on the number of work hours of women relative to men reflects the positive correlation between the increase in the size of the job slot of women, and the income-earning decile to which they belong: During the period studied, the lengthening of the work hours of female salaried employees in the private sector who are in the upper part of the wage distribution (from the fifth decile and up to the top decile) was greater the higher the income-earning decile involved was. The correlation expressed in the regression between longer working hours and higher pay (per hour) may therefore not reflect the return, but the existence of another unobserved variable, which is correlated both with working hours and high pay. No similar development was observed in the pay of men.

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[9] The work regressions refer to wage per hour, with an increase in the return on the number of work hours reflecting an increase in the premium paid to women for the willingness to work in posts that require longer working hours. Discussion of the factors behind the emergence of this trend, such as feminism, awareness and other cultural changes could form the basis for an interesting additional study.

Figure 8a: Real increase in precentage of wage per hour from 1996-1997 to 2002-2004 by wage quintile, women and men
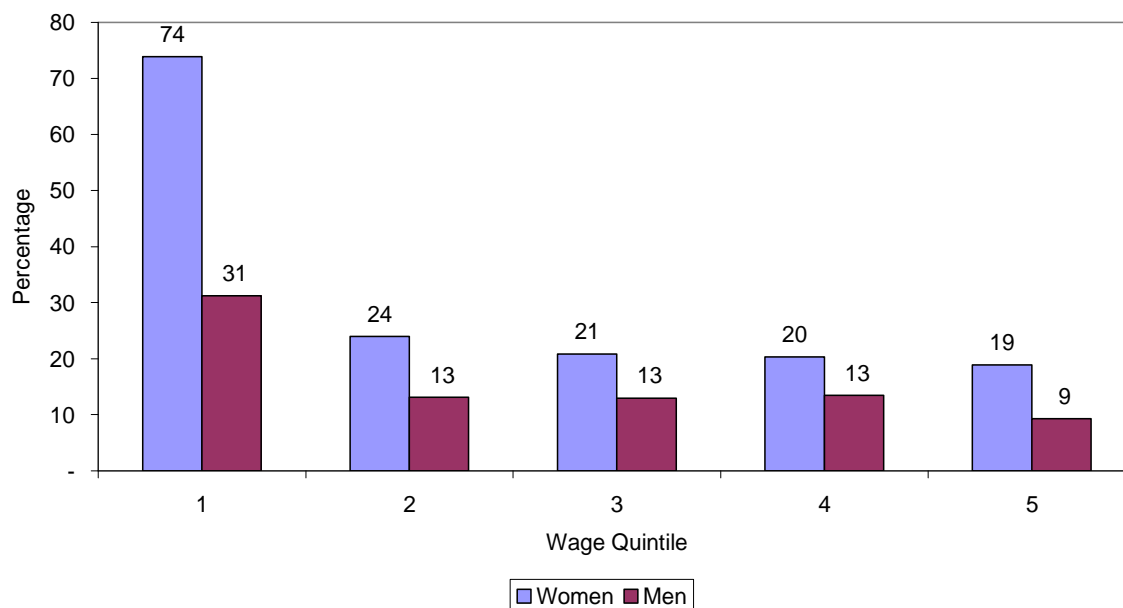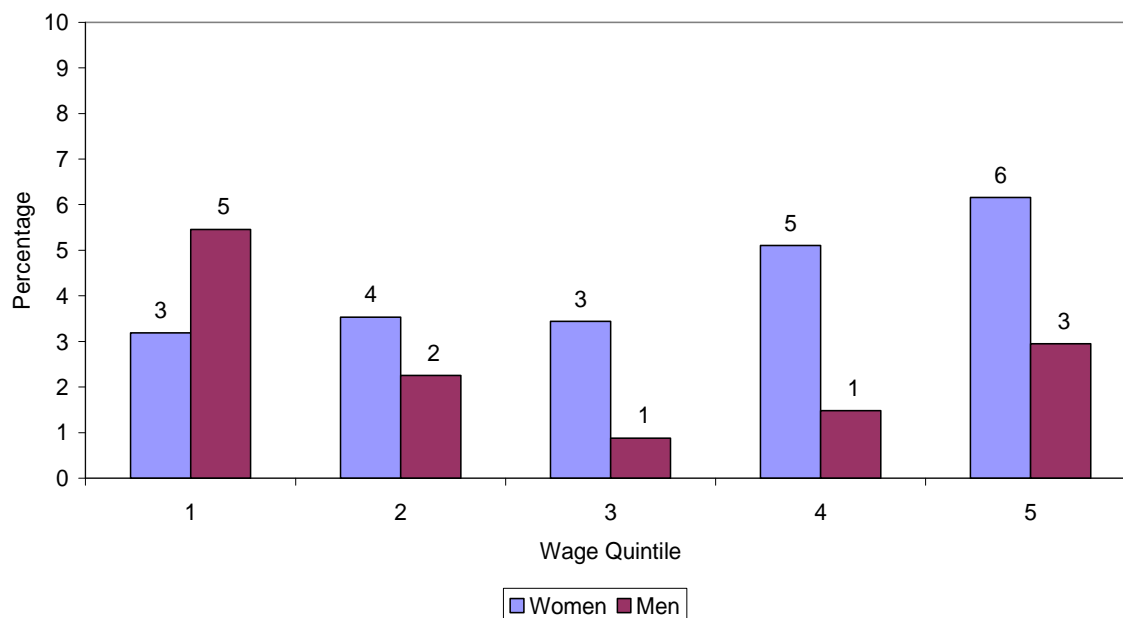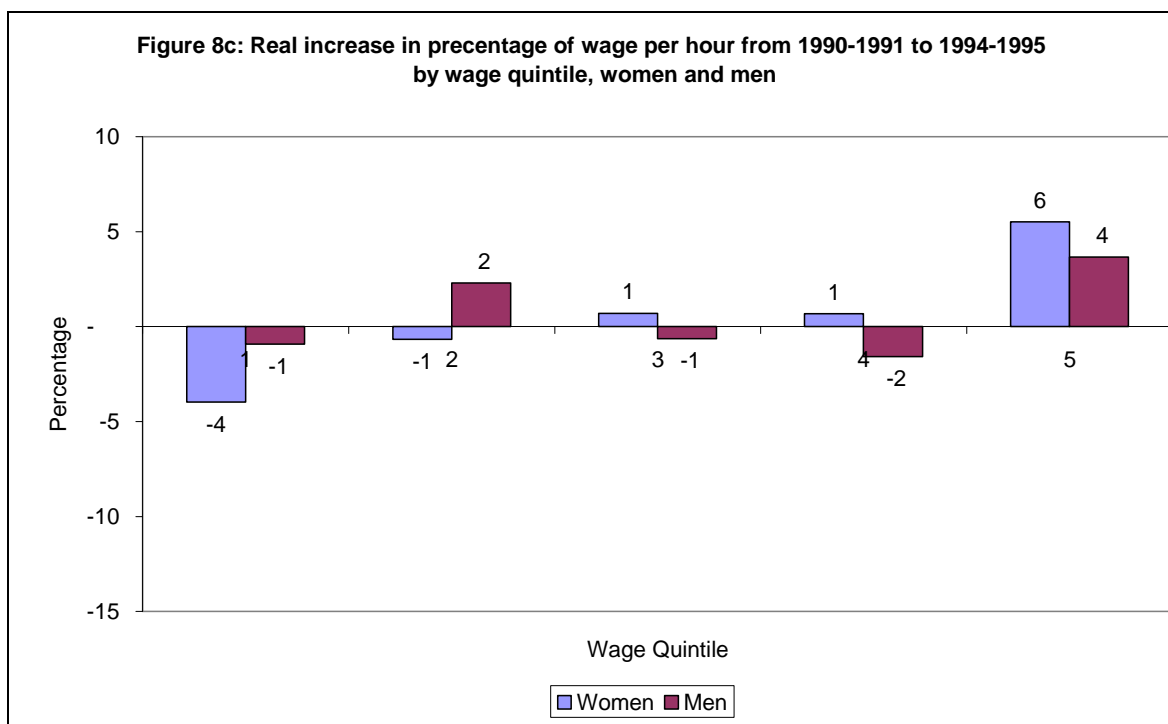

Figure 8b: Real increase in precentage of wage per hour from 2002-2004 to 2007-2009 by wage quintile, women and men

Figure 8c: Real increase in precentage of wage per hour from 1990-1991 to 1994-1995 by wage quintile, women and men

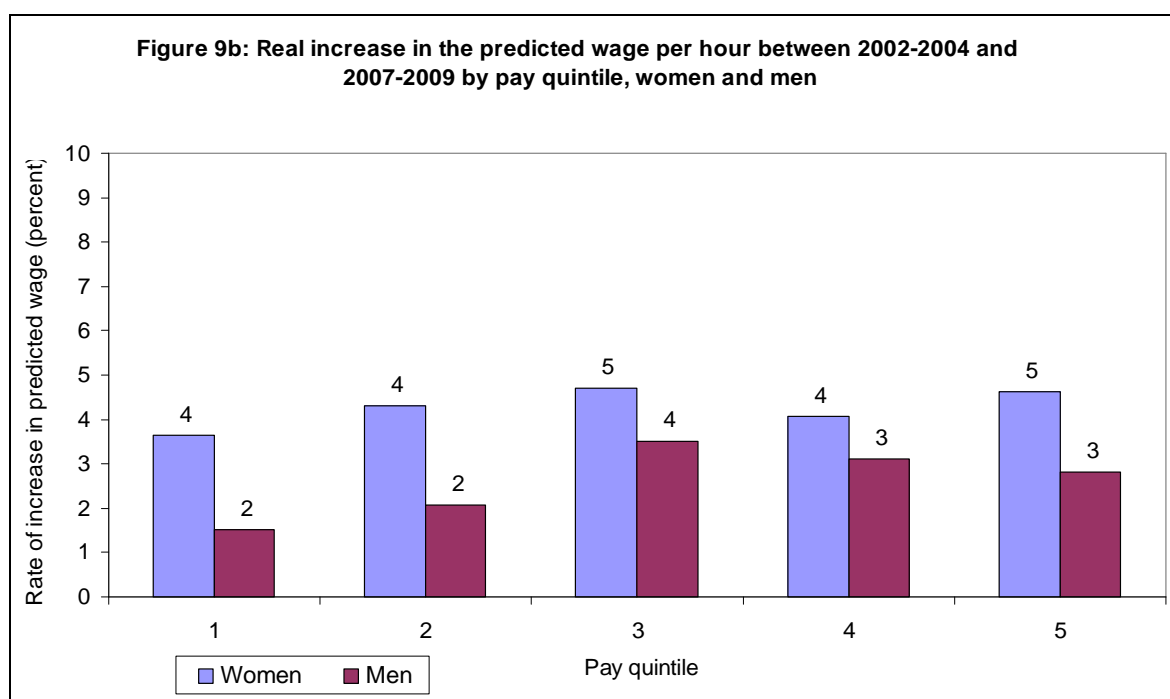**SOURCE: Central Bureau of Statistics Income Surveys.**

The decrease in gender wage gap is seen most clearly when looking separately at the developments by wage quintiles. Figure 8a presents the increase in the real wages of women and of men between the years 1996–1997 and the years 2002–2004 by wage quintile. Two notable developments are apparent from this diagram:

1. The increase in women's wages was greater than that of men in all of the quintiles, that is, throughout the entire wage distribution.

2. The average wage of female salaried employees in the bottom wage quintile rose by 74 percent, which was the highest rate of increase in comparison with women in the other quintiles. Among men however, this phenomenon was less notable, and the increase in men's pay throughout the income-earning quintiles during the period was quite similar.

Figures 8b and 8c present a similar calculation for different periods, the mid-2000s and the early 1990s, respectively. It can be seen that the development of wages by quintiles in these periods differed greatly from the development presented in Figure 8a. In the mid-2000s (Figure 8b) the real wage continued to rise in all of the quintiles, but at a lower rate. Moreover, the rate of increase in the real wage was higher among women the higher was their quintile affiliation and with men, among those belonging to the bottom quintile. In the early 1990s (Figure 8c) the rate of increase in the real wage was moderate in all four lower quintiles, and even negative in some cases. The real wage rose appreciably only among the top quintile of men and the top quintile of women.

The fact that the real wage of women belonging to the bottom wage quintile rose concurrent with the increase in the minimum wage forms a partial basis for the hypothesis that the minimum wage affected the gender wage gap. In order to provide a further statistical basis for this hypothesis, we examined the development of the predicted wage of women and men wage quintile. Figure 9 presents the real increase in the predicted wage of women and men by quintile between the years 1995–1997 and the years 2005–2007. Here

too, the (predicted) wage of women rose more rapidly than that of men throughout the entire wage distribution. Notable in comparison with Figure 9 and the actual wage is the fact that the predicted wage of women increased more slowly than their actual wage. That is, apart from the improvement in human capital and the return on characteristics, an additional, unexplained increase in pay occurred. In view of the high correlation between the development of the pay of female salaried employees at the bottom of the pay scale, and the development of the minimum wage, it can be assumed that much of the unobserved increase in their actual pay derived from the increase in the minimum wage.

Figure 9a: Real increase in the predicted wage per hour between 1996-1997 and 2002-2004 by pay quintile, women and men

Figure 9b: Real increase in the predicted wage per hour between 2002-2004 and 2007-2009 by pay quintile, women and men

SOURCE: Central Bureau of Statistics Income Surveys.

Figure 9c: Real increase in the predicted wage per hour between 1990-1991 and 1994-1995 by pay quintile, women and men

SOURCE: Central Bureau of Statistics Income Surveys.

The differential increase in wages along the wage distribution of women caused a bigger contraction of the gender wage gap among low-paid workers. Consequently, the change in the gender wage gap among workers in the high wage quintile was the smallest (Figure 10).

Figure 10: Change in gender wage gap between 1996-1997 and 2002-2004

SOURCE: Central Bureau of Statistics Income Surveys.

Eventually, Figure 11 presents the <u>actual</u> ratio between the hourly wage of women in the bottom quintile, and that of women in the top quintile. Figure 11b presents a similar calculation for men. It can be discerned that the development of the actual ratio for women was largely correlated with the development of the ratio between the minimum wage and

the average wage (in contrast to the predicted wage, which was not found to be correlated with the development of the minimum wage). But since the effect of the minimum wage on the pay of men was smaller, the correlation between the development of the minimum wage, and the ratio of the pay of men in the bottom quintile and of men in the top quintile was very low (Even though the correlation was much higher than the correlation between the development of the minimum wage and the ratio of the predicted wage between the quintiles). This finding, which is robust, conforms to the high correlation between the wage of women in the bottom quintile and the minimum wage.
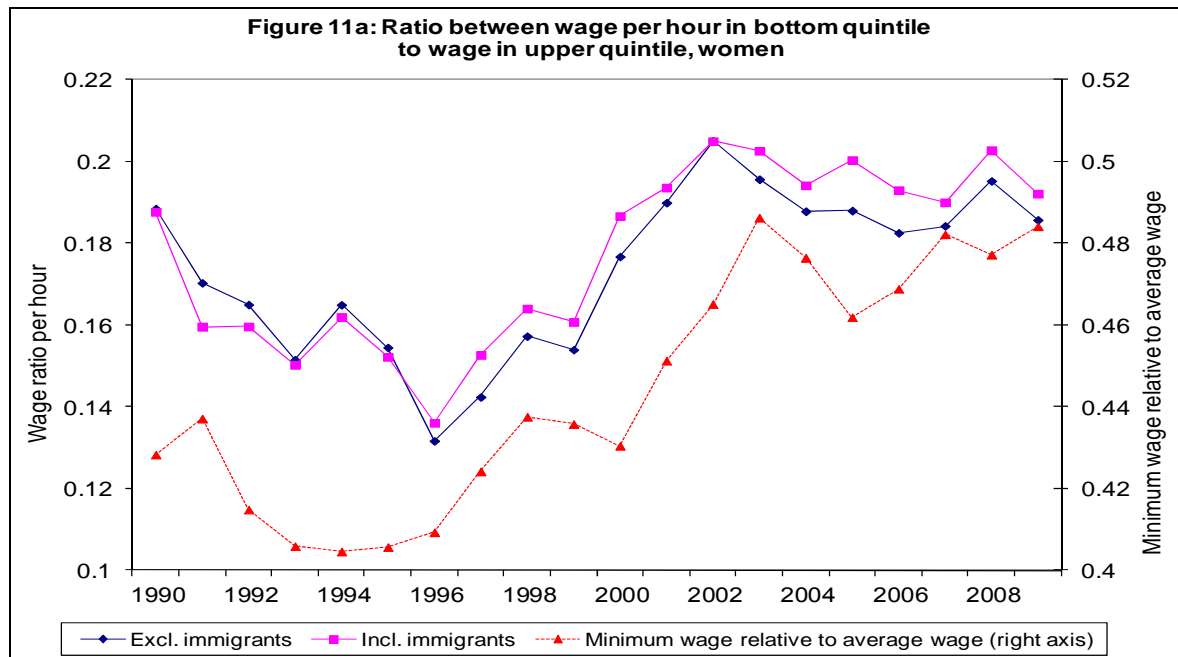
Figure 11a: Ratio between wage per hour in bottom quintile to wage in upper quintile, women

SOURCE: Central Bureau of Statistics Income Surveys.

Figure 11b: Ratio between wage per hour in bottom quintile to wage in upper quintile, men
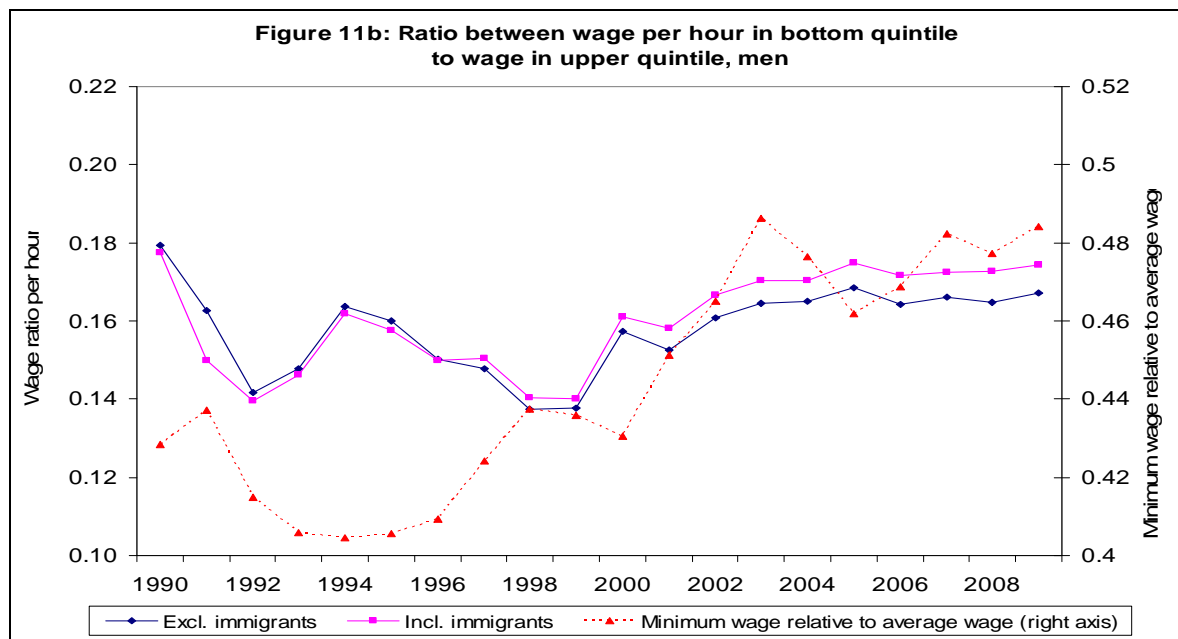
SOURCE: Central Bureau of Statistics Income Surveys.

In order to examine the extent to which the minimum wage affected the decrease in the gender wage gap, we estimated the contribution of the reduction in the gender gap in each of the wage quintiles to the decrease in the average wage gap. Each time, we calculated the average wage gap when the women's wage in a specific quintile rose at the same rate as men's wage in the same quintile (i.e., if the wage gap in the same quintile remained unchanged), while other wage developments were the same as what actually happened.

Figure 12: Quintiles' contribution to contraction of gender wage gap between 1995-1996 and 2002-2004
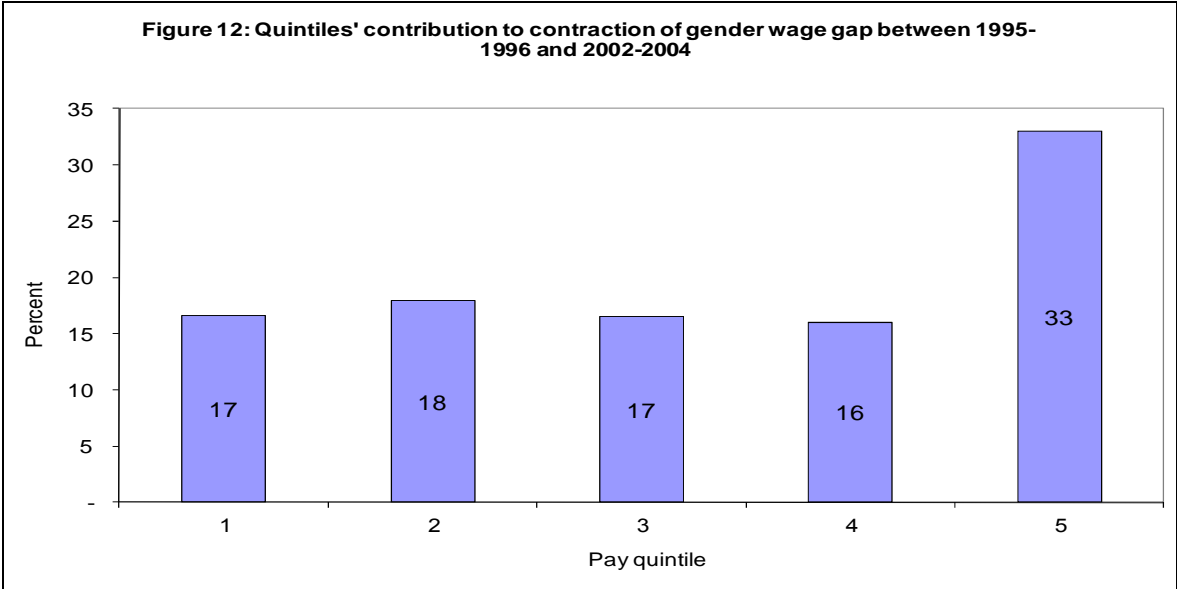
SOURCE: Central Bureau of Statistics Income Surveys.

Figure 12 quantifies the contribution of the narrowing of the gender wage gap in each quintile to the narrowing of the average gender wage gap. It was found that the contribution is greater the higher the wage quintile. This finding may be surprising in view of the previous findings, and the more rapid narrowing of the gender wage gap in the bottom quintile. However it should be noted that this finding reflects the high inequality in wages: The upper quintiles' share in total wage bill is considerably larger than their proportion in the population, with the result that any change in the gender wage gap in these quintiles has a bigger impact on the total wage gap.

The reduction of the gender wage gap can be split into two components: The part reflecting narrowing of the gap between the predicted wage of women and the predicted wage of men, and the part reflecting the narrowing of the gap in the unobserved component of remuneration (the difference between actual pay and the predicted wage). If we make a conservative assumption that the changes in the minimum wage had no effect on the predicted wage gap between men and women, and that the increase in the minimum wage had no effect on the development of wages in the second wage quintile (assuming no spillover from the change in the minimum wage to the change in the pay of those earning slightly more than the minimum wage), we will be able to calculate the imputed contribution of the increase in the minimum wage to narrowing of the overall gender wage gap.[10] If the pay of men and women were to increase only in accordance with changes in

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[10] This estimate is likely to be an under-estimate of the real effect of the minimum wage. This is because the minimum wage is likely to affect the predicted wage as well as the pay of those in higher income-earning quintiles. However, additional, unobserved factors may have the effect of reducing the gender wage gap and if

their characteristics and the return on them (that is, exactly in accordance with the increase in their predicted wage), the contribution to the reduction in the total gender wage gap would be 7.1 percent (and not 17 percent as indicated in Figure 12). Under relatively conservative assumptions therefore, the increase in the minimum wage contributed 7.6 percent to the reduction in the average gender wage gap in the private sector during the period studied, 0.66 percentage point out of the overall reduction of 8.7 percent.

Summary and conclusions

The ratio between the minimum wage and the average wage rose from the end of the 1990s and until 2003. The dominant factor behind the increase was the slower rate of increase in the average nominal wage, which contributed to reduced erosion of the minimum wage. The most recent statutory change in the ratio between the minimum wage and the average wage was in 1997. Under this change, it was stipulated that the minimum wage would rise to 47.5 percent of the average wage. The increase in the minimum wage in 2003 was a one-time increase and related to the amount of the minimum wage, rather than its ratio to the average wage. This increase came as an adjustment to the continuing erosion in the minimum wage during the years preceding the adjustment.

During the period when the minimum wage increased, low wage-earners' chance of employment decreased. In the absence of an adequate data base, it is not possible to know whether this decrease resulted from the change in the minimum wage. From the aspect of labor force composition however, we found that the composition of personal characteristics of low wage-earners did not show any improvement. It is therefore reasonable to assume that the minimum wage did not have a significant negative effect on employment.

Between 1995 and 2007, the pay of women in the bottom quintile of the wage distribution in the private sector rose far more rapidly than that of women in the higher quintiles, and we found evidence that the change in the minimum wage contributed substantially to this development. Since the predicted wage of women in the bottom quintile rose less than total wages, the change in the observed characteristics of women and the return on those characteristics cannot explain all the increase in pay. Moreover, the total pay of women in the bottom quintile is almost completely correlated with the minimum wage. Accordingly, we estimate that the minimum wage made a considerable contribution to the increase in the pay of those women. The increase in the pay of men in the bottom quintile was slower, meaning that the gender wage gap at the bottom of the pay scale contracted.

Although the more rapid increase in women's pay compared with men's pay is common to all the quintiles, its size was in inverse proportion to pay. This means that the gender wage gap in the top quintiles decreased less than in the bottom quintiles. However, the contribution of the upper quintiles to reducing the average wage gap was greater because of the level of their earnings. Accordingly, despite the important contribution of the minimum wage to reducing the gender wage gap in the bottom quintile, it had an only minor effect on the average gender wage gap in the entire private sector.

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these factors do exist, this estimate will be an over-estimate. As we saw previously, the majority of structural factors actually had the effect of reducing the pay of low-wage earners, and thereby contributed to an expansion of the wage gap. In our estimation therefore, the estimate presented below is an over-conservative estimate of the impact of the minimum wage.

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Appendix

Figure A.1: The share of workers who earn less than the minimum wage, all workers and just workers who worked 21 hours per week at least

Men
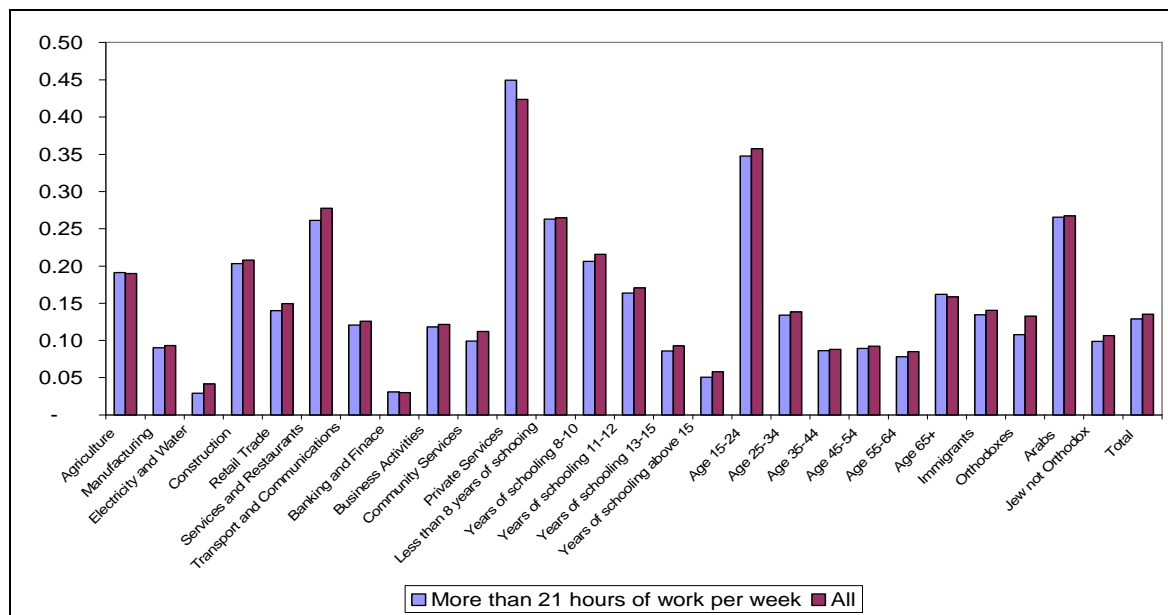
Women
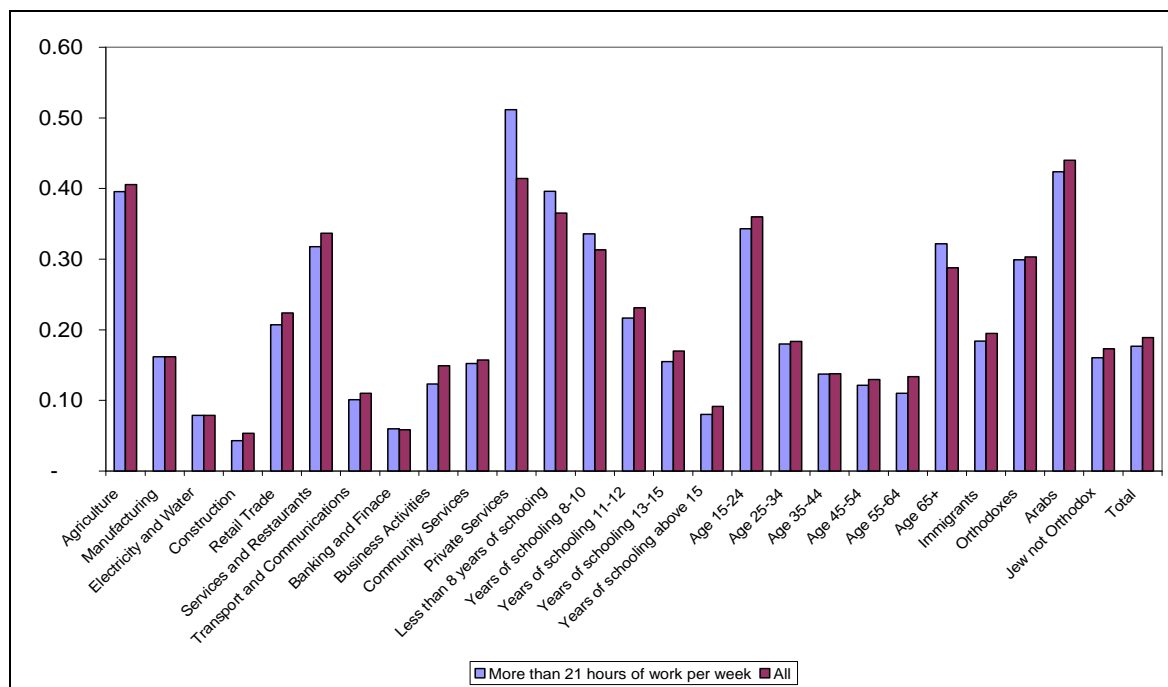
Figure A.2: the distribution of the log-monthly-wage of men in years 1996-97,1999-2000, 2008-09
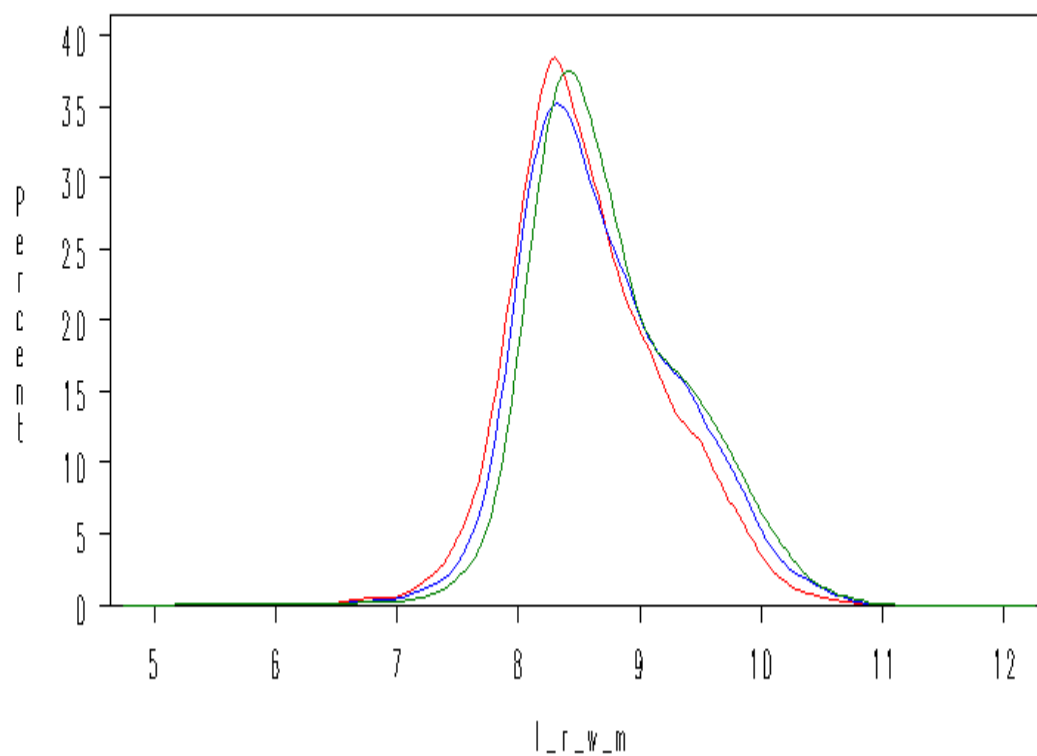
Figure A.2: the distribution of the log-monthly-wage of women in years 1996-97,1999-2000, 2008-09
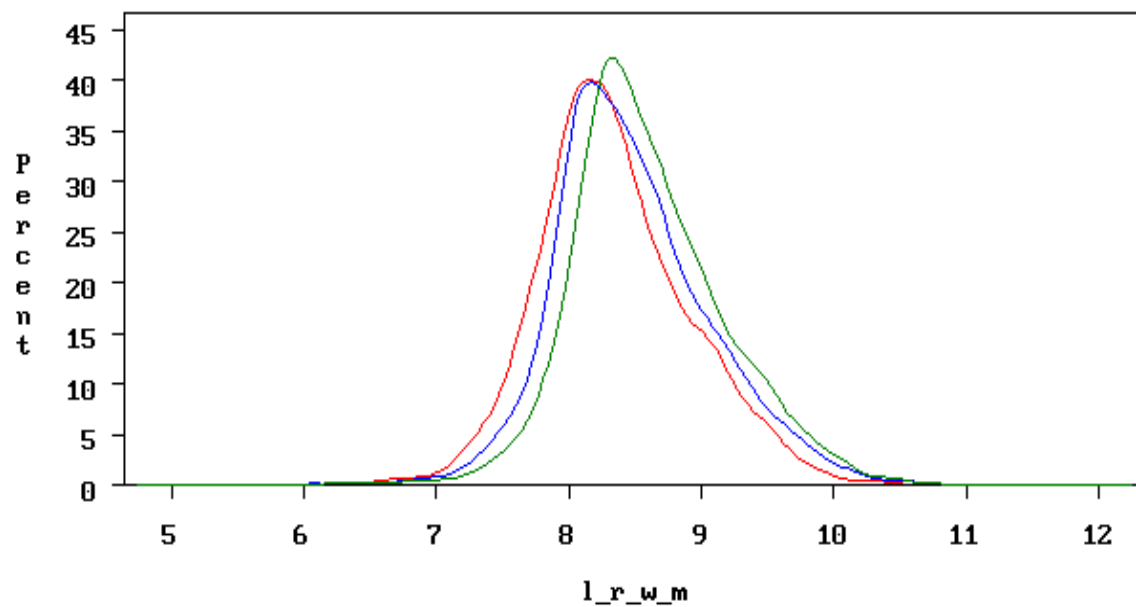
Figure A.3: the difference in the chances of low earner potential to be employed or unemployed compared with high earner potential

Men

The gap in the chance of men featured as a low quintile earner to be unemployed compared with man featured as a high quintile earner

The gap in the chance of men featured as a high quintile earner to be employed compared with man featured as a low quintile earner

The minimum wage ratio to the men-average-wage (right axis)

Women

The gap in the chance of women featured as a low quintile earner to be unemployed compared with man featured as a high quintile earner

The gap in the chance of woman featured as a high quintile earner to be employed compared with man featured as a low quintile earner

The minimum wage ration to the average-women-wage (right axis)

31

Table A.1
Logistic Regressions on the probability of earning less than the minimum wage

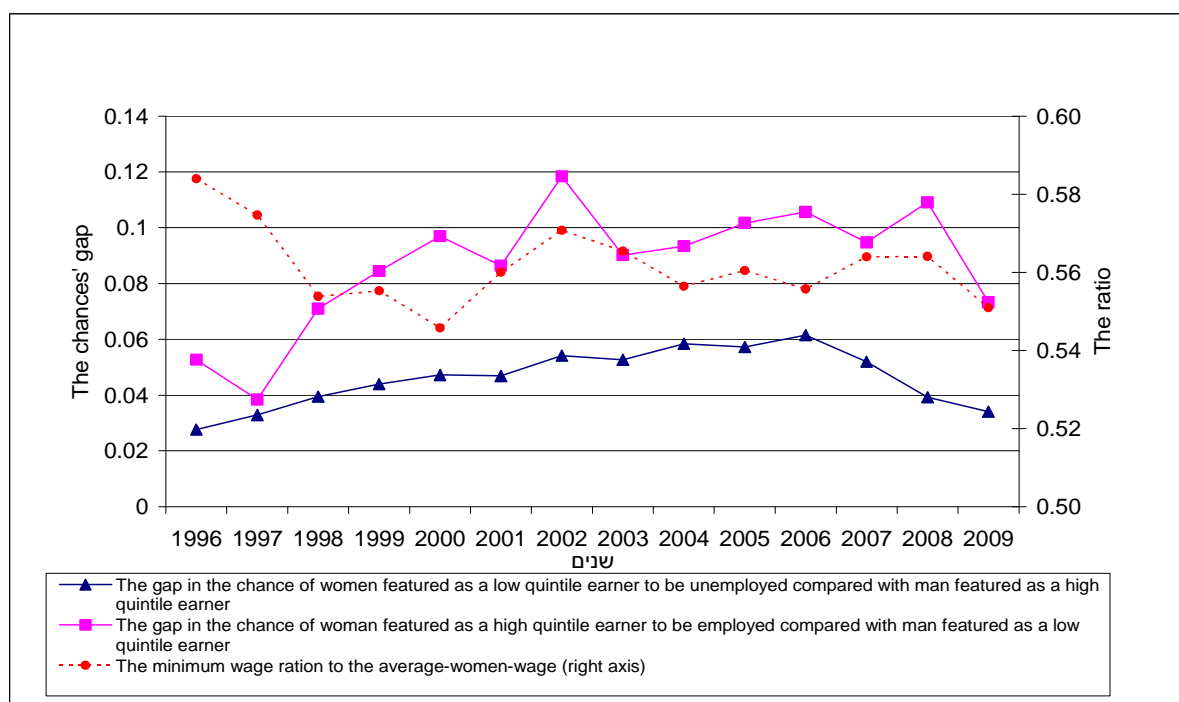| Men	Year	Intercept	Educated	Israeli Born	Immigrant	Ashkenazi	Orthodox	Arab	Age squared	Age	Hours per week	RMSE
1	1996	0.40	-0.06	0.01	0.11	-0.01	0.17	0.00	0.00	-0.02	0.00	0.27
2	1997	0.64	-0.05	0.02	0.10	-0.01	-0.06	0.01	0.00	-0.03	0.00	0.29
3	1998	0.55	-0.04	0.01	0.12	-0.00	0.03	0.04	0.00	-0.03	0.00	0.31
4	1999	0.58	-0.07	0.03	0.08	0.01	0.05	0.04	0.00	-0.03	0.00	0.31
5	2000	0.60	-0.06	0.03	0.08	-0.00	-0.01	0.08	0.00	-0.03	0.00	0.32
6	2001	0.65	-0.09	-0.02	0.11	-0.02	0.21	0.15	0.00	-0.03	0.00	0.33
7	2002	0.70	-0.08	0.01	0.10	0.02	0.17	0.12	0.00	-0.04	0.00	0.33
8	2003	0.74	-0.08	0.02	0.07	0.00	0.04	0.10	0.00	-0.04	0.00	0.33
9	2004	0.57	-0.09	0.02	0.08	0.01	0.04	0.12	0.00	-0.03	0.00	0.32
10	2005	0.60	-0.07	-0.03	0.09	-0.01	-0.00	0.12	0.00	-0.03	0.00	0.32
11	2006	0.70	-0.09	-0.01	0.08	-0.00	-0.03	0.12	0.00	-0.03	0.00	0.34
12	2007	0.74	-0.07	-0.01	0.05	-0.00	0.11	0.16	0.00	-0.03	0.00	0.33
13	2008	0.66	-0.09	-0.04	0.10	-0.00	0.09	0.19	0.00	-0.03	0.00	0.33
14	2009	0.67	-0.08	0.02	0.01	-0.03	0.04	0.15	0.00	-0.03	0.00	0.33

נשים	Year	Intercept	Educated	Israeli Born	Immigrant	Ashkenazi	Orthodox	Arab	Age squared	Age	Hours per week	RMSE
1	1996	0.90	-0.13	0.03	0.22	-0.03	-0.22	0.37	0.00	-0.05	0.00	0.38
2	1997	0.57	-0.13	0.03	0.18	-0.06	-	0.39	0.00	-0.03	0.00	0.38
3	1998	0.63	-0.09	0.01	0.16	-0.01	-	0.36	0.00	-0.03	0.00	0.35
4	1999	0.70	-0.11	0.03	0.15	-0.02	-	0.36	0.00	-0.03	0.00	0.37
5	2000	0.64	-0.13	0.04	0.13	-0.01	-	0.22	0.00	-0.03	0.00	0.37
6	2001	0.60	-0.14	0.01	0.18	-0.02	-0.21	0.24	0.00	-0.03	0.00	0.38
7	2002	0.48	-0.16	0.04	0.23	0.03	-	0.37	0.00	-0.02	0.00	0.35
8	2003	0.68	-0.12	0.01	0.12	-0.04	-	0.21	0.00	-0.03	0.00	0.36
9	2004	0.56	-0.13	0.03	0.21	0.03	-	0.27	0.00	-0.03	0.00	0.36
10	2005	0.61	-0.12	0.03	0.14	-0.01	-	0.30	0.00	-0.03	0.00	0.36
11	2006	0.62	-0.12	0.00	0.17	0.01	-	0.37	0.00	-0.03	0.00	0.35
12	2007	0.80	-0.14	0.02	0.18	0.01	0.43	0.32	0.00	-0.04	0.00	0.36
13	2008	0.91	-0.14	-0.01	0.13	0.00	-	0.40	0.00	-0.04	0.00	0.36
14	2009	0.55	-0.16	0.04	0.14	-0.01	-	0.33	0.00	-0.03	0.01	0.37

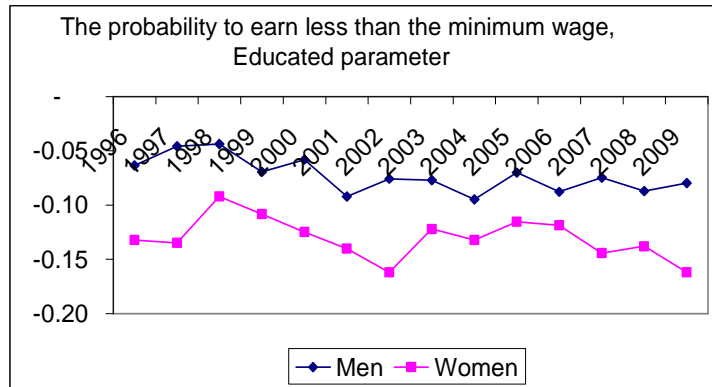The probability to earn less than the minimum wage, Educated parameter

Table A.2: Annual Mincer Regressions on the log-wage (the regressions also include dummy variables for the main economy branches of the workers)

Men

שנה	חותך	מספר תצפיות	שנות לימוד	יליד ישראל	עולה חדש	אשכנזי	חרדי	בן מיעוטים	גיל בריבוע	גיל	שעות עבודה	ADJRSQ
1995	0.999	3,482	0.015	0.019	-0.441	0.225	-0.319	-0.104	-0.001	0.088	0.001	31%
1996	0.613	3,391	0.031	-0.019	-0.428	0.196	-0.517	-0.024	-0.001	0.088	0.001	33%
1997	0.808	3,124	0.027	0.056	-0.430	0.170	-0.413	-0.177	-0.001	0.082	0.001	34%
1998	0.862	5,840	0.035	0.041	-0.422	0.159	-0.125	-0.200	-0.001	0.090	-0.003	31%
1999	0.773	5,611	0.043	0.043	-0.454	0.145	-0.547	-0.201	-0.001	0.082	0.000	35%
2000	1.211	5,554	0.043	0.078	-0.396	0.190	-0.361	-0.222	-0.001	0.069	0.000	36%
2001	1.215	5,554	0.050	0.091	-0.415	0.129	-0.463	-0.319	-0.001	0.068	-0.001	35%
2002	1.291	5,518	0.038	0.074	-0.381	0.137	-0.388	-0.295	-0.001	0.069	-0.001	33%
2003	1.383	5,494	0.032	0.102	-0.378	0.140	-0.198	-0.296	-0.001	0.070	-0.001	29%
2004	1.318	5,692	0.040	0.081	-0.399	0.146	-0.209	-0.296	-0.001	0.067	-0.001	33%
2005	1.527	5,784	0.033	0.077	-0.387	0.109	-0.335	-0.336	-0.001	0.066	-0.001	33%
2006	1.299	5,887	0.043	0.089	-0.347	0.118	-0.367	-0.319	-0.001	0.066	0.000	33%
2007	1.238	5,706	0.049	0.079	-0.353	0.083	-0.230	-0.288	-0.001	0.063	0.001	33%
2008	1.188	5,871	0.053	0.119	-0.340	0.111	-0.344	-0.317	-0.001	0.067	-0.000	34%
2009	1.294	6,075	0.041	0.054	-0.248	0.163	-0.375	-0.358	-0.001	0.066	0.000	32%

Women

Year	Intercept	n	Years of schooling	Israeli Born	Immigrant	Ashkenazi	Orthodox	Arab	Age squared	Age	Hours Work	ADJRSQ
1995	0.514	1,180	0.057	-0.087	-0.523	0.031	-	0.036	-0.001	0.097	-0.005	26%
1996	0.251	1,832	0.034	-0.062	-0.374	0.039	0.488	-0.207	-0.001	0.094	0.001	31%
1997	0.973	1,752	0.018	0.019	-0.301	0.163	-	-0.254	-0.001	0.085	-0.003	26%
1998	0.937	3,282	0.028	0.011	-0.306	0.115	-	-0.317	-0.001	0.077	-0.000	24%
1999	0.943	3,140	0.033	0.012	-0.340	0.090	-	-0.351	-0.001	0.074	0.001	27%
2000	0.985	3,353	0.060	0.004	-0.372	0.084	-	-0.212	-0.001	0.065	0.001	31%
2001	1.351	3,268	0.047	0.036	-0.345	0.098	0.712	-0.225	-0.001	0.060	-0.001	28%
2002	1.371	3,204	0.032	0.000	-0.353	0.032	-	-0.399	-0.001	0.064	0.001	28%
2003	1.240	3,239	0.041	0.046	-0.328	0.078	-	-0.249	-0.001	0.068	0.001	27%
2004	1.123	3,389	0.058	0.005	-0.339	0.063	-	-0.253	-0.001	0.061	0.000	32%
2005	1.197	3,485	0.036	0.032	-0.314	0.116	-	-0.291	-0.001	0.067	0.002	29%
2006	1.202	3,444	0.050	0.012	-0.293	0.029	-	-0.356	-0.001	0.051	0.004	32%
2007	1.314	3,527	0.027	0.001	-0.244	0.048	-0.261	-0.330	-0.001	0.066	0.003	26%
2008	1.294	3,611	0.046	0.041	-0.263	0.064	-	-0.397	-0.001	0.061	0.001	28%
2009	1.169	3,822	0.053	0.035	-0.252	0.063	-	-0.383	-0.001	0.060	0.002	29%

Table A.3: Probit Regressions on the probability to participate in the labor force

Men				
Year	<u>1996</u>	<u>2000</u>	<u>2005</u>	<u>2009</u>
Age	-0.000	-0.001	-	0.005
Arab	0.093	0.052	0.011	0.005
Orthodox	-0.432	-0.455	-0.443	-0.440
Years of schooling	0.025	0.037	0.038	0.035
Immigrant	-0.011	0.007	0.093	0.142
Women				
שנה	<u>1996</u>	<u>2000</u>	<u>2005</u>	<u>2009</u>
Age	-0.005	-0.006	-0.005	-0.005
Arab	-0.301	-0.332	-0.362	-0.355
Orthodox	-0.159	-0.201	-0.171	-0.153
Years of schooling	0.055	0.057	0.055	0.056
Immigrant	0.044	0.009	0.05	0.110

Table A.4: Probit Regressions on the probability to be unemployed

Men				
Year	<u>1996</u>	<u>2000</u>	<u>2005</u>	<u>2009</u>
Age	-0.001	-0.002	-0.002	-0.002
Arab	-0.017	0.014	-0.011	-0.018
Orthodox	0.024	0.037	0.059	0.042
of schooling	-0.005	-0.008	-0.010	-0.007
Immigrant	0.006	0.002	-0.014	-0.005
Women				
שנה	<u>1996</u>	<u>2000</u>	<u>2005</u>	<u>2009</u>
Age	-0.003	-0.002	-0.003	-0.002
Arab	-0.044	-0.026	0.026	0.007
Orthodox	-0.008	-0.018	0.005	0.011
of schooling	-0.007	-0.011	-0.012	-0.008
Immigrant	0.013	0.014	-0.005	-0.005