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**First Year of the Mandatory Pension Arrangement:
Compliance with the Arrangement as an Indication of its
Potential Implications for Labor Supply***

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השנה הראשונה להפעלת הסדר פנסיית החובה: הציות להסדר והשלכות פוטנציאליות על היצע העבודה

עדי ברנדר

תקציר

מחקר זה בוחן את התנהגות השכירים והמעסיקים בשנה הראשונה להפעלת הסדר פנסיית החובה בישראל – שנת 2008. נמצא כי להסדר הייתה השפעה ניכרת על העובדים: כמחצית מהעובדים המתמידים שלא חסכו לפנסיה ב-2007 החלו לחסוך ב-2008, בהשוואה לשישית בלבד שלא חסכו ב-2006 והחלו לחסוך ב-2007. עם זאת, חלק ניכר מהעובדים שהיו אמורים להתחיל לחסוך לא עשו זאת, וההימנעות מהפרשה מתואמת שלילית עם כדאיות החיסכון הפנסיוני לעובד ועם גודל המעסיק. גורמים בולטים שהשפיעו על ההימנעות מחיסכון הם הימצאותו של העובד מתחת לסף המס, בן זוג שאינו עובד, ותעסוקה אצל מעסיקים קטנים – של פחות מ-50 שכירים. מרבית העובדים שהחלו להפריש לפנסיה עשו זאת בשיעורים הקרובים למינימום הקבוע בהסדר, ושיעורי ההפרשה – ובפרט הנטיה להפריש מעבר למינימום הנדרש – מתואמים חיובית עם כדאיות החיסכון. התנהלות זאת של העובדים והמעסיקים מלמדת שחלק ניכר מאוכלוסיית היעד של פנסיית החובה רואה בה נטל, ומנסה להתחמק מההסדר. זאת בהתאם לחישובים תיאורטיים המראים שחובת החיסכון אכן פוגעת בעובדים אלה. מניתוח זה עולה כי יישום ההסדר במלואו עלול לפגוע משמעותית בתעסוקה של עובדים בעלי כושר השתכרות נמוך. בנוסף, על בסיס החקיקה הקיימת, הפסד ההכנסות ממסים בגין הפעלתו של ההסדר גדול בהרבה מהחיסכון העתידי בתשלומי קצבאות לחוסכים לפנסיה, גם בראיה ארוכת טווח.

מילות מפתח: פנסיה, עלות עבודה, מס אפקטיבי, מדיניות רווחה.

First Year of the Mandatory Pension Arrangement: Compliance with the Arrangement as an Indication of its Potential Implications for Labor Supply

Adi Brender

Abstract

Since 2008, Israel is gradually implementing a universal mandatory pension arrangement. The arrangement is found to have had a significant effect: about half of the employees that did not contribute to a pension arrangement in 2007, and continued working in 2008, began to save. In comparison, only one sixth of those who did not save in 2006 began saving in 2007. Nevertheless, a significant part of the target group did not start saving, and this avoidance is found to be negatively correlated with the predicted desirability of pension savings for the employee. Key factors affecting the avoidance are: earnings below the income-tax threshold, a non-working spouse and being employed by a small employer. Most of those who began saving did so at the minimum mandated contribution rates, and the discretionary tendency to contribute above the minimum rate, is positively correlated with estimated pension desirability. This conduct indicates that a significant segment of the target group views mandatory pensions as a burden, and tries to avoid it; a behavior consistent with ex-ante calculations that show that it is indeed not beneficial for them. Further analysis shows that full implementation of the arrangement may result in a significant negative effect on the employment of low-income populations. Additionally, based on the existing legislation, tax revenue loss due to mandatory pensions far exceeds the future savings in means-tested old-age allowances.

Key words: Mandatory pensions, Effective tax rate, welfare policy, tax wedge.

1. Introduction

The mandatory pension arrangement went into effect at the beginning of 2008. It requires every worker in Israel to contribute 15 percent of his wage to pension savings, which are designated for the payment of a monthly pension upon retirement. The arrangement was adopted as the result of an agreement between the Histadrut (the national trade union) and the manufacturers' organizations and was imposed on all workers in the economy through an Expansion Order issued by the Minister of Industry, Commerce and Employment. It is being implemented gradually, such that the full rates of saving will come into effect only starting from 2013. According to the arrangement, the obligation to contribute to pension savings applies to wages up to the level of the average wage in the economy and since the wages of about 70 percent of workers are below the average, for these workers the obligation to contribute to pension savings applies to their entire wage. One-third of the contribution to pension savings is deducted from the worker's wage and two-thirds are paid directly by the employer, including a compensation component. At the end of 2010, the Histadrut and the employers agreed to increase the contribution rate to 17.5 percent starting from January 2014 and the Minister of Industry, Commerce and Employment signed an Expansion Order for this addition as well.

The economic literature provides a number of justifications for government intervention in retirement savings and for imposing mandatory pensions (see Section 2 below): (a) the shortsightedness of workers, who fail to understand the need to save for retirement or err in the calculation of their required level of savings; (b) the high transaction costs in joining a pension savings plan and deciding on its size, which leads to passivity on the part of workers even when they understand the need to save; (c) abuse of the government income support system, which guarantees the worker a reasonable level of retirement income and leads to reduced pension savings. On the basis of these claims, two main types of government intervention are common in the developed economies: (a) national insurance systems that collect mandatory payments from workers in exchange for pensions paid out during retirement, which are for the most part characterized by a significant component of progressive redistribution of income; (b) the imposition of mandatory pension saving on workers, which is carried out through non-government savings institutions. Systems of the first type exist in almost all OECD countries while mandatory pension saving that is not part of a national insurance framework exists in nine countries.¹ In addition, contributing towards pension savings is the default in the UK and New Zealand and a worker who is not interested in doing so must request to stop contributing.

Government intervention in the decision of individuals on how to allocate income over their lifetime raises non-trivial theoretical and empirical issues, which become even more complex when the government chooses to intervene through a variety of policy instruments. Brender (2010) examined the potential implications of the mandatory pension arrangement in Israel, given the existing government intervention through the National Insurance Institute (NII) and tax benefits and found that a large proportion of low-earning workers are liable to be adversely affected. The arrangement reduces the incomes of these workers in years when their family's disposable income per standard individual is relatively low and increases it in periods when it is high in any case. The

¹ Australia, Hungary, Iceland, Mexico, Norway, Poland, Slovakia, Sweden and Switzerland (OECD, 2009).

analysis also shows that for large groups of low-earning workers the arrangement will reduce the total benefits provided by the State for retirement savings during the workers lifetime. This is in spite of the fact that the benefits that low-earning workers receive through the National Insurance system when they do not save for retirement were similar in size to the benefits received by higher-earning workers (who had saved for retirement) through the tax system.² In addition, the arrangement worsens the situation of low-earning workers relative to individuals who do not work at all. It was also found that prior to the arrangement going into effect the workers' decisions whether or not to save were consistent with the incentives of the tax and National Insurance systems, their family status and their employment trajectory. Since the pension saving rate required by the arrangement is significant relative to wages, the findings raise the concern that in addition to the potential reduction in the welfare of low-earning workers their employment may be negatively affected as well.

The criticism voiced by Brender (2010) is based on simulations and econometric analyses that relate to the period prior to the introduction of the arrangement. In contrast, the current research examines how workers and employers reacted when the arrangement went into effect. Using administrative panel data from the Tax Authority for a representative sample of 10 percent of the employees in the economy during the period 2000-08, the current study examines the degree of compliance with the mandatory pension arrangement during its first year, particularly among workers who had worked in both 2007 and 2008 and had not contributed to pension savings in 2007. This was done to determine whether compliance with the arrangement is correlated with the desirability of pension savings for the worker and in order to "exploit" the period in which enforcement was still lax so the "tastes" of savers and their employers can be identified. In addition to examining compliance with the arrangement, pension saving rates from wages were also examined for those who began saving only after the arrangement went into effect. This is because some of the justifications for mandatory pensions (such as high transaction costs and passivity) imply that if a worker would have started saving anyways he would have done so at the "correct" rates while if he is compelled to do so, it is reasonable to assume that he will save at the minimum rate required by the arrangement. The findings show that the arrangement significantly increased the number of workers contributing from their wages to pension savings but that there is a large degree of heterogeneity both in compliance and in the rates of saving and that both are correlated with the characteristics which determine whether pension savings are worthwhile for the employee. This behavior indicates that the mandatory pension arrangement is perceived as a burden for large groups of workers and the article presents an estimate of the potential effect of the arrangement on the supply of labor, particularly when the obligation to save is fully enforced and reached the final rate.

Section 2 presents arguments used to justify government intervention to require pension contributions and its potential effects on employee behavior as a result of the introduction of the arrangement in Israel. Section 3 describes the legal and institutional framework of retirement saving in Israel and Section 4 presents the methodology and database. Section 5 examines the characteristics of the group of workers who did not contribute to pension savings prior to the arrangement, the rates of compliance with the arrangement and the characteristics of workers and employers that did not comply.

² This conclusion is reached despite the fact that the analysis ignores the positive correlation between the level of income during the working years and life expectancy (Cutler et al., 2006), which increases the value of pensions to high-earning workers in comparison to lower-earning ones.

Section 6 analyzes the pension saving rates for those who began saving following the introduction of the arrangement and examines the connection between their decision and whether saving towards a pension is beneficial for them. Section 7 looks at the potential effect of the arrangement on the labor supply of low-earning employees and potential workers while Section 8 estimates its long-term budgetary effect. Section 9 concludes with an analysis of current policy in light of the findings and discusses policy alternatives.

2. The justifications for the mandatory pension arrangement and its potential effects in Israel

Most of the elderly population in the developed countries does not work. The retirement age differs between countries, but it is common that a large proportion of workers retires or switches to part-time jobs in their 60s. Since life expectancy at that age is still considerable, a retiree needs substantial funds to finance his living expenses during retirement. Furthermore, as a result of each retiree's specific life expectancy, a pension arrangement should ensure an income stream that will provide a reasonable standard of living, even if he lives beyond his expectations at the time of retirement, since there is little chance that he will be able to return to work in late retirement.

The common way to accumulate sufficient saving towards retirement – at least in developed economies - is a pension arrangement based on the worker's savings during his working years, in exchange for a pension from the age at which he retires until the end of his life and if needed survivors' benefits as well. These arrangements allow the individual to smooth consumption over the course of his lifetime while insuring the post-retirement income against changes in life expectancy.³ In the developed countries, the first layer of the pension system consists of a social insurance system that ensures a minimal income for the elderly, alongside the right to basic government-provided health and welfare services. Nonetheless, in many countries, including Israel, some of these rights are conditional on the individual not having sufficient income from independent sources, which creates an incentive for low income earners to avoid saving in order not to lose their eligibility for benefits (Hubbard et al., 1995). In contrast, the government also provides tax benefits on pension savings during the working years in order to encourage the accumulation of independent sources of income and mitigate these market failures.

Choosing the optimal level of savings from the point of view of utility and consumption smoothing, while accounting for the structure of retirement benefits provided by the State and the desire to exploit the tax benefits, creates a complex set of considerations and calculations with regard to the optimal pension saving rate, both over the course of an individual's lifetime and for each period separately. A significant component in the funds available to a retiree consists of the profits accumulated on his savings, which depend on how early he begins saving; therefore there is an advantage in initiating pension deductions at a young age. On the other hand, pension savings are intended to "smooth income and consumption" over the individual's lifetime and if the worker's income rises over his lifetime then he should contribute less in his younger years and raise the savings later, when income is higher. In addition, there are periods in which a

³ Insuring life expectancy and its pricing are among the main factors that determine the value of pension benefits and a source of possible failures in the pension market (Finkelstein and Poterba, 2002, 2004).

worker has a greater need for income, such as during the childrearing years or when a mortgage has to be repaid, and that income is needed for current consumption.⁴ Tax benefits for pension savings also constitute an important consideration in the timing of contributions. Thus, it is worthwhile to avoid pension-savings when the worker does not have any tax liability and to increase the saving rate as much as possible when tax benefits can be exploited.⁵ All these factors are of course subordinate to the question of the optimal size of retirement savings beyond the pension promised by the State. Therefore, the answer to the questions of whether and how much to save towards a pension in each period depends on the parameters of the tax and social insurance systems in each country⁶ and on the worker's income trajectory, family status and other parameters.

In view of the complexity of the calculations, it has been claimed (Kotlikoff, 1987) that workers may not save enough for retirement due to shortsightedness regarding their needs during retirement, which is likely to reflect "erroneous" discount rates or a lack of information regarding future needs.⁷ A similar claim is that young workers are passive with respect to their pension savings and their behavior is characterized by inertia (see, for example, Beshears et al., 2006 and Choi et al., 2004), even if they are aware of the need to save for retirement. According to this claim, their passivity is a result of both behavioral considerations⁸ and the fact that pension saving schemes are complex products whose "transaction costs" for entering and exiting over one's working life are high (Lusardi, 2000). As a result, according to this claim, workers discover only at a relatively late stage in their lives that they have not saved enough—or not at all—for retirement; however, at this late stage it is difficult to correct the error since accumulating sufficient savings starting from that stage in life implies a significant reduction in current standard of living. On the basis of these claims, a government intervention requiring workers to save for retirement will insure that they have sufficient sources of income to meet their retirement needs and thus will improve their welfare. This claim is supported by the facts that pension savings are particularly low when the head of a household has a low level of schooling (Bernheim and Scholz, 1993) and that the drop in consumption after retirement is particularly large among households that did not save for this period (Bernheim et al., 2001). Another claim is that workers intentionally save less for their pensions in order to exploit government benefits on retirement and therefore government intervention is justified in order to prevent abuse of this type.⁹

⁴ Under reasonable conditions, it is not worthwhile for the worker to save for a pension and at the same time borrow to finance current consumption.

⁵ For example, assuming an average annual net yield of 3.5 percent on pension savings and a 35 percent tax credit (as in Israel), the deferral of saving by nine years—with the accompanying loss in yield—is equivalent to the tax benefit. Hence, it is reasonable for a worker who is below the tax threshold and believes that in a few years he will be above it, to delay saving.

⁶ Diamond (2009) points to the need to take into account the interactions between the tax and pension systems.

⁷ Hamermesh (1984) found that the consumption of white couples at the beginning of the retirement period is 14 percent higher than their income. Banks et al. (1998) reported a drop in consumption following retirement in contrast to what is expected according to the consumption-smoothing approach. They attribute this drop to insufficient saving.

⁸ For example, Lusardi (2000) found that retirement was perceived as an unpleasant future event and therefore workers prefer to ignore it.

⁹ The findings in the US regarding the effect of income-dependent savings programs on the savings of target populations are mixed. Gruber and Yelowitz (1999) found that health insurance has a significant

In contrast to these arguments, mandatory savings may lead to "too much" savings by various types of employees and to sub-optimal distribution of disposable income through their lifetime (e.g. with respect to balancing pension savings with child upbringing costs or mortgage payments), especially if individuals are rational and poses the required information (Martin and Whitehouse, 2008). One of the indications for rationality and pro-activity is whether employees respond to changes in incentives in the expected directions. Additionally, if mandated savings are intended to prevent employees from exploiting the income support system upon retirement, this decision should be based on an examination of the combined effects of the pension tax benefits and the social security system on the lifetime income distribution among individuals. Although the desired level of intervention in income distribution is primarily a matter of social and political preferences, it is important to examine whether the utilization of the income support system by low-income employees results in them receiving overall larger retirement benefits than other workers.

Brender (2010) examined the incentives for pension saving in Israel based on the characteristics of workers and their families. He found, in line with the approach of Scholz et al. (2006), that even in the case of identical utility functions there are large differences between workers in the level of their *optimal* pension savings due to differences in income trajectory and family structure. Between one-quarter and one-third of Israeli employees are characterized by a low starting wage and a gradually rising wage profile during the working years, as well as by having a spouse that does not work for most of his/her lifetime. An analysis of the considerations in the decision of **these** workers as to whether to save for retirement showed that pension savings would inflict a financial loss on them, since the amount of the pension is offset with the income supplement for which they are eligible. It was also found that saving for retirement will interfere with their ability to smooth income over their lifetime, primarily because the old age pensions paid by the NII are similar in size to their net wage prior to retirement, while during much of the period in which they saved their family income per standard individual was much lower than it would be after retirement. The differences between workers who saved for retirement and those who did not were consistent with the incentives identified in simulations (as in the findings of Scholz et al., 2006 for the US) and it was found that workers reacted as expected to changes in the pension system during the last decade, given the structure of incentives. These findings cast doubt on the need for mandatory pension savings (beyond the mandatory payments to the NII) and raise the concern that such an obligation will be unfavorable for low-earning workers.¹⁰ Nonetheless, as mentioned, these analyses are prospective and need to be tested in order to determine whether the behavior of workers following the introduction of the arrangement was consistent with their evaluations.

negative effect on saving while Hurst and Ziliak (2006) found only a small effect for the food stamp and AFDC programs.

¹⁰ Research has also shown that total pension saving benefits from the government—which include the tax credits and the value of the National Insurance old age pension less the National Insurance contributions paid by the worker during his lifetime—were similar at all levels of income and that mandatory pension saving would lead to a situation in which the benefits to low income earners would be smaller than for other groups.

3. The legal and institutional background and its implications for private pension saving incentives

Saving towards a pension in Israel used to provide significant advantages to those who joined one of the veteran pension funds or a budget-funded pension arrangement. These frameworks were not balanced actuarially and provided savers with benefits whose value exceeded the amounts they had saved. This was partly based on the funds' right to purchase special government bonds that guaranteed above market yields. Starting from the mid-90s, however, the pension system in Israel went through a series of major reforms.¹¹ The terms offered by the veteran funds were downgraded for existing savers and the funds were closed to new members (this was a precondition for the provision of government grants to balance the funds' actuarial position). The terms of new pension funds were gradually downgraded, so that the pensions they currently offer are derived directly from the savings accumulated in the fund and the yield on them ("defined contribution"). In addition, the right to a budget-funded pension was cancelled for new workers joining the public sector and their pension savings were directed to the new pension funds. As a result of these changes, pension savings no longer provide an excess return to workers who are not members of the veteran funds or who are not eligible for a budget-funded pension, relative to an individual who does not save towards a pension.¹²

Even though the financial institutions no longer offer high subsidized yields, the tax benefits provided for pension savings essentially produce such yields. The benefits include three components: (a) Deposits by employers into a pension fund or credit to a budget-funded pension, up to an amount of 7.5 percent of the insured wage, are exempt from taxation for the worker and are exempt from NII contributions. This exemption applies to wages of up to four times the average wage. (b) The contribution of the employee from that part of his wage for which the employer also contributed provides the worker with a tax credit of 35 percent. This credit is provided for deposits of up to 7 percent of the insured wage, up to the level of the average wage.¹³ (c) Upon retirement, the pension is taxed as regular wage income and an additional exemption is applicable in the amount of 35 percent of the pension payment, up to a level (of the exemption, not of the pension payment) of about 30 percent of the average wage.¹⁴ Pensioners are also eligible for an additional credit point (NIS 215 per month) if their spouse is not working and has no pension. However, the benefits at the time of the contribution to pension savings are relevant only for those workers whose wage exceeds the tax threshold (about 45 percent of employees earn less than the tax threshold).¹⁵ The benefits when drawing a pension are relevant to only about one-fifth of the workers, whose wage was particularly high during their working years. Brender (2010) found that a significant portion of low-earning workers earned a similar wage (relative to the national average wage)

¹¹ Achdut and Spivak (2010) present a detailed survey of the structure of the pension system in Israel and the reforms it has undergone.

¹² The funds are still eligible to receive designated government bonds that pay an annual real return of 4.8 percent in order to cover 30 percent of their assets; however, taking into consideration administrative costs, the yields to a fund member do not exceed the long-term yields in the capital market. The provident funds are not eligible to receive designated bonds.

¹³ Similar regulations exist for workers whose employers do not contribute to pension savings.

¹⁴ The government has announced an intention to gradually increase this exemption up to 67 percent of the pension payment by 2025, including an initial increase to 42 percent.

¹⁵ In addition, there is a 15 percent tax exemption on interest and capital gains for pension savings in the case of indexed assets (on the real yields) and 20 percent on non-indexed assets (on the nominal yield). The value of this exemption is much smaller than the value of the tax benefits for contributions to pension savings.

throughout their working life. This is reflected in the wage and tax data used in the current research (see the description below). Thus, about two-thirds of the workers that did not pay taxes in 2000 and were working in 2007 did not reach the tax threshold in 2007 either and when account is taken of those who did not work at all in 2007, about three-fourths were not able to utilize the tax benefits in 2007 either.

Even an individual who does not gain from a subsidy on savings or tax benefits may still wish to save for a pension in order to smooth income over his lifetime. One measure of this is the ratio of retirement income to the individual's wage during his working years ("the replacement rate"). Since every citizen is eligible for an old age pension from the NII, additional pension savings will be needed by low-earning workers only if the size of the state old age pensions does not allow them to maintain a level of income in retirement that is similar to what they earned during their working years. The state old age pension consists of three components:

- a. The basic grant: a fixed monthly sum of about 17.5 percent of the average wage in the economy for a single individual and 26.3 percent for a couple.
- b. An addition of 2 percent for every year in which a worker contributed to NII, beyond the first ten years, up to 50 percent of the basic grant. Two working spouses are eligible for an old age pension on the basis of the sum of their rights as individuals, which is larger than their eligibility as a couple.
- c. The income supplement program, which is means-tested. This provides a minimum income equal to 32 percent of the average wage for individuals and 48 percent for couples. Eligibility is not affected by pensions that total up to 13 percent of the average wage for individuals and 20.5 percent for couples.¹⁶ For recipients of pensions larger than that the state old age pension is offset against the pension at a rate of 60 percent, until it is reduced to the level of the basic grant, including the addition for years of contribution.¹⁷ The amount of the basic grant and the addition for years of contribution in the case of couples where both spouses worked for most of their adult life—regardless of their wage level and whether they worked part-time or fulltime—exceeds the income ceiling for the income supplement payment and therefore they are not subject to the offset of their pension against the old age pension. The old age pension is also not considered as income in the calculation of tax liability and therefore does not affect the marginal tax rate imposed on the pension payment.

The full old age pension exceeds the wage of low-earning workers in the economy (particularly because the ratio between the wages of many of the workers in lower wage deciles to the average wage in the economy does not rise during their working years). For example, the size of the old age pension for a couple, including the income supplement, is higher than the minimum wage.¹⁸ Therefore, an individual who is the sole income earner and earns a low wage more or less maintains his standard of living upon retirement and has no significant advantage in saving towards a pension. Furthermore, if account is taken of the fact that during some of his working years he also had to support his children (which includes 90 percent of Israeli employees), it is reasonable to assume that the standardized household income during those years was significantly lower than

¹⁶ Individuals over the age of 80 receive an addition both to their basic old age pension and to the income supplement.

¹⁷ Hubbard et al. (1995) showed that offsetting the social benefits of workers against the wealth they have accumulated can have a significant negative effect on the accumulation of wealth.

¹⁸ About 80 percent of workers are married when they reach the age of retirement.

on retirement. In addition, a worker whose wage is lower than the tax threshold and who saves for his pension over a significant period of time may be “fined”, as mentioned above, by having his income supplement reduced. On the other hand, for high-earning workers, particularly those who are above the tax threshold, pension savings are desirable since otherwise their income during retirement will be significantly less than during their working years and also because they will thus enjoy the tax benefits. It is also worthwhile for two working spouses to save even if both earn less than the tax threshold in order to avoid a drop in their income after retirement. In this case, their state old age pension will also not be offset against their pension since the offset is not carried out against the basic grant or the addition for years of contribution.

The characteristics of employment and the range of wages in Israel, together with the tax incentives and the structure of the NII pensions, create a spectrum of pension saving behaviors that vary according to the characteristics of each individual and household. The analysis shows that low-earning employees will tend to avoid saving for retirement, both due the inertia of their wage and - if their wage is temporarily low - because they will prefer to defer their contributions to years in which it will exceed the tax threshold and they will have higher disposable income. On the other hand, workers at an intermediate wage level or above will prefer to save for retirement. Married workers, in particular those whose spouses also work, are expected to save more than singles and those whose spouse does not work. Parents of young children are expected to save less than those without children and older workers, who are likely to have paid off their mortgages and can be expected to save more than younger workers. In addition, there may be differences in the rate of pension contributions also among those who save for their pensions. In particular, workers at intermediate/low wage levels are likely to prefer saving at lower rates than those required by the mandatory pension arrangement since the retirement savings at those rates together with the NII pensions will provide them with a reasonable replacement rate on retirement. A discussion of additional characteristics that influence the preference to save for a pension appears in Sections 5 and 6 below.

4. Methodology and the database

According to the mandatory pension arrangement, which went into effect at the beginning of 2008, workers who are with the same employer for a period of at least nine months must begin contributing from their wage towards a pension. This means that individuals who worked in 2007 and did not switch employer in 2008 were required to contribute towards their pension. This also applies to an individual who worked for the same employer for a period of nine months or more in 2008, even if this is not the same employer they were with in 2007. The saving rate specified in the arrangement was still quite low in 2008: 0.83 percent from the worker and another 1.66 percent directly from the employer.

The fact that the arrangement was applied uniformly to all workers who did not save towards a pension in 2007 makes it possible to test whether the behavior of workers in response to the introduction of the arrangement is consistent with the analyses of incentives created by the institutional structure of retirement savings, NII pensions and tax benefits. In particular, since the mandatory pension arrangement is likely to adversely affect low-earning workers in the economy, it is important to determine whether these workers in fact behaved accordingly or whether the arrangement

motivated them to begin saving towards retirement, as would be expected if the lack of pension saving is attributed to a worker's passivity and shortsightedness.

The behavior of workers is examined in this study in two stages: The first attempts to determine whether as a result of the introduction of the arrangement workers who had not saved toward their pension in 2007 began to do so in 2008 and whether the differences between workers in the tendency to begin saving were consistent with the nature of the incentives, as related to their characteristics. The examination is based on probit regressions in which the binary dependent variable is "whether workers who did not contribute to their pension in 2007 and continued to work in 2008 started to contribute in 2008". Since the mandatory pension contribution also applied to the employer, the decision whether to contribute is also dependent on the employer's willingness to cooperate with the workers in non-compliance, a decision that will likely vary according to the employer's characteristics. Accordingly, the analysis also controls for these characteristics.¹⁹

An additional question is whether workers that started to contribute to their pensions in 2008 did so at the minimal rates specified in the arrangement or at the higher rates to which the arrangement will converge in coming years. Since the arrangement made the pension contribution mandatory, it is reasonable to assume that many workers who were not interested in this level of saving, but who nevertheless wanted to comply with the law, contributed according to the minimal rates in order to minimize the "damage", particularly at lower income levels.²⁰ On the other hand, the theories that attribute the lack of pension saving to passivity and high transaction costs, predict that someone who starts saving will do so at a rate that is compatible with the long term needs. This is particularly the case since the fees charged by the pension funds are negatively correlated with the size of the savings. As in the examination of the decision to begin saving, the study looks at whether remaining at low pension saving rates is correlated with the characteristics that lead to pension saving being less desirable.

The link between the pension saving rate and workers' characteristics, which determine whether pension saving is worthwhile for them, were tested using two different econometric methods: (a) an ordinary least squares (OLS) regression in which the dependent variable is the pension saving among those who worked but did not contribute to a pension in 2007 and started to do so in 2008; and (b) a probit regression in which the dependent binary variable is "whether the worker that began to contribute to his pension contributed not more than one percent of his wage". The latter test directly determines who among the workers that began saving following the introduction of the arrangement did so at the minimal rates specified by the law and highlights the correlation between the tendency to contribute at such low rates and the characteristics that make saving less desirable.

The statistical and econometric analyses are based on a random sample of 10 percent of the employees in Israel, i.e. about 300,000 observations. The database includes

¹⁹ Since the obligation to contribute to one's pension according to the arrangement was still at a relatively low rate in 2008, we do not test the possibility of a shift of workers between employers according to their tendency not to contribute to the worker's pension. When the rate of contribution increases, this may encourage workers to choose employers who agree to ignore the legal arrangement.

²⁰ This is because for these workers saving is not desirable even if their pension payments increase to the point where they fully offset the National Insurance income supplement.

employers' reports to the Tax Authority regarding the salaries of their workers, the various deductions made, credit points, the number of months worked, etc. The file is in the form of a panel for the years 2000–08 and includes the worker's employer (for years in which the worker had several employers the data on each employer appears separately and they have been consolidated), such that it is possible to know whether the worker switched employer during the year or between years.²¹ Employers in the public sector are identified as those who deducted the "Growth Encouragement" levy from their workers' salaries in 2004–06. Using data from the Tax Authority and the Population Registry, the spouses of all the married workers were identified and their full tax returns were also obtained in order to determine whether they were working, the level of their income and whether they contributed to their pension. In addition, the Population Registry was used to identify the ages of a worker's children and his place of residence, a variable that makes it possible to identify most of the Arab workers.

5. Compliance with the requirement to contribute toward pension savings

In 2007, about 950 thousand employees in Israel (about 38 percent of the total) did not contribute to pension savings from their wages.²² There are major differences in the characteristics of employees who contributed to pension savings and those who did not and they are consistent with what is predicted by the analysis of pension saving incentives. A significant proportion of those who did not save for pension are workers who earn less than the median (Table 1) and about 70 percent of them do not reach the tax threshold. In contrast, only about 2 percent belong to the top quintile. The table shows that employment without a pension arrangement was to a large extent a phenomenon of the private sector, particularly among small employers.²³ A more in-depth examination of the data shows that also among workers below the tax threshold, the wages of the minority who contributed to pension savings are much higher than those of workers who did not. This reflects the large proportion of workers in part-time jobs who did not save.²⁴

Table 1: Characteristics of workers who did not contribute to pension savings in 2007

	Contributed to pension savings	Did not contribute to pensions savings
	(percent of the group) ¹	
Income below the median	28.8	85.2
Belongs to the top Quintile	31.0	1.8
Private sector	65.8	92.2
Married	72.1	49.2
Spouse contributes to a pension arrangement	41.7	17.1
Under the age of 30	17.8	41.2
Not liable for tax ²	28.4	70.8
Employer with less than 100 employees	29.2	67.5
Lives in an Arab town or village	6.6	13.6

¹ Relates to men aged 22-65 and women aged 21-60 who have worked for at least 4 months.

² Includes those who pay less than NIS 50 per month.

²¹ The identification of the employers is accomplished through the deduction file number. There is a small percentage of cases in which the deduction file number changed from one year to the next, without an actual change in employer, and they are counted as a change in employer.

²² Men aged 22-67 and women aged 21-62 who worked for at least three months.

²³ Throughout the article, a worker is defined as having contributed to pension savings whether he contributed directly or through his employer.

²⁴ The database does not contain information on hours worked.

Among workers that did not contribute to pension savings in 2007, about 815 thousand also worked in 2008 and they constituted the main target population of the arrangement.²⁵ Of them, about 51 percent began to contribute, which is much higher than in previous years. For example, only 18 percent of the 930 thousand workers that had not contributed to pension savings in 2006 started to contribute in 2007. In addition, the percentage of workers with the same employer who stopped contributing to pension savings declined, though not by a large magnitude: 3 percent in 2008 as compared to 4 percent in 2007. The increase in the proportion who began contributing to pension savings is evidence of the major effect that the mandatory pension arrangement had on saving patterns, although a large percentage of workers did not comply (even though here we only consider workers whose wages were reported to the tax authorities). Of the workers that did not begin contributing, only one-third switched employer in 2008 and worked less than nine months with the new employer, which would potentially provide a legal justification for them not starting to contribute.²⁶

Figure 1 shows a clear relationship between the level of a worker's income and his tendency to comply with the mandatory pension arrangement. The rate of compliance to the arrangement among workers in the lowest quintile who did not contribute to pension savings in 2007 was 38 percent, while in the fourth quintile it reached 68 percent. The proportion that started to contribute in the top quintile was lower than that in the fourth but the number of workers in this quintile that did not contribute to pension savings was negligible in any case and apparently some of them had alternative pension arrangements as self-employed workers. The low rate of compliance among small employers and their workers is evident in Figure 2, as is the monotonic increase in the rate of compliance according to size of employer. This compliance is likely to be the result of intermediate and large-sized employers having maintained active pension arrangements for some of their workers prior to the mandatory pension arrangement going into effect and therefore they were not required for any major organizational effort to bring in additional workers. Compliance is likely to also reflect their ability, and that of their workers' union, to attain better pension arrangements and perhaps also reflects greater risk aversion and a higher price for non-compliance. Since the size of the employer is correlated also with wage level and other characteristics that determine whether saving is worthwhile for the worker, this relation is tested at a later stage in a more thorough manner.

²⁵ Since in 2008 the arrangement applied only to workers who had been employed for at least nine months with the same employer, those who started to work after March 2008 were still exempt, even if they were employed for the whole period with the same employer.

²⁶ Since this relates to continuously employed workers, the requirement to contribute also applies to some of those individuals who worked less than nine months or that switched employer between the years.

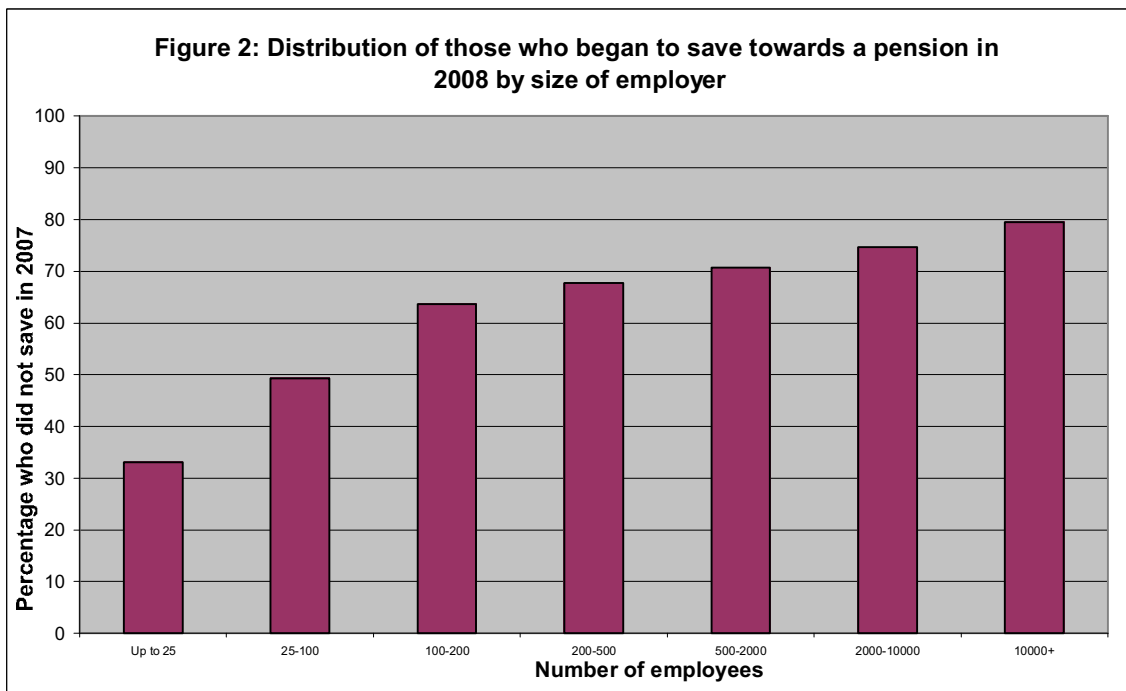
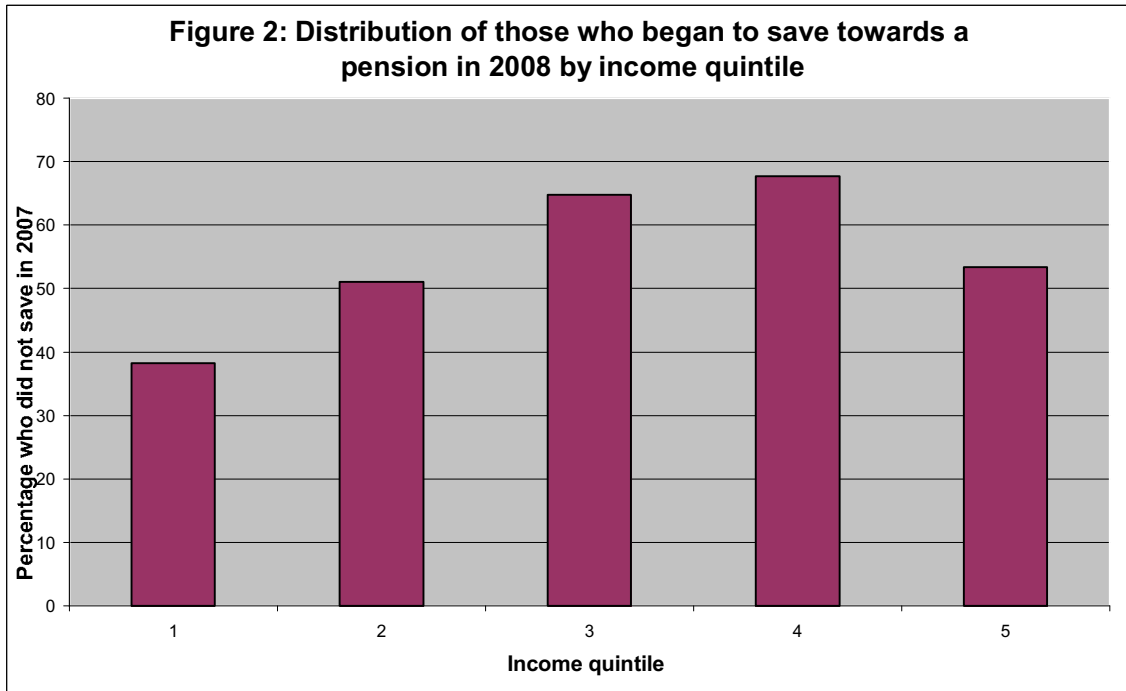


Table 2 presents the differences in the proportions of workers that started to save according to several additional characteristics. The data emphasize the difference between the public and private sectors, between the Jewish and Arab populations and between men and women. The direction of the differences between the groups for all these characteristics is similar to that of the differences in the proportion of savers among all workers prior to the arrangement. Nonetheless, since there is a high correlation between the various characteristics, it is necessary to analyze the differences using equations that identify the separate effects of each characteristic on the probability of a worker starting to contribute to pension savings.

Table 2: Workers who started to contribute to pension savings in 2008 according to various characteristics

(as percents of the workers in the category that did not contribute to pension savings in 2007)	
Men	44.0
Women	59.5
Aged 21-24	46.4
Aged 25-60	52.6
Public sector	74.5
Private sector	49.3
Resides in an Arab town	33.8
Resides in a Jewish town	54.0
Immigrated after 1989	60.8
Native Israeli	48.6
Spouse contributes to pension savings*	62.3
Spouse does not contribute to pension savings*	54.3

* Of those who have a working spouse.

Table 3 presents the results of a probit equation which examines the probability of a worker who had not contributed to pension savings in 2007 (and who continued to work in 2008) starting to do so in 2008. The equation was estimated for 78,618 employees included in the sample that had worked in both years, were below the age of retirement and had worked for at least 4 months with non-negligible earnings. The dependent variable in these equations is a binary variable that takes the value 1 if the worker started to contribute to pension savings in 2008. The reported coefficients are the marginal effect of each variable and not the equation coefficients themselves.

The characteristics that lead to an exemption from the pension saving requirement had a negative (as expected) and large effect on the probability of starting to save. The chance that a worker who switched employer between the years would start contributing towards pension savings is lower by 24 percentage points than that of a parallel worker that did not switch employer.²⁷ The probability declined by another four percentage points if such a worker also worked less than nine months in 2008.²⁸ In addition, there is a strong positive correlation between the decision to begin contributing in 2008 and the number of months worked during the year and a negative correlation with the worker's number of employers in 2008. A more detailed examination of workers' characteristics shows that the negative effect of switching employer on the probability of starting to save declines with the workers' age and increases with his salary. Nonetheless, only a very small proportion of the workers who did not save for their pension in 2007 had a sufficiently high wage in order to switch the sign of the overall effect of switching employer to positive.²⁹

²⁷ In the relevant population, i.e. workers that did not contribute to pension savings, switching employer was a common occurrence; more than one-third of these workers switched employer between 2007 and 2008 (which is nearly identical to the percentage who switched between 2006 and 2007).

²⁸ Switching employer may also be endogenous: An employee who is not interested in pension savings may move to a new employer that will allow him to avoid contributing. The rates of pension saving in 2008 were still low, so it is unlikely that this effect was substantial and in addition there was no significant change observed in the proportion of workers that switched employer. In order to nonetheless test for this possibility, we also estimated equations without employer characteristics; the coefficients of the other variables were not significantly affected by this omission.

²⁹ The effect is equal to the sum of the coefficient of the variable "switching employer" and the product of the coefficient of the interaction of "switching employer multiplied by annual wage" and the worker's annual wage.

Table 3: Factors correlated with the decision to start contributing to pension savings: 2007/8 compared to 2006/7¹

	Marginal effect between 2007 and 2008	z		Marginal effect between 2006 and 2007	z	
Individual characteristics:						
Gender (0 – men, 1 – women)	0.1159	18.40	*	0.0120	2.99	*
Resides in an Arab town (binary variable)	-0.1333	-21.44	*	-0.0487	-11.71	*
Age	0.0128	8.08	*	0.0031	2.95	*
Age squared	-0.0002	-9.58	*	-0.0001	-5.12	*
Married man (binary variable)	-0.0097	-1.25		-0.0078	-1.56	
Married woman (binary variable)	0.0719	8.90	*	0.0242	4.47	*
Divorced/widowed man (binary variable)	-0.0113	-0.89		0.0118	1.39	
Divorced/widowed woman (binary variable)	0.0555	5.21	*	0.0049	0.70	
Number of children aged 0-3	-0.0162	-4.02	*	-0.0091	-3.36	*
Number of children aged 4-8	-0.0211	-6.04	*	-0.0135	-5.72	*
Number of children aged 9-18	-0.0195	-7.79	*	-0.0093	-5.34	*
Number of children aged 19-25	-0.0096	-2.60	**	-0.0036	-1.40	
Immigrated to Israel after 1989 (binary variable)	0.1579	7.80	*	-0.0104	-0.81	
Immigrated to Israel after 1989*potential working years	-0.0033	-6.30	*	0.0001	0.23	
Income and employment characteristics:						
Annual income (in 10,000s of NIS)	0.0046	6.10	*	0.0188	34.83	*
Annual income squared (in 10,000s of NIS)	-0.0001	-11.63	*	-0.0002	-30.20	*
Annual income <48,000 (binary variable)	-0.1254	-21.59	*	-0.0777	-19.63	*
Exceeds the tax threshold (binary variable)	0.0223	4.23	*	0.0070	2.03	**
Number of jobs during the year	-0.0346	-17.29	*	0.0080	6.55	*
Number of months worked during the year	0.0485	36.48	*	0.0071	6.94	*
Spouse characteristics:						
Age of spouse	-0.0025	-11.00	*	-0.0018	-13.16	*
Does spouse work? (binary variable)	0.1032	13.56	*	0.0851	19.20	*
Does spouse contribute to pension savings? (binary variable)	0.0996	13.80	*	0.0409	8.73	*
Annual income of spouse (in 10,000 of NIS)	-0.0027	-7.10	*	0.0001	0.43	
Employer characteristics:						
Size of employer (number of employees)	0.0001	13.44	*	0.0000	19.50	*
Up to 15 workers (binary variable)	-0.3692	-73.44	*	-0.1325	-43.10	*
15-30 workers (binary variable)	-0.2903	-47.93	*	-0.1043	-30.26	*
30-50 workers (binary variable)	-0.2039	-36.60	*	-0.0799	-25.15	*
Switched employer between the two years (binary variable)	-0.2419	-16.60	*	-0.0172	-1.83	***
Switched employer*worked less than 9 months (binary variable)	-0.0426	-3.91	*	0.0272	3.49	**
Switched employer*age	0.0008	2.06	*	0.0006	2.29	**
Employed in the public sector (binary var.)	0.1234	15.04	*	0.0590	12.08	*
Switched employer*annual wage (in 10,000s NIS)	0.0175	18.16	*	0.0009	14.00	*
Constant (the equation coefficient)	-1.1825	-13.90	*	-1.6112	-15.27	*
Number of observations	78,618			78,801		
Pseudo R squared	0.2022			0.1730		

¹ A panel of workers who worked at least 4 months in 2008. Men aged 22-66 and women aged 22-61 in 2008, with annual income of at least NIS 3,000 who did not contribute to pension savings in 2007. The probability of workers who did work and did not contribute in 2006 and worked in 2007 was estimated in a similar way. (*), significant at the 1% level; (**), significant at the 5% level; and (***), significant at the 10% level.

The demographic characteristics of workers who began contributing to a pension in 2008 differ significantly from those of workers who continued not to contribute. The probability of women beginning to contribute to their pension is higher by 12 percentage points than that of men, which is consistent with the structure of incentives. This is because working women almost always have a working spouse and even if they currently do not have a spouse or their spouse does not work, the probability that in the

future they will be married to a working spouse is high. As a result, the pension of married women is not expected to be offset against the NII old age pension and that pension will not provide a sufficient replacement ratio for a woman and her husband on retirement. In addition, women tend to prefer working for employers that comply with the labor laws, since these laws, such as those related to maternity benefits, are more important for women. These employers are likely to comply with the rules for pension contributions.³⁰ The difference between the genders is even more pronounced when we look at the effect of an individual being married on whether he starts contributing to pension savings. Thus, among married women this effect is seven percentage points higher than for single women and among divorced and widowed women the difference is six percentage points. In contrast, the marital status of men has no effect on compliance with the law. The number of children in a family has a negative influence on the tendency to start contributing to pension savings—as expected according to considerations of consumption smoothing and liquidity—without any significant difference between fathers and mothers.

Among the Arab population, the probability of starting to contribute to pension savings was 13 percentage points lower than among the Jewish population. This difference prevails predominantly in the private sector, while the difference between Jews and Arabs among the few workers in the public sector that did not have a pension in the first place is about six percentage points. In contrast, among immigrants who arrived in Israel after 1989, the probability of starting to contribute to pension savings is significantly higher than for native Israelis and for veteran immigrants. This phenomenon may reflect the immigrants' fear of non-compliance with the law for cultural reasons, which is supported by the results reported below regarding their contribution rates. The younger an immigrant is upon arrival, the smaller is the gap between him and the rest of the population, as indicated by the negative coefficient of the interaction between being a working immigrant and the number of potential working years. Nonetheless, the overall effect of being an immigrant on the probability of starting to contribute to pension savings is positive for all ages of arrival in Israel.³¹ For example, the probability that an immigrant who arrived in Israel at age 30 would start contributing to pension savings when the arrangement went into effect is 4 percentage points higher than that of a native worker with similar characteristics, while the corresponding difference for an immigrant who arrived at age 50 is 10 percent.

The age of a worker has a relatively large effect on the probability of starting to contribute to pension savings, though it is not monotonic. Up to age 35, the effect of age is positive, but the effect changes sign at higher age. For example, the probability that a 55-year old worker who did not save for his pension in 2007 will start doing so in 2008 is seven percentage points lower than the corresponding probability for a 35-year old. This difference reflects the fact that the likelihood of accumulating significant pension savings declines with the age at which the worker starts to save. In addition, it is reasonable to assume that older workers who have not yet saved for their pension will

³⁰ This is in addition to the effect of the employer's number of workers which is observable and controlled for in the equation.

³¹ The variable "potential working years" is calculated as the difference between 67 (the legal retirement age) and the immigrant's age on his arrival in Israel. The younger the immigrant arrived in Israel, the larger is his number of potential working years. The maximum value of the variable is 46, which applies to an immigrant who arrived in Israel at the age of 21 or less.

have a low expectation that their future wage will increase significantly (which would make pension saving potentially worthwhile) in comparison to young workers.

The employee's income level had a significant influence on the probability of starting to save in 2008. The effect of income on its own is positive and statistically significant at all the relevant levels, although its magnitude is quite small. For example, the probability of a worker whose monthly income is NIS 4,000 to begin contributing is higher by one percentage point than for a worker whose monthly income is NIS 2,000. In contrast, there is a large effect when the wage is above the tax threshold. Thus, being above the tax threshold raises the probability of complying with the arrangement by 15 percentage points (the absolute value of the sum of the coefficients of "income below NIS 48,000" and "above the tax threshold"). This result reflects the major importance of the tax benefits in determining whether saving for a pension is beneficial and their corresponding effect on the behavior of workers. The fact that workers below the tax threshold tend not to save towards a pension also demonstrates the willingness of employers to avoid complying with the arrangement when this is not worthwhile for the workers or in other words to cooperate with the worker for their mutual benefit.³²

The spouse's employment status has a large effect on determining whether contributing to pension savings is desirable. A working spouse, particularly one that is continuously employed, will be eligible for the full tenure supplement to the NII old age pensions (i.e. for each of the spouses) and therefore their private pension will not be offset from their state old age pension. In addition, the NII pensions are not a full substitute for the income of a household in which both spouses work and such a couple needs to save towards their pension in order to achieve a reasonable replacement rate. The data confirm these considerations: the tendency of a worker with a working spouse to start saving toward his pension is 10 percentage points larger than if his spouse did not work. In addition, the tendency of a worker to contribute to pension savings is 10 percentage points larger when the spouse is also contributing since such a contribution is an indication of their continuous employment.

Since the obligation to contribute towards pension savings applies both to the worker and the employer, the worker can avoid doing so only with his employer's cooperation. The employer has a clear interest in avoiding the costs of the arrangement; thereby also satisfying his worker's desire not to contribute (regardless of the division of the arrangement's overall cost between employer and employee). However, the employer is exposed to legal risks for not complying with the arrangement and therefore it is unclear that he will agree to cooperate with his employee or that he himself would initiate non-compliance.³³ The analysis shows a clear difference between employers. Thus, in the public sector—where in any case there are only a few workers without a pension arrangement—the probability of workers without a pension arrangement to start saving is 12 percentage points higher than the corresponding probability in the private sector.³⁴

³² Even when the worker is not liable for income tax, it is beneficial for him and his employer to report pension contributions; otherwise, the contributions of the employer will be liable for National Insurance contributions. An employer that does not report pension contributions to the tax authority will not be able to deduct them as an expense and therefore it is preferable for him to fully report them.

³³ While the direct mechanism of enforcement in the case of workers is not completely clear according to the regulations of the arrangement, there exists a straightforward mechanism of enforcement for employers by means of the labor courts.

³⁴ This difference is not necessarily related to the mandatory pension arrangement but rather to the accepted rules in the public sector according to which workers that have reached a particular tenure

In addition, there are significant (and non-linear) differences between employers according to size. The tendency not to start contributing to pension savings is particularly large among workers employed by small employers. There is a gap of 37 percentage points between employers of up to 15 workers and employers of 100 workers.³⁵ In contrast, the difference between employers of 100 workers and employers of 200 workers is only 0.6 percentage points. In other words, non-compliance with the arrangement is particularly common among small employers and their workers.

The right side of Table 3 presents the results of a parallel equation for the characteristics of workers who did not save towards a pension in 2006 and started to do so in 2007, before the arrangement went into effect. The results indicate that most of the personal characteristics that determine whether saving is desirable also had a significant effect on the decision to save in 2007. However, the marginal effect of most of the characteristics increased in 2008, which indicates greater selectivity. It appears that while in the past there was variation in the behavior of workers for whom saving towards a pension was only marginally beneficial, the arrangement induced these individuals to begin saving. In contrast, individuals for whom saving towards a pension was clearly not desirable tended not to comply and continued not to save.

The largest difference in the behavior of workers and employers between 2007 and 2008 are reflected in the variables that apparently capture differences in the tendency to comply. While in 2007, the probability of women starting to save was higher by one percentage point than that of men, the difference in 2008 was 12 percentage points. Among married workers, the gender difference grew from 3 to 8 percentage points (in addition to the general gap between men and women). The difference between Jews and Arabs grew from 5 to 13 percentage points and that between immigrants and the rest of the population went from zero in 2007 to being large and statistically significant, as described above. There is a particularly large change in the effect of working for a small employer. The magnitude of the negative effect of this characteristic grew threefold in every category up to 50 employees. The difference is also large in the variables that are related to the legal requirements of the arrangement. Thus, number of jobs had a positive effect in 2007, which became negative in 2008; the positive effect of number of months worked grew sevenfold; and the effect of switching employer, which was not statistically significant in 2007, became particularly important in 2008.

Another way of examining the changes in the effect of the various characteristics on the decision of workers to begin contributing to pension savings is by constructing a variable to capture the probability of starting to save in 2008 on the basis of the coefficients calculated for 2007. This variable was constructed using the coefficients of the probit equation that appears on the *right side* of Table 3 in order to predict the probability of starting to save in 2008 for each of the workers in the target group. This variable was added to the equation appearing on the *left side* of Table 3 and it was found that despite its large and statistically significant effect (a marginal effect of 45 percentage points) all the other variables remained significant. In other words, there was a statistically significant change in the intensity of their effect relative to 2007.

threshold in the public sector start to contribute to pension savings. Thus, the magnitude of this effect was similar even before the introduction of the mandatory pension arrangement.

³⁵ The sum of the coefficient of “up to 15 workers” and the product of the coefficient of “size of employer” and the difference in number of workers.

The large differences in compliance with the mandatory pension arrangement between the groups of workers and their correlation with workers' characteristics that are related to whether saving for a pension is beneficial indicate that mandatory pensions are not desirable for a large number of workers. Their lack of desire to save and the cooperation of their employers in ignoring the arrangement led to a situation in which a large proportion of the workers that were meant to start saving in fact did not do so. The behavior of these workers indicates that if the requirement to save is properly enforced, their welfare will be reduced. In addition, it is likely that many other workers who did not want to save were compelled to start doing so in order to comply with the law or because their employers refused to cooperate in non-compliance with the arrangement.

6. Pension contribution rates

An examination of the characteristics of workers who began saving for pension in 2008 points to the possibility that a significant proportion of them did so only to comply with the arrangement, even though saving toward a pension was not beneficial for them. If that is indeed the case, then it can be expected that these workers will contribute at the minimum required rate. On the other hand, if the arrangement led workers to correct past "calculation errors", and since someone who is contributing to pension savings already bears the "search and transaction costs" of the pension arrangement, it can be expected that those who began saving will do so at rates that are consistent with long-term pension saving rates. To study this issue, we examine the pension saving rates among workers who did not contribute in 2007 and started to do so in 2008.

The average pension saving rate among workers who began contributing in 2008 (and did not contribute in 2007) was 1.5 percent of wages, in comparison to 2.6 percent among those who began contributing in 2007 and 4.3 percent among those who contributed in both 2007 and 2008. The employer's contribution for new savers was even lower: 2.8 percent on average for those who began contributing in 2008 as opposed to 7.2 percent for those who began in 2007. Moreover, there was a low level of variation among those who started saving in 2007 between workers with different income levels and different characteristics. In contrast, the pension saving rates among workers who began to contribute in 2008 showed a large variation, which is correlated with the characteristics that determine whether saving for a pension is beneficial and those that are correlated with the tendency to comply with the law. The findings are consistent with the idea that workers that started to contribute to pension savings in 2008 can be divided into two groups: 1) those who would have started to save in any case, whether or not the mandatory pension arrangement had been introduced, and did so at rates similar to the average for the population (according to the data for previous years, they make up about one-sixth of the target group); and 2) workers who started to save only because the arrangement required them to and therefore they tended to do so at low rates. This group includes about one-third of the target group. The weighted average of the saving rate that can be expected in the case of an individual who starts saving voluntarily (2.6 percent)³⁶ and the minimum saving rate required by the arrangement (0.83 percent) leads to a result very close to 1.5 percent.

Table 4 presents the characteristics that have a major influence on the pension saving rates among workers who started to contribute in 2008. The effects were calculated from a regression equation in which the dependent variable is the worker's contribution rate.

³⁶ The average contribution rate for those who started to save in 2007.

The equation is estimated for all workers who did not contribute to pension savings in 2007 and started to do so in 2008. The table indicates that the level of income has a large effect on the rate. Thus, there is a large negative effect of being below the tax threshold: workers whose annual wage was less than NIS 48,000 in 2008 and who contributed to pension savings, did so at a rate that is 0.3 percentage points lower than those above the tax threshold. In addition, there is a continuous, positive and significant income effect, such that the saving rate of an employee earning NIS 6,000 per month is higher on average by about 0.2 percentage points than that of a worker earning NIS 4,200. Also, those with a working spouse (which is a critical variable in determining whether saving for a pension is desirable) saved at rates that were higher by one-quarter of a percentage point than those whose spouses do not work. These variables indicate that employees for whom saving towards a pension is not desirable and who were compelled to begin saving by the arrangement, do so at lower rates than workers for whom saving towards a pension is a desired option.

Table 4: Factors influencing the contribution rates for employees who did not save in 2007 and started to save in 2008¹ (1=1%)

	Regression coefficient	t	
Gender (0 – men, 1– women)	-0.0860	-3.12	*
Resides in an Arab town or village (binary variable)	-0.0726	-2.13	**
Age	0.0379	5.19	*
Age squared	-0.0004	-4.86	*
Immigrated to Israel after 1989 (binary variable)	-0.3510	-3.94	*
Immigrated to Israel after 1989*number of potential working years	0.0058	2.58	**
Annual income (in 10,000s NIS)	0.0947	20.98	*
Annual income squared (in 10,000s NIS)	-0.0004	-12.26	*
Annual income <48,000 (binary variable)	-0.3168	-11.83	*
Having a working spouse (binary variable)	0.2625	8.35	*
Annual income of spouse (in 10,000s NIS)	0.0010	5.98	*
Size of employer (number of employees)	0.0002	22	*
Employed in the public sector (binary variable)	0.1814	7.89	*
Months worked during the year	-0.0644	-8.64	*
Switched employer between the two years (binary variable)	0.3567	11.56	*
Switched employer*worked less than 9 months (binary variable)	0.3743	5.56	*

Sample of 40,800 employees who worked in 2007 and did not save for pension, continued working in 2008 and then started contributing. Workers who worked at least 4 months in 2008. Men aged 22-66 and women aged 22-61 in 2008, with annual income of at least NIS 3,000.

(*) significant at the 1% level; (**) significant at the 5% level.

Table 3 showed that women and immigrants (who arrived in Israel since 1989) tended to start saving towards a pension in 2008 more than other groups and more than in the past. The data in Table 4 suggest that these groups did not “suddenly” discover that saving for a pension was beneficial, since in both groups the pension saving rate is no higher than among the rest of the population. Women contributed on average about one-tenth of a percentage point less than men; immigrants who arrived at the age of 50 contributed one-quarter of a percentage point less than veteran Israelis; and the difference between immigrants who arrived at the age of 30 and veteran Israelis is about 0.13 percentage points. These low rates are consistent with the idea that a significant proportion of the immigrants began contributing to pension savings in order to comply with the arrangement and not because it was advantageous for them. On the other hand, the high

contribution rates among public sector employees (about 0.2 percent more than parallel workers in the business sector) are consistent with the fact that in this sector the percentage of workers who began saving towards a pension as a result of the arrangement was relatively small. Among Arab workers, the pension saving rate was lower than the average despite their low compliance rates with the arrangement. It appears that for them saving for a pension is so disadvantageous that although many managed to avoid complying, there remained a significant number of workers (and/or their employers) for whom the arrangement is undesirable and who were forced—or chose—to comply with it. These workers contributed at low rates. We would mention in this context that “Type I” in the study by Brender (2010), i.e. the worker for whom saving towards a pension is least advisable, matches the characteristics of a significant proportion of Arab employees.

The contribution rate among workers with small employers who did start to contribute does not differ from that of other workers. It appears that among small employers the reaction to the arrangement was primarily non-compliance, rather than low rates of saving. The effect of selectivity in the decision to start contributing is particularly noticeable when examining the effect of variables that are correlated with the legal requirement to save. Workers with the largest probability to be exempt from the arrangement are those who switched employer and those who worked less than nine months in 2008 (about 8 percent of the target group).³⁷ In this group, for which there is a relatively high probability that an individual who began to contribute to pension savings did so willingly, the pension saving rates were 0.92 percentage points higher than among workers who started saving in 2008, did not switch employer and worked throughout the year.³⁸ A similar conclusion can be made based on months worked, since those who worked only a *few* months and nonetheless started to contribute to pensions savings, did so at a higher rate.

To test the relationship between the pension saving rate and the desire of the worker to save, we re-estimated the equation presented in Table 4 with the addition of a variable that reflects the probability of the worker starting to save, which was estimated on the basis of an equation similar to the one in Table 3, but leaving out the size of the employer. A lower calculated probability is an indicator that the worker had less desire to save and began doing so only to comply with the arrangement.³⁹ As expected, the effect of this probability on the contribution rate is positive and statistically significant. Thus, an individual who indeed wished to save towards a pension started to save at higher rates than those for whom saving towards a pension was less desirable (the coefficient was 1.09, which implies that the difference in saving rates between those who are not at all interested in pension savings and those who are interested with certainty is about one percentage point). In this estimation, the negative effect of belonging to a group that is “suspected” of a higher than average tendency to comply, i.e. women and immigrants, grew significantly. The pension saving rate among women is 0.2 percentage points lower than among men and that of immigrants is 0.2 to 0.4

³⁷ In 2007, the effect of this variable on the pension saving rates was not statistically significant and its coefficient was negative.

³⁸ The sum of the coefficients of “switched employer between the two years”, its interaction with “worked less than nine months” and “months worked during the year” multiplied by 3 (the difference between 9 and 12 months).

³⁹ In practice, all the employees included in the equation started to contribute and therefore the variable is an approximation of the difference between actual behavior and the worker’s preference.

percentage points lower than among veteran Israelis (immigrants who arrived between the age of 30 and 50 respectively).

Another way of testing employees' attitude to the arrangement is through the percentage of workers that started to save towards a pension at the minimum rates required by the arrangement. Among workers that did not save towards a pension in 2007 and started to do so in 2008, about 63 percent saved at a rate of up to one percent of their income, which is close to the minimum of 0.83 required by the arrangement. This is in contrast to only 8 percent of the savers in 2007. Among workers that started saving in 2008 and who are below the tax threshold, 70 percent saved up to one percent in contrast to 13 percent of the corresponding group of savers in 2007. In other words, a large proportion of those starting to save towards their pension, and in particular among the lowest-earning groups, did so at the minimum required rates. Furthermore, the proportion of those who saved at minimum rates among all those who started to save in 2008 is very similar to the estimated "addition" of savers due to the arrangement (which, as discussed above, is about two-thirds of those who started to save in 2008).

Table 5 presents the probit equation which can be used to test the probability that a worker who started to save towards a pension in 2008 will save more than one percent of his wage. In this analysis, belonging to a group that can legally avoid the requirement to save for a pension has a major effect. The probability that a worker who switched employer between the two years and worked less than nine months in 2008 will start to

contribute at a rate of more than one percent is higher by about 27 percentage points than that for workers who did not switch employer and worked throughout the year.⁴⁰ This is a very large difference in view of the fact that less than 40 percent of the workers who started saving towards a pension in 2008 did so at a rate of more than one percent. This difference indicates that workers who willingly started to contribute did so in general at rates higher than the minimum required by the arrangement. In the public sector, where permanent staff started to save towards a pension after a certain period of employment even before the arrangement, employees had a higher probability to save at above-minimum rates than workers in the private sector.

The results show that the variables which are related to whether pension savings are beneficial, i.e. level of income, being above the tax threshold, a working spouse and number of children, have the expected signs also in the case of the probability that those who have started to save will do so at a rate above the minimum required by the arrangement. In addition, the probability that older workers, for whom it is doubtful that saving towards a pension is worthwhile, will save beyond the minimum is lower than for younger workers (the difference between a worker aged 60 and a worker aged 35 is 10 percentage points). Also, groups of workers in which a high proportion began saving, i.e. women and immigrants, did so at a minimum rate, which is consistent with compliance rather than the recognition of the need to save. The likelihood that women will save more than the minimum is somewhat lower than for men with similar characteristics while the difference between immigrants and the rest of the population is not statistically significant. In addition, the proportions of Arabs and Jews who save above the minimum is not significantly different, and although the differences according to size of employer are statistically significant their magnitude is small.

⁴⁰ The explanation of the calculation is similar to that which appears in Footnote 38.

**Table 5: Factors affecting the probability of contributing to pension savings
More than one percent of a worker's wage:
Probit equation for workers starting to save in 2008¹**

	Marginal effect between 2007 and 2008		z
<u>Individual characteristics:</u>			
Gender (0 – men, 1 – women)	-0.0416	-5.13	*
Age	0.0118	5.81	*
Age squared	-0.0002	-6.58	*
Married man (binary variable)	0.0270	2.90	*
Married woman (binary variable)	0.0295	3.17	*
Divorced/widowed man (binary variable)	0.0378	2.17	**
Divorced/widowed woman (binary variable)	0.0071	0.56	
Number of children aged 0-3	-0.0225	-4.98	*
Number of children aged 4-8	-0.0117	-3.62	*
Number of children aged 9-18	-0.0119	-2.51	**
<u>Income and employment characteristics:</u>			
Annual income (in 10,000s NIS)	0.0472	29.15	*
Annual income squared (in 10,000s NIS)	-0.0003	-19.58	*
Annual income <48,000 (binary variable)	-0.0888	-11.92	*
Wage in 2007 (in 10,000s NIS)	-0.0193	-16.38	*
Number of jobs during the year	-0.0128	-4.74	*
Number of months worked during the year	-0.0255	-12.37	*
<u>Spouse characteristics:</u>			
Age of spouse	-0.0016	-6.01	*
Does spouse work? (binary variable)	0.0760	8.91	*
Annual income of spouse (in 10,000s NIS)	0.0002	5.19	*
<u>Employer characteristics:</u>			
Size of employer (number of employees)	0.0001	17.88	*
Up to 15 employees (binary variable)	-0.0313	-4.08	*
15-30 employees (binary variable)	-0.0485	-5.41	*
30-50 employees (binary variable)	-0.0251	-3.43	*
Switched employer between the two years (binary variable)	0.0723	6.42	*
Switched employer*worked less than 9 months (binary variable)	0.1171	6.07	*
Employed in the public sector (binary variable)	0.0803	9.33	*
Switched employer*annual wage (in 10,000s NIS)	0.0007	4.49	*
Constant (the equation coefficient)	-0.4312	-3.66	*
Number of observations	40,800		
Pseudo R squared	0.0929		

¹ A panel of workers who worked for at least 4 months in 2008. Men aged 22-66 and women aged 22-61 in 2008, with annual income of at least NIS 3,000, who did not contribute to pension savings in 2007 and started to do so in 2008.

(*) significant at the 1% level; (**) significant at the 5% level.

The above analysis indicates that the mandatory pension arrangement was perceived by a large proportion of low-earning employees as an undesirable burden. This is reflected in the avoidance of contributing to pension savings by those that were able to and in the minimal rates of saving among those who were compelled to contribute. Both the avoidance of contributing to pension savings and the tendency to contribute at the minimum rate are correlated with the characteristics that make pension savings not beneficial for the employee. At the same time, for employers paying their workers close to the minimum wage compliance with the arrangement effectively raises the minimum wage since they cannot offset the cost of the arrangement by reducing the wages of their staff. Since the burden of mandatory pensions does not apply to those who do not work, the arrangement may reduce labor supply, which is in addition to the reduction in

welfare, particularly if the arrangement is enforced more strictly in the future. This issue is examined in the next section.

7. The potential effect of mandatory pensions on employment

Since the mandatory pension arrangement may potentially reduce the welfare of a significant proportion of low-earning workers and at the same time does not affect non-working individuals (nor high-earning workers since they in any case save towards a pension), the arrangement can be viewed as a form of tax on the employment of low-earning workers.⁴¹ The reactions of workers and their employers to the introduction of the arrangement indicates that it indeed was perceived as such and therefore may have negative implications for the supply of labor among individuals with low earning capacity and for part-time employment, assuming that the arrangement is implemented and enforced. Since the effect of the arrangement on labor income is permanent and transparent, it can be expected that workers will indeed internalize this.

The potential effect of the arrangement on employment can be tested by using the methodology of Brender and Strawczynski (2006) to estimate the expected influence of negative income tax grants on employment entry and exit. This method examines the behavior of individuals that appear in the Labor Force Survey and takes advantage of the fact that they are interviewed four times over a period of 18 months.⁴² This makes it possible to examine employment entries and exits while controlling not only for the individuals' observed characteristics but also for changes in those characteristics and in the economic environment. The method makes it possible to better identify the connection between *changes* in the individual's characteristics and his environment on the one hand and his employment decisions on the other. Since the Labor Force Survey does not contain data on wages, we will estimate for each individual and for each year a potential wage, which is calculated on the basis of the coefficients of the wage equations estimated in the Income Survey multiplied by the individual's characteristics at each point in time.⁴³

In the current research, we use data from the Income Survey and the Labor Force Survey for the period 1990-2008 (the latest observations are for those workers who first appeared in 2007 and had their last interview in 2008). Two different equations were estimated using the logit method: the first examined the probability that low-earning workers (those with an hourly wage of up to 1.5 times the minimum wage) will stop working while the second examined the probability that an individual who was not working will begin to work (Table 6). In addition to the changes in wages, the equations included controls for the individual's demographic characteristics and the changes in them, as well as the rate of change in GDP.⁴⁴ In total, we used 26,930 observations of workers to calculate the elasticity of exiting employment in response to wage changes

⁴¹ A couple that hasn't worked and therefore has no retirement savings is eligible for a full income supplement from the National Insurance, whose value is almost identical to the value of the old age pension with the maximum tenure addition. Non-working families are not affected by the mandatory pension arrangement.

⁴² The first to use this method in Israel were Beenstock and Klinov (1998).

⁴³ Brender and Gallo (2008) used the same method and found that the effect of wage changes on hours worked among continually employed workers is small and varies according to the level of hours worked and the individual's characteristics. Therefore we ignore the potential effect of the arrangement on hours worked in this research.

⁴⁴ For each individual between the two quarters in which his interviews were conducted.

and 79,102 observations of non-working individuals to calculate the elasticity of entering employment. The elasticities obtained are 0.3 for entering (i.e. a drop of one percent in the worker's potential wage reduces his probability to start working by 0.3 percent) and -0.08 for exiting employment (i.e. a drop of one percent in the worker's potential wage increases the probability that he will stop working by 0.08 percent).

Table 6: Logit equation to estimate the influence of wage changes on the probability of entering and exiting employment¹

Variable	Entry into employment		Exit from employment	
	Marginal effect ²	p-value	Marginal effect ²	p-value
Percentage change in GDP	0.003	(0.000)***	-0.0015	(0.008)***
<i>Percentage change in potential wage</i>	0.003	(0.000)***	-0.0008	(0.000)***
<u>Interactions of the change in wage with:</u>				
Start of university studies	-0.001	(0.010)**	0.0020	(0.095)*
Completion of studies at a tertiary education institution	0.002	(0.026)**	0.0028	(0.039)**
Married	0.003	(0.000)***		
Increase in years of schooling to more than 8	-0.001	(0.019)**		
Individual at pre-retirement age	-0.004	(0.002)***		
Individual has reached the formal retirement age	-0.066	(0.000)***		
<u>Individual characteristics:</u>				
Up to 8 years of schooling	0.076	(0.000)***		
16+ years of schooling	-0.079	(0.000)***		
Aged 56-60	0.102	(0.000)***		
Individual has reached age of retirement			0.1765	(0.000)***
Began studying in a tertiary education institution			0.1572	(0.000)***
<u>Family status characteristics:</u>				
Family income per standard individual in the lowest quintile			0.0581	(0.000)***
Family income per standard individual in second to lowest quintile			0.0668	(0.000)***
Age of spouse			-0.0011	(0.000)***
A birth of a child between the two interviews	-0.150	(0.000)***		
Mother of a child born between the two interviews			0.1225	(0.000)***
Father of a child born between the two interviews			-0.0327	(0.000)***
Parent of a child aged 2-4			-0.0123	(0.005)***

The effect of each one-percent reduction in wages can be calculated by multiplying the coefficients obtained above by the size of the relevant population. With regard to exiting employment, we calculated the potential wage of all the workers in the Labor Force Survey for 2007 and defined the group that was negatively affected by the mandatory pension arrangement as those workers whose potential wage is within the three lowest deciles of wage earners. This is an approximation of the group of workers who avoided contributing to pension savings despite the arrangement and those who began contributing at rates close to the required minimum.⁴⁵ At the same time, we defined the group whose entry into employment was affected by the arrangement as those individuals whose potential wage was below the threshold defined for the workers. This group includes about one-half of the non-working individuals. Based on these estimates, it was concluded that a drop of one percent in the potential wage of the relevant population reduces the number of individuals entering employment by about 2,000 and leads to the exit from employment of about 600 workers.

⁴⁵ About 38 percent of the workers did not contribute to pension savings in 2007 and of those about one-half continued not to contribute and one-third contributed at the minimal rates.

The arrangement, once fully implemented, will require a contribution of 17.5 percent from wages. Since the arrangement is permanent and transparent to both sides (and appears in the worker's salary stub) the formal division of the contribution between the worker and the employer is of secondary importance in the long term. Gonzales-Paramo and Melguizo (2009) analyzed 45 studies that examined how the burden of an arrangement of this type is divided and found that in the long run the worker bears between two-thirds and 100 percent of the burden.⁴⁶ According to their findings for similarly designed mandatory pension arrangements, in which there is a future benefit for current contributions, the cost to the worker tends toward the higher figure.⁴⁷ In other words, it is reasonable to assume that over time the effective reduction in workers' disposable income will be at least 14 percent (or 10 percent if one deducts the compensation component).

A more complicated question is to what extent the pension contributions reduce the workers' welfare. In other words, what is the "tax component" in the pension contributions? The exact calculation of this component is not straightforward, because it depends on the subjective feelings of the worker. Since pension contributions are made during a stage in which household income is low (and therefore the value of income to the worker is high)⁴⁸ while the pension will be received during a period in which the (former) worker's income is high relative to his working years' income, it is likely to reduce the worker's lifetime utility. Card and Ransom (2011) estimate that the utility loss from "over-saving" for retirement in the amount of 6 percent of wages is equal to between 2 and 2.5 percent of lifetime income.⁴⁹ According to this estimate, the loss in utility from the mandatory pension arrangement is about 5 percent. In addition, for many low-earning workers, part of the pension contribution is effectively a tax, since the pension will be offset against the income supplement. This component may reach up to one-fifth of the total pension contribution. For illustrative purposes, one can estimate the potential total loss due to the arrangement as between 5 and 7 percent of income, although this estimate is of course subject to quite a large potential margin of error. Multiplying this percentage by the elasticity calculated above and by the size of the population that is expected to be affected by the arrangement shows that mandatory pensions may reduce employment in the economy by about 15,000 workers, which represents about 0.6 percent of total employment. This is a non-negligible effect and is larger than the expected contribution of many of the employment enhancement programs being implemented in the economy.

⁴⁶ Coenen et al. (2007) found that a reduction in social insurance contributions by employers in the euro bloc by 15 percent of the cost of labor will raise the wage by 13 percent. Fuchs et al. (1998) found that according to the estimates of labor and public sector economists in the 40 leading research universities in the US, 80 percent of the burden of social insurance expenses is born by workers in the long term.

⁴⁷ In cases where the minimum wage law prevents the reduction of the wage, there may be a direct reduction in employment by employers, particularly in the tradable sector.

⁴⁸ In the relevant population, the effect of the arrangement is the deepening of poverty among workers since many of them are under the poverty line during the childrearing years, which was the case even prior to the arrangement.

⁴⁹ According to the analysis of Chetty et al. (2009), this is an underestimate of the subjective reduction in the welfare of a worker who is forced to save for retirement since the worker is far more aware of the undesired mandatory pension contribution than the future benefits from the savings.

8. Budget implications of mandatory pensions

A potential justification for mandatory pensions may be based on the future savings to the State budget as a result of the reduction in income supplements to the elderly. However, the increase in pension savings in the present reduces the State's tax revenues since savers receive tax benefits (including for the direct contributions of the employer), which would not be utilized if not for the arrangement. Therefore, it should be examined whether the budget saving as a result of the arrangement exceeds the loss in tax revenues.⁵⁰ The loss in tax revenues as a result of the mandatory pension arrangement, due to workers who did not save towards retirement prior to the arrangement, is estimated in the following manner:

- a. **Workers who do not reach the tax threshold:** the direct payment by the employer for mandatory pensions (excluding the compensation component)⁵¹ multiplied by the corporate tax rate.⁵²
- b. **Workers whose wage is above the tax threshold but below the average wage in the economy:** Total wage payments multiplied by the rate of pension contribution and then by 0.35 which is the rate of the income tax credit for pension savings. The credit for each worker is limited by his income tax liability, while account is taken of the credit points he is eligible for. In addition, the tax loss on the employer's contribution was calculated, as described above.
- c. **Workers whose wage is above the average wage in the economy:** The credit was calculated for these workers by multiplying the average wage in the economy by the pension saving rate and then by 0.35. Also in this case, the credit was restricted not to exceed the actual tax payments by the worker. The tax loss on the employer's contribution was calculated as described above, but only on wages up to the average wage in the economy.

Apart from the tax loss due to workers who did not save at all prior to the introduction of the arrangement, the loss of revenues was calculated for workers who contributed to pension savings at lower rates than those required by the mandatory pension arrangement, either directly or through their employers. The loss of income was estimated in a similar way to the calculation above, but only on the difference between the minimal pension saving rate specified by the law and the rate at which these workers saved in 2007.

The loss of tax revenues as a result of mandatory pensions once the contributions reach their maximum level (in 2014) is estimated at NIS 1.2 billion per year (Table 6). Offsetting the loss in tax revenues is the future saving on income supplements as a result of the arrangement. The saving is relevant only with respect to those who worked for a long period of time. When an individual does not work, he makes no contribution to pension savings and therefore the amount accumulated during his working years will not

⁵⁰ The calculation ignores the increased cost to the government as an employer. This is because the costs were known at the time of the decision to issue the Expansion Order and because in any case the vast majority of public sector employees were in a pension arrangement even before the introduction of the mandatory pension arrangement. For the latter reason, the calculations disregard the wage tax which is imposed on, inter-alia, the pension contributions in the public sector.

⁵¹ The assumption in this calculation is that employers deducted the expenses for the compensation component also prior to the arrangement going into effect.

⁵² The calculation ignores on the one hand the possibility that employers will reduce wage payments in order to offset the cost of pension contributions and on the other hand the additional tax imposed on profits withdrawn from the company by its owners or the possibility that the employer is not a company.

be sufficient to offset part (or all) of the income supplement. To estimate the saving, it was assumed that all those who worked at least 15 years during their lives will receive a pension that cancels their eligibility for an income supplement (which is an optimistic assumption particularly for most low-earning workers, who make up the majority that did not contribute to pension savings prior to the arrangement). It was found that the NII pays about NIS 350 to 400 million annually in income supplements to elderly individuals who worked at least 15 years,⁵³ an amount that is significantly lower than the loss in tax revenues as a result of the mandatory pension arrangement. Furthermore, the current scope of payments is lower than in the past and is expected to decline further, since more than 10 percent of this amount is paid to immigrants who arrived in Israel in the early 1990s and who did not have sufficient time to accumulate significant pension savings. In addition, a comparison of the expected savings to the loss in tax revenues should take into account that the loss in revenues is immediate while the savings will materialize only several decades in the future, which greatly reduces their discounted value. As a result, the mandatory pension arrangement can clearly be expected to have a non-negligible fiscal cost over the years and it certainly cannot be justified on the basis of future budget savings, at least on the basis of the current structure of National Insurance benefits.

**Table 7: Estimated fiscal cost of mandatory pensions
(millions of NIS per annum, 2010 prices)**

Loss of income due to the payments of workers who did not contribute to pension savings prior to the arrangement	383.9
Loss of income due to the contributions of employers	511.5
Loss of taxes due to the increase in contributions of workers who contributed at lower rates than required by the arrangement	318.4
Total	1,213.8

* Employees that did not contribute to pension savings in 2007 and continued to work in 2008. Calculated for men aged 21-67 and women aged 21-62 who worked at least 4 months in 2008 and their annual income exceeded NIS 3,000.

9. Conclusion

This study finds that the mandatory pension arrangement had a significant effect on the number of workers contributing from their wages to pension savings: about one-half of the workers who did not contribute in 2007 started to do so in 2008, as compared to only one-sixth who had not contributed in 2006 and started to do so in 2007. Nonetheless, a significant portion of workers that should have started contributing (and whose employers report to the tax authorities) did not do so and a clear connection was found between how beneficial pension savings are for the worker and compliance with the arrangement. In addition, Arab workers in the private sector and workers with small employers tended not to comply with the arrangement much more than other workers. It appears that their employers tended to cooperate with them in non-compliance due to, inter-alia, the limited ability of small employers to obtain reasonable terms for their workers from pension insurance institutions. Most of the workers who started saving towards a pension did so at the minimum rates required by the arrangement and the tendency not to contribute more than the minimum is also correlated with how advantageous pension savings are.

⁵³ Thanks to Gavriela Heilbron from the Research Administration of the National Insurance Institute who provided this calculation.

Among the main variables that affect the tendency to comply with the arrangement and to save at above minimum rates are the level of income and employment of the spouse. These characteristics are consistent with the analysis of Brender (2010) which found that the mandatory pension arrangement particularly affects workers whose income is below the tax threshold and those whose spouses do not work. There is a large group of workers whose income remains low for most of their working lives and their spouses do not work and since for these workers the NII pensions provide a reasonable solution during retirement, saving for retirement is not desirable for them. Also, for workers who are temporarily under the tax threshold, saving for retirement is not beneficial in many cases until their wage rises sufficiently so that they can exploit the tax benefits. This study indicates that these workers in fact view the mandatory pension as a burden that they would like to avoid. The findings do not support the arguments that attribute insufficient pension savings to a lack of retirement planning or the desire to avoid “transaction costs” that are incurred in the choice of a specific pension scheme and in the management of pension contributions. If this were the cause of insufficient pension savings, it is likely that the introduction of the arrangement would have led to saving at the full rates (those that will become mandatory only in 2014), already from the start. Saving at higher rates would also allow savers to receive better terms from pension saving institutions, an important factor in determining the long-term yield on savings (Whitehouse 2000, 2001).

The enforcement of mandatory contributions to pension savings among a large group of workers and employers who are not interested in contributing is liable to have significant effects on employment in Israel. The pension contributions required by the arrangement (17.5 percent of a worker’s wage) are large and therefore the arrangement should be viewed as having noteworthy macroeconomic consequences, not just from the welfare perspective. According to estimates taken from the economic literature, the negative effect of the arrangement on the permanent income of workers for whom it is not desirable to contribute is about one-third to 40 percent of the size of the pension contribution. This is likely to bring about a permanent drop in employment of about 15,000 workers. The arrangement also has a non-negligible budgetary cost in the short *and* long terms (on the basis of existing legislation), such that it is difficult to justify the arrangement even based on considerations of fiscal savings.

This study does not claim that pension savings are not desirable, nor does it provide evidence that mandatory savings for retirement lowers welfare in general. All workers should arrive at retirement with sufficient resources to ensure a reasonable standard of living, which will not be significantly lower than during their working years. Saving toward retirement is mandatory in all developed countries, either through national insurance, requiring a mandatory contribution towards a private pension or a combination of the two. The claim made here is that *given* the existing system of old age pensions and tax benefits in Israel and in light of the existing employment and demographic characteristics, there is a large group of workers for whom additional saving is not desirable and the retirements benefits they receive from the State are similar to those of higher-earning individuals, for whom saving for retirement is worthwhile. Since a large majority of the workers for whom saving towards a pension is desirable already saved in the past, the mandatory pension saving required by the arrangement is effective predominantly for groups that are in fact adversely affected by it.

There are a number of ways to reduce the adverse effect of the mandatory pension arrangement on low-earning workers, even if it is taken as a given. At the same time, an examination of these options shows that they all are only partial and distortionary solutions to the basic problem created by the arrangement, whereby pension savings are simply not desirable for low-earning workers whose spouses do not work, under the existing tax and national insurance systems.

- Reducing the rates of offset of the income supplement against pensions and/or raising the threshold at which the offset begins. Such a move will reduce the negative financial effect on savers whose spouses do not work, though it will not eliminate the disruption of lifetime consumption smoothing (and technically will even worsen it).
- The adoption of an arrangement of “refundable tax credits” which will allow workers who do not reach the tax threshold to receive a grant from the government that is equal in size to the tax credits (a kind of negative income tax) for contributions to pension savings. Such credits will of course reduce, though not eliminate, the negative effect on low-earning workers. Furthermore, the use of government support for this purpose is inefficient given that the arrangement is not desirable for the worker.⁵⁴ In addition, the budgetary cost of such subsidization is significant (about NIS 1.2 billion per year) and in order to finance it there is a need to, for example, cut the tax credit for pension contributions for all workers to 27 percent.
- To allow the “rolling over” of tax benefits from one year to the next, employees who are unable to utilize the credit in a specific year will have the ability to do so in years when their income exceeds the tax threshold. Such an arrangement will to a large extent facilitate saving for workers whose wages temporarily decline because of academic studies, reduced work hours during the childrearing period, etc., though it will not help those whose wages are normally below the tax threshold and who constitute a significant portion of the arrangement’s target population. In addition, there will be a significant loss of tax revenues as a result of such a change.

The mandatory pension arrangement will create a reality in which the incomes of pensioners who earned a low wage during their working years will significantly exceed the poverty line and their level of income while they were working. It is likely that this situation will raise the issue of whether the NII’s old age pension system should be modified. At the same time, income supplements will be paid only to those who did not work or those who worked for only a few years and since their goal is to ensure a minimal standard of living cutting them will probably not be high on the agenda. On the other hand, the question will arise as to whether the universal old age pension should be maintained at its current level. It appears that given the mandatory pension arrangement, it does not make sense to continue paying such high old age pensions. Thus, at the end of the process, mandatory pensions may lead to the partial privatization of the old age pension system for the working population in Israel. This will be accompanied by an expansion of the tax component within it, which is the difference in payments and benefits between someone who works during his lifetime and someone who doesn’t.

⁵⁴ A simulation using a utility function similar to that used by Card and Ransom (2011) indicates that a tax refund of 5 percent (about one-third of the total burden of the pension contribution) will reduce the negative effect on welfare by less than half.

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