THE EFFECT OF THE "TAL LAW" ON THE SUPPLY OF LABOR AMONG ULTRA-ORTHODOX MEN

ZVIKA DEUTSCH[1]

Abstract

The Tal Law, which went into effect in 2003, formalized the deferral of military service for *yeshiva* students who study Torah fulltime. The law introduced a number of new rules, some of which were aimed at encouraging the employment of ultra-Orthodox men by making it more worthwhile for them to work. This study, for the first time, looks at the effect of the Tal Law on the supply of labor. This is accomplished by estimating a difference-in-differences equation that compares the rate of employment and the labor force participation rate prior to the implementation of the law and subsequent to it, between ultra-Orthodox men that were affected by the Tal Law and ultra-Orthodox men who were virtually unaffected by it. The findings show that the Tal Law had a significant and positive effect on the supply of labor among young ultra-Orthodox men, and thus reduced their age of entry in the labor force.

1. INTRODUCTION

The integration of members of the ultra-Orthodox community within the labor market is essential and is recognized as one of the worthwhile objectives of the Deferral of Service Law. The increased involvement of the ultra-Orthodox community will reduce the severe poverty among this group and will narrow the growing rift between the ultra-Orthodox and secular communities in Israel. This is a social and national mission of the first order.[2] (Supreme Court Decision, 2012, p. 27).

This study, for the first time, looks at the effect of the "Law for Deferral of Service for *Yeshiva* Students who Study Torah Fulltime" (herein: the Tal Law) on the supply of labor among ultra-Orthodox men. Although several reports have already examined the Tal Law

[2] The Supreme Court added that this should not become the main or the exclusive objective of the law.

(including Elran and Ben Meir, 2012; and Ben Bassat, Dahan and Karmenitsky, 2013), they discussed the main purpose of the law—the draft of *yeshiva* students—rather than its effect on employment.

The Tal Law went into effect in February 2003. Until then, the main condition for receiving the status of a *yeshiva* student who studies Torah fulltime (which allowed the individual to defer military service) was to be studying 45 weekly hours, without another occupation outside of those hours. The law created, for the first time, a "decision year" for *yeshiva* and *kollel* students aged 22 or older.[3] The arrangement enabled young ultra-Orthodox men to gain experience in the labor market without the threat of compulsory military service. At the end of the decision year, they would have to choose between returning to fulltime Torah study and the continuing deferral of military service or serving in the army. The length of service was at least 14 months for those aged 22 to 29; and 44 days for those aged 30 to 34, on condition that they were fit for combat and had less than four children (Levin, 2009). At the same time, it was specified that those 22 years of age and older who had done civilian service for a year would receive an exemption from military service. In July 2003, *yeshiva* students aged 23 and older were allowed, for the first time to work at any level of salary while at the same deferring their army service. The condition requiring studies of 45 hours per week was left unchanged.

The low labor force participation rate among the ultra-Orthodox is a major issue on the policy agenda in Israel. Although the rate of employment among ultra-Orthodox men has grown in recent years, it is still relatively low (Bank of Israel, 2012; Gottlieb and Toledano, 2011). The relevant government bodies have suggested ways of dealing with the problem.[4] To illustrate, in 2010, the State budget expenditure for encouraging ultra-Orthodox employment was over NIS 300 million (Bank of Israel, 2011).

In contrast to the direct investment by the government in encouraging ultra-Orthodox employment (which is reflected, for example, in vocational training programs designated for the ultra-Orthodox), the Tal Law was a unique indirect intervention without any direct economic cost. The law reduced the price of not serving in the IDF for ultra-Orthodox men by granting a limited exemption that permitted them to work or to substitute civilian service for military service. The reforms that were part of the law made employment more worthwhile, and can be compared to reforms that reduce the cost of joining the workforce.

The method used in this study is based on the estimation of a difference-in-differences equation by means of a probability model. The estimation compares the employment rate and the labor force participation rate before and after the law went into effect between ultra-Orthodox men who were affected by the Tal Law and ultra-Orthodox men who were

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[3] A *kollel* serves as a framework for *yeshiva* students after marriage. The Tal Law mainly affected *kollel* students, since the age of marriage among the ultra-Orthodox is relatively low (see the rate of married individuals in Table 2). *Kollel* students have special benefits as detailed in Section 2.2

[4] For example, the Trajtenberg Committee (Trajtenberg et al., 2011), Bank of Israel Annual Reports (2011 and 2012), the National Economic Council (Levin, 2009), the Knesset Research and Information Center (Kahunai, 2004), the Ministry of Industry, Trade and Labor (Pepperman and Malhi, 2010), and the Employment Committee (Eckstein et al., 2010).

virtually unaffected by it. The empirical findings show that the Tal Law had a significant and positive effect on the supply of labor among ultra-Orthodox men of draft age.

The paper is organized as follows: Section 2 presents the Tal Law, which is expected to primarily affect the 25–29 age group (the treatment group); the revision of eligibility tests for financial support of *kollel* students, which is expected to primarily affect the 30+ age group (the reference group); and the reduction in the child allowance. Section 3 reviews the literature on the subject and presents a theoretical framework for examining the effect of the Tal Law on the supply of labor. Section 4 describes the database and discusses the identification of ultra-Orthodox individuals, presents the econometric model, and discusses the Tal Law's effect in general and against the background of the cut in the child allowance. Section 5 presents the estimation results for the effect of the Tal Law, and provides empirical support for its identification against the background of the cut in the child allowance. Section 6 presents robustness tests, and Section 7 concludes.

2.   THE TAL LAW AND OTHER POLICY CHANGES

a.   The Tal Law, 2002-3[5]

A *yeshiva* or *kollel* student who declares that he studies Torah fulltime and attends a *yeshiva* or *kollel* is eligible for a deferral of military service. Until the implementation of the Tal Law (in 2003), the main condition for receiving the status of a fulltime Torah student was 45 hours of study a week, without any employment for which it is customary to earn a salary (even if no salary is actually paid). This latter condition also includes a prohibition on working in the evenings or on weekends. A *yeshiva* student who left the *yeshiva* or *kollel*, even for a short period, or who worked in any sort of job in parallel with his studies, would have his status as a fulltime Torah student cancelled and he would immediately be required to enlist for compulsory military service.[6]

The Tal Law, which was passed in August 2002, reformulated the condition for deferral of service for fulltime Torah students. It went into effect in February 2003 (*Sefer HaHukim*, 2002). The law established, for the first time, a "decision year", during which *yeshiva* and *kollel* students who were 22 years of age or older were permitted to work, without being subject to the draft. At the end of this year, they were to choose between military service or returning to *yeshiva* and continuing their deferral of military service.[7]

Furthermore, it was specified that individuals aged 22 or older who had done civilian national service for at least one year would be exempt from the draft. It should be mentioned that civilian service instead of military service essentially makes service possible

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[5] In 2013, the Tal Law was cancelled and currently the conditions differ from what is described here.

[6] In 1998, there were about 15,000 service deferrals by individuals who were 22 years of age or older (Tal, 2002).

[7] In 2003-7, 2935 out of all those who deferred military service requested a decision year, and of those 649 returned to *yeshiva* (Supreme Court, 2012).

in an ultra-Orthodox environment. However, the Civilian Service Authority began operating only in March 2008 and until then there was a lacuna in the law. Thus, although the law allowed a young ultra-Orthodox man to choose civilian service, there was no framework that would administer and oversee that service. As a result, someone who left the *yeshiva* and requested to volunteer for civilian service was not drafted and did not do civilian service (Supreme Court, 2012).[8] The rest of the conditions remained unchanged, particularly the obligation to study for 45 hours per week and the prohibition of deferring military service in order to work.

An amendment to the Tal Law, which was passed in June 2003, enabled those aged 23 or older to work in parallel to a deferral of military service, but on condition that they study 45 hours per week (*Sefer HaHukim*, 2003). This amendment enabled those aged 23 years or older to work in the evening and on weekends and at the same time preserve their status as a fulltime Torah student, which enables the deferral of military service (Supreme Court, 2012).

The aforementioned changes have a large potential effect on ultra-Orthodox men aged 22 to 29, and much less of an effect on ultra-Orthodox men aged 30 and older, for the following reasons: First, the likelihood that the draft will apply is much higher among men under 30. The army does not draft men aged 30 to 34 who are unfit for combat, or men aged over 35 or those who have more than 4 children (Levin, 2009).[9] Apart from that, the length of military service is much longer for men under 30 years of age.

b. Other policy changes

(1) *Revision of support tests*

In addition to an exemption from military service, a *kollel* student is entitled to a monthly subsistence stipend from the Ministry of Education (in the past from the Ministry of Religious Affairs), which is not dependent on income level.[10] Until 2004, eligibility for the stipend was contingent on the individual having the status of fulltime Torah student continuously from the age of 31 onward. Therefore, an individual who left the *kollel* for a period of a year or more lost his right to a stipend even if he returned after that period to study in a *kollel* according to the definition of a fulltime Torah student. Until 2004, there were no clear rules published for the definition of fulltime Torah study for the purpose of receiving a stipend.[11] A representative of the Ministry of Religious Affairs testified to the

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[8] During the 2008–10 period, 2,575 ultra-Orthodox men joined the civilian service program (Supreme Court, 2012). It was not possible to obtain data on the number of those who requested to do civilian service but were not actually drafted before the creation of the Civilian Service Authority.

[9] The proportion of men with four or more children was about 35 percent among those aged 30–34, as opposed to about 4 percent among those aged 25–29 (Table 1).

[10] Until July 2003, the stipend was about NIS 800 in 2014 prices. In July 2003, as part of the economic reform, it was reduced by about half. In 2009, it was returned to its original level before the cut.

[11] The court requested that a representative of the Ministry of Religious Affairs provide documents and Director General's circulars that would back up his testimony, but he did not present any such documents.

court that although the status of fulltime Torah study related to a situation in which the individual is not involved in any other activity apart from the study of Torah, the policy of the Ministry of Religious Affairs was not to deny support to an individual who worked outside the hours of study, on condition that he earned less than minimum wage (court proceedings, 2004).

In July 2004, new eligibility tests for *yeshiva* and *kollel* students were published. They went into effect on August 18th, 2004. The new eligibility tests were formulated in accordance with the reforms contained in the Tal Law. For the first time, eligibility for support and the issue of employment were formalized. The new tests explicitly stated that an individual aged 23 or older, or someone who served in the IDF, could work in parallel to his *kollel* studies. This reform is, as mentioned, only a formality and does not constitute a significant change in policy. Therefore, it can be assumed that its effect on the supply of labor is minimal. It should be mentioned that among individuals aged 23 or older, the conditions for receiving support were identical for all age groups both before and after the reform. In other words, even if the reform has an effect on the supply of labor, it is not expected to significantly differ between age groups among individuals 23 year of age or older.

An additional revision of these tests was the cancelation of the condition restricting the eligibility for a stipend to only those with the status of fulltime Torah study without interruption from the age of 31. This revision may have a positive effect on labor supply among men aged 31 or older, since without the amendment they would not have worked, and a negative effect on the labor supply of those aged 32 or older who spent over a year in the workforce and can now return to *kollel* and again receive the status of fulltime Torah study. The assumption of this study is that the overall effect of this change is positive, as will be explained below.

During the 2004–11 period, all ultra-Orthodox men aged 31–39 who were studying and not participating in the labor force had not worked at all during the previous 12 months.[12] This indicates that among those who had worked during the previous 12 months, there were no cases of leaving the labor market and entering a *yeshiva*. Therefore, it can be assumed that the effect of the revision on labor supply is not negative.

In contrast, prior to the change, a *kollel* student's decision to participate in the labor force meant that he gave up a stream of future income if he would later return to studying in a *kollel*. The change therefore supported an increase in employment, at least during the trial period. It is therefore reasonable to assume that the dominant effect of this policy change was positive. Table 1 summarizes the reforms, the date they were passed and the date they went into effect, the age group affected and the hypothesis regarding the direction of the effect on labor supply.

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[12] Apart from the year 2006, in which about 0.5 percent worked during the previous 12 months.

Table 1
Summary of the changes in the Tal Law, the support for *yeshiva* students and the child allowance

	Description of the reform	Date of the reform	Age group affected (primarily)	The expected effect on labor supply
Panel I: The Tal Law and support of *yeshiva* students				
The Tal Law	"Decision year " in which it is permitted to work without being drafted	Legislated: 8/2002 Went into effect: 2/2003	22-29	Positive
The Tal Law	Substitution of national service for military service.	Legislated: 8/2002 Went into effect: 2/2003	22-29	Positive
Amendment to the Tal Law	Permission to work in parallel to deferment of military service.	Legislated and went into effect: 6/2003	23-29	Positive
New tests for financial support of *yeshiva* students	Cancellation of the condition of having continuous fulltime Torah study status starting from the age of 31.	Legislated: 7/2004 Went into effect: 8/2004	23+	Positive but apparently small
New tests for financial support of *yeshiva* students	Formalizing of the eligibility for support for an employed individual.	Legislated: 7/2004 Went into effect: 8/2004	31+	Positive
Panel II: Child allowances				
Child allowances	Cut in the child allowance	The cut was implemented in two stages: the first cut was in 2002 and a second and larger cut was declared in 6/2003	All age groups were affected. According to the theory, it is not possible to know which age group was affected the most.	Positive but the size of the effect is unclear.

(2) *The cut in child allowances*

In 2002–3, there was a change in the government's policy regarding child allowances.[13] In 2002, the child allowance was cut by 15 percent and in June 2003, as part of the Economic Efficiency Program, it was cut again and to a greater extent (for further details see Toledano et al., 2009).[14]

This reform had a potentially positive effect on labor supply for all age groups, but theoretically it is possible that the effect varies by age group. Below it will be tested whether the effect is differential and whether the finding regarding the positive effect of the Tal Law can be attributed to the cut in the child allowance.

3.   THEORETICAL BACKGROUND

a.   The society of learners

"Society of learners" is a term coined by Friedman (1991) to describe a phenomenon unique to Israel, in which ultra-Orthodox men study for many years in *yeshiva* and *kollel* and do not participate in the labor force (Gonen 2000, 2005). This phenomenon was previously unknown, and developed as a result of the economic support given to the ultra-Orthodox population, which is based on the welfare policy and the designated stipends received by the ultra-Orthodox sector (Friedman, 1991).

An ultra-Orthodox man has only a low incentive to join the labor force. His earning ability in the labor market is low since his education is not particularly relevant to the market. Moreover, his entry into the labor force will lead to a loss of eligibility for the designated support given to *kollel* students and the benefits that are conditional on having a low income level. Thus, it was shown in a study by Brender, Peled and Kasir (2002) that potential eligibility for an income supplement from the National Insurance Institute is a negative employment incentive among ultra-Orthodox men.

Levin (2009), Gottlieb (2007), and Kahunai (2004) calculated the economic loss suffered by an ultra-Orthodox man who joins the labor force. According to Levin (2009), the potential loss of income and benefits amounts to between NIS 4000 and 5000 per month. These include the stipend for *kollel* students from the government and from philanthropists, the designated income supplement, and a discount on municipal taxes. Another factor that makes joining the labor force less worthwhile is the opportunities for

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[13] In 2000, the size of the child allowance in 2007 prices was as follows: NIS 200 each for the first and second child, NIS 400 for the third child, and NIS 600 to 750 each for the fourth child and upward. In January 2001, the child allowance for the fifth child and upward was increased by 33–47 percent (the Halpert Law).

[14] In 2006, the child allowance for children born up until June 2003 in 2007 prices was NIS 150 each for the first and second child (as in the case of children born after the cut), NIS 200 for the third child, and NIS 350 each for the fourth child and upward. For children born after June 2003, the child allowance was a uniform payment of NIS 150 per child regardless of the number of children in the family.

unreported earnings that are unique to *kollel* students, including private Talmud lessons and writing religious books.

Apart from the alternative income, *yeshiva* students have an additional incentive not to work, namely the unique benefit of military service deferral. While this incentive can be viewed as a subsidy to *yeshiva* students (Berman and Klinov, 1997), it comes at the price of the loss of potential labor income.

Berman (2000) suggested an alternative explanation, based on the club theory presented by Iannaccone (1992). According to him, the ultra-Orthodox community is a club whose members benefit from its religious and social activities and from the fact that they belong to the club. In response, and in order to prevent free riders, i.e. members that benefit from the activity and the benefits offered by the club without bearing the costs, the ultra-Orthodox community imposes prohibitions on its members, which serve as a kind of corrective tax. As proof, Berman cites the fact that the average stay in *yeshiva* lengthened as a result of a community prohibition, in response to a rise in the real wage and an increase in the transfer payments from the government. According to the club model, an exemption or reduction in the military service obligation will also lead to a response in the form of a prohibition imposed by the community. On the basis of this model, Berman (2000) hypothesizes that although employment rates will increase among draft candidates who were affected by the Tal Law, overall the rate of employment will drop in the ultra-Orthodox community. This claim will not be tested as part of the current study, since one cannot know what the overall employment rate in the ultra-Orthodox community would have been during the period after the Tal Law went into effect, if the Tal Law had not gone into effect. In any case, we are witness to new prohibitions in the ultra-Orthodox community which can be interpreted as a response to the increase in employment.[15]

b. Labor supply in the presence of welfare programs

The effect of the Tal Law reforms on labor supply can be analyzed within a labor supply model that views the loss of benefits received from welfare programs as a tax.[16] In these models, the tax on the additional labor income includes—apart from the payment of tax on salaries—the loss of alternative income from welfare programs as a result of the increase in labor income. The loss of income includes both transfer payments and the distribution of goods (such as food products). The marginal tax rate is defined as the rate of tax on the additional income as a result of the transition between two points on the scale of workhours.[17] Welfare programs that create a high marginal tax on labor income reduce the

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[15] An example of new prohibitions can be found in Deutsch (2009). For further details on the club model and a description of other equilibriums, see Carvalho and Koyama (2011) and Rosenberg (2001).

[16] For further details on models of labor supply and welfare programs, see MaCurdy and Blundell (1999) and Moffit (2002, 2003).

[17] Since demand for labor generally does not exist in individual hours but rather in packages of hours, it is convenient to use the marginal tax rate in the shift between two points rather than the added income from an additional hour of work.

incentive to join the labor force. When there is a combination of several programs, it is common to find a situation in which there is a marginal tax rate on joining the labor force of more than 100 percent.

Military service involves an environment that is foreign to the values of ultra-Orthodox individuals. The utility that they receive from army service is therefore negative. The more devout the individual is, the greater his negative utility from military service will be.[18] The deferral of military service is obtained at the cost of lost labor income, and can therefore be defined as a good with economic value, whose price is the cost of giving up labor income.

Until the Tal Law went into effect, the good of military service deferral was provided at no cost only to an individual in fulltime *yeshiva* studies who did not work at all. During this period, it was not possible to obtain a deferral or exemption from military service due to other conditions. After the Tal Law went into effect, a deferral of military service was granted at no cost to anyone studying in a *yeshiva* for 45 hours a week, even if he worked. As a result, entering the labor market no longer meant a major loss of income. Thus, the Tal Law significantly reduced the marginal tax on labor income.

However, as mentioned, the Tal Law requires 45 hours of study per week. An ultra-Orthodox man interested in working a significant number of hours must therefore leave the *yeshiva*, which leads to an additional loss of income unique to *yeshiva* students (such as support from the Ministry of Education and from philanthropists). There is a point in time at which a working individual cannot continue studying in a *kollel* and must choose whether to enter the army or to do national service. Therefore, the component that permits studying in a *yeshiva* in parallel to the deferral of military service positively affects labor force participation and negatively affects the number of work hours for an individual who, in the absence of the reforms, would have worked fulltime.

The economic price that an ultra-Orthodox man is prepared to pay in order not to be drafted is higher than the price he is prepared to pay in order to avoid the obligation of national service. This is primarily because national service is possible in an ultra-Orthodox environment, which does not violate his values. Therefore, the Tal Law reduced the marginal tax collected from an individual who wishes to work fulltime. Before the Tal Law went into effect, the tax also included military service, apart from the loss of income unique to *yeshiva* students. The reduction in the tax pursuant to the law was reflected in the possibility of substituting military service with national service. Therefore, the national service component in the Tal Law had a positive effect on both labor force participation and fulltime employment.

The contribution of the decision year component can be analyzed within the framework of a labor market that lacks full information on the level of the potential wage. During the decision year, individuals receive information on their potential wage and decide

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[18] There can also be positive utility from military service, such as professional training, accumulation of professional experience or the receipt of a family stipend. In any case, the discussion here focuses on ultra-Orthodox individuals who prefer to study in *yeshiva*, on the assumption that among them the negative utility dominates.

accordingly whether to return to *yeshiva* or to permanently join the labor force. It can be assumed that the effect of the decision year will vary inversely with the scope of the information on the individual's potential earning power and will no longer exist in a labor market with full information.

Ultra-Orthodox men who have three or more children are eligible for a guaranteed income supplement, which is conditional on a lack of labor income and on additional criteria.[19] When individuals in this group join the labor force they are no longer eligible. Although the Tal Law reduced the price of not serving in the army for this group as well, giving up the guaranteed income supplement is equivalent to a high marginal tax on labor income. MaCurdy and Blundell (1999) present examples in which the imposition of a negative income tax does not encourage employment in a situation where there is a major loss of welfare benefits. Therefore, it is possible that the Tal Law will have only a minor effect on men with 3–4 children.[20]

In summary, after the Tal Law went into effect, an ultra-Orthodox man could work fulltime without being drafted, or could work part-time and continue studying in *yeshiva*. Therefore, the Law increased the motivation to work fulltime among those who would not have worked at all absent the law, and reduced the motivation to work among those who would have worked fulltime absent the law. Thus, the Tal Law had a positive effect on labor force participation, but it cannot be known what its effect was on the number of hours worked.

4. THE DATA AND THE IDENTIFICATION STRATEGY

a. The data

The database used in the study is based on the Labor Force Surveys carried out by the Central Bureau of Statistics between 1996 and 2011.[21] The Labor Force Survey for this period was based on four panels. Each panel was surveyed during two consecutive quarters and again during another two consecutive quarters after a break of two quarters. The survey was carried out in two stages. In the first, localities are sampled according to their size (clusters), and in the second, homes are sampled.[22] The planning of the survey is liable to bias the estimate of the averages and the variances, and the planning effect must therefore be weighted in the calculation of the forecasts, and the variances have to be standardized to the correlation within the clusters (Cameron and Trivedi, 2005). Accordingly, the variances

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[19] During the short sample period, the income supplement stood at about NIS 1300 (in 2014 prices).

[20] Brender and Strawczynski (2006) predicted by means of simulations that the contribution of the negative income tax to the employment of the ultra-Orthodox would be negligible.

[21] The data were obtained from the database of the Faculty of Social Sciences at the Hebrew University.

[22] The survey does not include residents of institutions or dormitories, which include *yeshiva* students who live in dormitories. The exclusion of these *yeshiva* students is liable to introduce selection bias, but for the age groups studied the frequency of residence in a dormitory was low (less than 5 percent of the 25–30 age group).

in the Labor Force Survey need to be standardized due to both the correlation of the repeated observations and the correlation within the probabilistic localities of the sample. In the current study, the size of the locality was controlled for and the variances were standardized for repeated observations (cluster).[23]

b. Identification of the ultra-Orthodox

The discussion of the identification strategy must also focus on the method of identifying the ultra-Orthodox.[24] The Labor Force Survey contains the following question: What is the last educational institution you attended? One of the possible answers is a *yeshiva* or *ulpana*. Berman and Klinov (1997) and Dahan (1998) identify a Jewish household as ultra-Orthodox if the last educational institution attended by one of the spouses is a *yeshiva*. Levin and Hacohen (2010) suggest expanding the definition to include households in one of the core ultra-Orthodox localities[25], a definition also adopted by the Bank of Israel in its recent reports.

In the current study, a more limited definition of ultra-Orthodox was used, since the Tal Law was introduced in order to influence ultra-Orthodox men studying in *yeshiva*s, and the first group contained a higher proportion of men studying in a *yeshiva*, who are therefore meant to be more affected by the law.[26] Nonetheless, as in Toledano et al. (2009), the main results are presented separately for the expanded definition as well. This was done in order to test the sensitivity of the assumptions underlying the definition of ultra-Orthodox.[27] In addition, the estimation examined the effect of the Tal Law on the employment of men who reported that the last educational institution they attended was a *yeshiva*.

Identification by means of last educational institution attended is liable to create a selection bias since it does not capture those who studied in an academic institution after attending a *yeshiva* or who participated in a vocational training course of over a year's duration after *yeshiva*. Among the latter, relatively high rates of employment were observed, and their absence from the research sample is therefore liable to bias the rates of employment obtained (Bank of Israel, 2011). However, during the sample period the

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[23] As an experiment, the probit equations were estimated using the STATA program by means of the Probit2 command, which enables standardization for two nested clusters. In this experimental estimation, there was no major increase in the size of the variances, and they were therefore standardized only for repeated observations.

[24] Further details and a comparison of methods can be found in Friedman et al. (2011), Toldano et al. (2009), Gottlieb and Kushnir (2009) and Levin and Hacohen (2010).

[25] The core ultra-Orthodox localities are Beitar Illit, Modi'in Ilit, Rehasim, Kfar Habad, Kochav Yaakov and Kiryat Ye'arim (Levin and Hacohen, 2010).

[26] In this study, a household is identified as ultra-Orthodox if the last educational institution attended by one of the household members is a *yeshiva* in the relevant year only.

[27] In this study, it was decided to add Bnei Brak to the list of core ultra-Orthodox cities since over 60 percent of the households there are defined as ultra-Orthodox according to the last educational institution attended, i.e. a *yeshiva*, and for the age groups being studied about 75 percent are defined as ultra-Orthodox according to the same criterion. Among married individuals within the age group of the study, over 80 percent are defined as ultra-Orthodox according to the last educational institution attended.

proportion of those in institutions of higher education among ultra-Orthodox men was low (ibid.), and it is therefore possible to assume that the selection bias is very small.

c. Identification of the effect of the Tal Law

In order to estimate the effect of the Tal Law, a difference-in-differences model was employed. As part of this model, the changes that occurred in the labor force participation rate or in employment as a result of the Tal Law were tested by comparing two groups: the group of ultra-Orthodox men aged 25–29, whom the law should have affected to a greater extent (herein: the treatment group), and the group of ultra-Orthodox men aged 30–34, whom the law should have affected to a lesser extent (herein: the reference group). As part of the estimation, the differences in the participation rates and the rates of employment between the two groups were calculated, and the change that occurred in this difference between the period prior to the Tal Law (2002) and the period after it (2005) was also calculated.

In order to define the treatment group, two consecutive age groups were used, as was done in Blundell et al. (2005) to estimate the effect of an employment program in Britain. The treatment group includes ultra-Orthodox men aged 25–29. In this group the probability of being drafted is high and the men who are drafted serve at least 14 months. The reference group is defined as ultra-Orthodox men aged 30–34. In this group the probability of being drafted is lower and they are drafted for a short service of only 44 days, as described above. The formal description of the difference-in-differences model is presented in the next section.

The draft applies to men without children or men who are fathers of less than five children. Therefore, it could be suggested that the treatment and reference groups should not include men who are fathers of five children or more. However, it may be that among ultra-Orthodox men aged 30–34 the labor supply of fathers with less than five children differs from that of fathers of five children and up. Thus, for example, it is reasonable to assume that the number of children is positively correlated with the level of religiosity, which in turn is negatively correlated with labor supply. On the other hand, among men aged 25–29, it is not possible to identify those who, on entering the 30–34 age group, have five children or more. Therefore, the reference group that will include men aged 30–34 who have less than five children is not similar to the treatment group that will include men aged 25–29 with less than five children. As such, the treatment group and the reference group are defined in the basic model only according to age, regardless of number of children.

In order to test for robustness, the effect of the Tal Law was estimated for three subgroups (Section 6.a). The first is composed of men with less than five children; the second is composed of only married men, since the cultural and social behavior of ultra-Orthodox married men is completely different from that of single ultra-Orthodox men; and the third is composed only of ultra-Orthodox men who are natives of Israel, since the phenomenon of low labor supply among ultra-Orthodox men is unique to Israel (Gonen,

2000, 2005), such that it can be assumed that the labor supply of ultra-Orthodox men who immigrated to Israel is different due to the influence of social norms in the countries of origin.

d. The identification of the effect of the Tal Law against the background of the cut in the child allowance

The main assumption of the difference-in-differences model, that in the absence of the estimated intervention the employment trends of the treatment group and the reference group would be similar, is liable to be impaired if during the period in which the Tal Law was in effect there were other policy changes that affected the two groups in different ways. During the period in which the Tal Law was in effect, the government carried out broad cuts in the child allowance.[28] It can therefore be argued that the estimation results for the positive effect of the Tal Law were due to the cut in the child allowance and the assumption of the model is therefore impaired.

According to economic theory, if studying in a *yeshiva* is a leisure good, and on the reasonable assumption that it is a normal good, such that its consumption decreases with a decline in income, a cut in the child allowance has a negative income effect, which is expected to increase the labor supply of ultra-Orthodox men. However, since studying in a *yeshiva* is not just a leisure good but also a source of income and benefits, the extent of the effect of a cut in the child allowance on the labor supply of ultra-Orthodox men is not clear.[29] The more the fear of losing alternative income and benefits is a major factor in the phenomenon of low labor force participation among ultra-Orthodox men, the lower the effect of a cut in the child allowance on the labor supply is expected to be. It should be mentioned that Toledano et al. (2009) found a positive connection between the size of the child allowance and the rate of employment only among ultra-Orthodox men and women, and they have no reasonable explanation for this. This finding is reasonable if the cut in the child allowance does not have a significant effect on the labor supply of the ultra-Orthodox, but other events, such as the Tal Law, do indeed have an influence.

Even if the cut in the child allowance has a positive effect on the supply of labor of ultra-Orthodox men, it is not clear whether the effect is larger among younger individuals or older ones; or on those who during the period of the cut had more children or those who had less. If the effect is greater among older individuals or those who had more children, then we would expect to see higher labor force participation among the reference group than among the treatment group. In other words, under this hypothesis, the cut in the child allowance biases the estimates of the effect of the Tal Law downward rather than upward.

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[28] The cut had a negative effect on the rate of fertility among ultra-Orthodox families (Cohen, Dehenjia and Romanov, 2013; Toledano et al., 2009).

[29] As mentioned, an ultra-Orthodox man who joins the labor force is liable to lose income and benefits totaling NIS 4000–5000 (Levin, 2009). As a result the threshold salary among ultra-Orthodox men for joining the labor force is expected to be high even in the absence of income from the child allowance.

If so, the cut in the child allowance cannot explain the relatively positive effect on labor force participation that was obtained.

On the other hand, it can be argued that a family looks ahead to the future, and the loss in discounted income from the child allowance until the children reach 18 (the maximum age of eligibility for the child allowance) should therefore be taken into account. In other words, the loss in fixed income from the child allowance should be weighted by the desired number of children after the cut and the total child allowances that were received during the period before the cut. Such a calculation shows that a drop in the discounted child allowance income experienced by younger individuals is larger than the drop experienced by older individuals. This is because the older individuals enjoyed the higher child allowance before the cut and the cut was more moderate for children born prior to the cut. According to this hypothesis, the potential effect of the cut in the child allowance is larger among the 25–29 age group (the treatment group) than among the 30–34 age group (the reference group), and it is therefore possible that the estimates of the effect of the Tal Law are biased upward.

Nonetheless, in order to take into account the discounted value of the child allowance at its current level, Toledano et al. (2009, p. 28) claimed that "individuals need to assume by implication that the allowance will not change over the years, an assumption that is unlikely in view of the frequent changes in the size of the child allowance." It is reasonable to assume that, as a result of the cut in the child allowance, although people lowered their expectations regarding the size of the allowance in coming periods, they did not necessarily do so by the full amount of the reduction. In other words, in view of the frequent changes in the child allowance policy[30], it may be that a family expected that in the future there will be additional changes. Indeed, the government did change its policy, increasing the child allowance again in 2009. Therefore, without empirical testing, it cannot be known which age group will be more affected by the cut in the child allowance. An empirical test of this question is presented in Section 5.c, and its results support the hypothesis that the cut in the child allowance did not have a significant effect on the labor supply of ultra-Orthodox men, and if there was an effect its magnitude in the 25–29 age group was not larger than in the 30–34 age group.

e. The econometric model

The effect of the Tal Law on labor supply is estimated below by means of a difference-in-differences equation in a probit probability model. By means of this equation, the difference in the probability of working or participating in the labor force between the treatment group, which was affected by the intervention, and the reference group, which was not, is calculated and at the same time the change in this difference is calculated between the pre-

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[30] For a survey of the history of the child allowance, see Ofir and Aliav (2005) and also Toledano et al. (2009).

intervention period (2002) and the post-intervention period (2005). The following probit difference-in-differences equation is estimated:

(1) $P\left(Y_{igt} = 1\right) = \Phi\left(\beta_1 X_{igt} + \lambda_1 g + \lambda_2 after + \delta\left(g \times after\right)\right)$

where i is an individual in the sample; *after* is the dummy variable, which receives a value of 1 during the period after the Tal Law went into effect and zero during the period before; and g is a dummy variable that receives a value of 1 if individual i belongs to the treatment group (aged 25–29) and zero if he belongs to the reference group (aged 30–34). The interaction $\left(g \times after\right)$ receives a value of 1 if the individual belongs to the treatment group during the period after the Tal Law went into effect and zero otherwise. Y_{igt} is an outcome variable and receives a value of 1 if individual i at time t is in the labor force and zero otherwise (alternatively, if he was employed). X_{igt} is a vector of the individual's characteristics, and it includes the following variables: age, age squared, number of children, years of schooling, size of the city of residence and family status.

Φ is the cumulative density function (CDF) with a normal distribution. The assumption of the model is that the effect of treatment is not uniform and changes with X_{igt}. $\delta\left(g \times after\right)$ is the main variable that estimates the effect of the intervention. Since the model is not linear, the marginal effect needs to be calculated using derivatives. However, since the variable $\left(g \times after\right)$ is discrete and therefore non-differentiable, the effect is estimated for each variable using the following equation:

(2) $effect_i\left(t = 1, g = 1, X\right) = \Phi\left(\beta_1 X_i + \lambda_1 + \lambda_2 + \delta\right) - \Phi\left(\beta_1 X_i + \lambda_1 + \lambda_2\right)$

Using Equation (2), it is possible to calculate the distribution of the effect and the average effect for the treatment group (Average Treatment Effect – ATT).[31] The average effect will be calculated by estimating a separate forecast for the two parts of the equation for the treatment group during the period after the treatment, as described in Eissa and Liebman (1996).

The main assumption required in the difference-in-differences model is that in the absence of intervention, and given the explanatory variables, the time trend is fixed in the treatment group and in the reference group. In other words, the assumption required in this study in order to estimate the effect of the Tal law is that without the law, and given the explanatory variables, the changes in the labor force participation rate in the treatment group and the reference group would be similar. This assumption cannot be confirmed with certainty. Nonetheless, it will be tested by comparing the trend in labor force participation

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[31] The method for estimating the average effect in the difference-in-differences equation of the probit model is described in Eissa and Liebman (1996), Blundell et al. (2005), and Puhani (2012).

in the reference group to the corresponding trend in the treatment group (Section 5a), and by means of tests for the validity of the model's assumption (Section 6). In addition, an analysis will be carried out to reinforce the assumption that the estimated effect is not the result of the cut in the child allowance (Section 5c).

The difference-in-differences for the ultra-Orthodox can be compared to the change in the trends among the Jewish non-ultra-Orthodox population by estimating a triple equation of difference-in-the-difference-in-differences (DDD):

$$P\left(Y_{igth}=1\right)=$$
$$(3) \quad \Phi\left(\beta X_{igth}+\lambda_1 g+\lambda_2 after+\lambda_3 h+\delta_1\left(g\times h\right)+\delta_2\left(h\times after\right)+\delta_3\left(g\times after\right)+\gamma\left(h\times g\times after\right)\right)$$

where h receives a value of 1 if the individual is ultra-Orthodox and zero otherwise, and $\left(h\times g\times after\right)$ receives a value of 1 if the individual is ultra-Orthodox in the 25–29 age group in the period after treatment and zero otherwise. This equation will estimate the difference-in-difference-in-differences for the treatment and reference groups of Jewish men who are not ultra-Orthodox and of ultra-Orthodox men. The estimation of the average effect for Model (3) will be under the assumptions of Equation (2): the right side of the equation will be estimated for $\gamma=0$ subject to the additional assumption that $h=1$. The definition of the treatment and reference groups in the non-ultra-Orthodox population will be identical to the definition in the ultra-Orthodox population. Since most ultra-Orthodox men in the sample are married, and in order to increase the matching between the ultra-Orthodox and the non-ultra-Orthodox, the triple model is estimated only for Jewish married men.

The estimation of the triple equation requires an additional assumption: that in the absence of the intervention the difference in the trends between the reference group and the treatment group among the ultra-Orthodox would be identical to this difference among the non-ultra-Orthodox. Since this is a strong assumption, it is worthwhile adopting a weaker assumption: that in the absence of intervention, the difference in the trends between the reference group and treatment group among Jewish non-ultra-Orthodox men also exists among ultra-Orthodox men. This implies that shocks affecting the majority group also affect the minority group but not vice versa. Under this assumption, the values obtained by means of a triple model will be less biased.

In what follows, the hypothesis that given the explanatory variables the effect of the intervention is dynamic over the years is estimated:

(4)
$$\left(Y_{igt}=1\right)=\Phi\left(\beta X_{igt}+\lambda g+\sum_{\tau=1}^{B}\lambda_{-\tau} year_{-\tau}+\sum_{\tau=1}^{A}\lambda_{\tau} year_{\tau}+\sum_{\tau=1}^{B}\delta_{-\tau}\left(g\times year_{-\tau}\right)+\sum_{\tau=1}^{A}\delta_{\tau}\left(g\times year_{\tau}\right)\right)$$

where $year_\tau$ is a dummy variable that receives a value of 1 for the period τ and zero otherwise. The interaction variable $\left(g \times year_\tau \right)$ receives a value of 1 if the individual belongs to the treatment group in period τ. *B* represents the number of years before the intervention and *A* represents the number of years after it, while 2002 is defined as year zero and the estimated effects are relative to it. The average effect in each of the periods will be calculated similarly to what is presented in Equation (2).

The coefficients δ_τ represent the difference-in-differences during the period 2003–11 relative to 2002. They can be used to test the dynamic effect of the Tal Law in each of these years. In contrast, the coefficients $\delta_{-\tau}$ represent the difference-in-differences for the period 1999–2001 relative to 2002. These coefficients are used to test the reasonability of the assumption of the difference-in-differences model that in the absence of the intervention the time trend is fixed in the treatment group and in the reference group. If the confidence intervals of the $\delta_{-\tau}$ coefficients are not in the vicinity of zero, it is likely that the model's assumption is not valid, while if they are in the vicinity of zero then the assumption is strengthened.

f.   Descriptive statistics for the treatment and reference groups

The main assumption of the model is that in the absence of intervention the differences in the employment indices between the reference group and the treatment group would be identical in the two periods. Therefore, a comparison is presented of the changes that occurred in the characteristics of the two groups between the pre-intervention period and the post-intervention period. Table 2 shows the significant increase in the rate of employment and in labor force participation rate in the 25–29 age group relative to the decrease in the 30–34 age group. In both groups the difference is identical or not significantly different in the following variables: average number of earners in the household, years of *yeshiva* attendance, proportion of married individuals, average number of children, distribution of number of children and proportion of ultra-Orthodox men born in Israel. In sum, the changes in the characteristics of the two groups between the two points in time are relatively similar, except for the variables that were affected by entry into the labor force.

Table 2
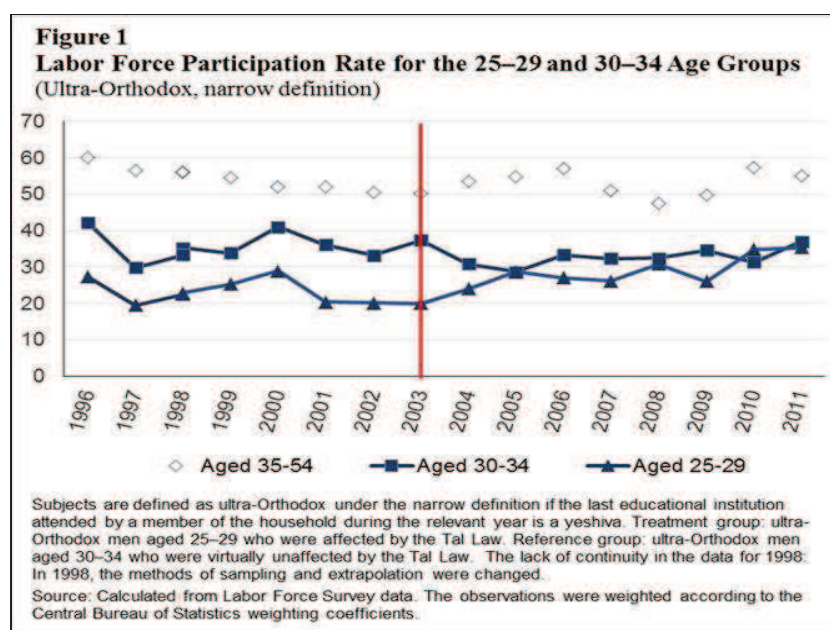**Changes in the treatment and reference groups – narrow definition of ultra-Orthodox**

	Treatment group – aged 25–29			Reference group – aged 30–34		
	2002	2005	Difference	2002	2005	Difference
Employed	0.141 (0.025)	0.240 (0.029)	0.099 (0.032)	0.298 (0.041)	0.266 (0.038)	-0.032 (0.043)
In the labor force	0.201 (0.031)	0.286 (0.030)	0.085 (0.034)	0.332 (0.044)	0.286 (0.038)	-0.045 (0.044)
Number of earners in household	0.938 (0.069)	1.036 (0.056)	0.098 (0.065)	0.988 (0.080)	0.947 (0.065)	-0.041 (0.076)
Studying and working	0.014 (0.007)	0.033 (0.013)	0.019 (0.013)	0.004 (0.004)	0.012 (0.008)	0.008 (0.009)
Years of schooling	15.581 (0.220)	15.795 (0.278)	0.214 (0.394)	16.627 (0.831)	16.543 (0.554)	-0.085 (0.798)
Married	0.877 (0.028)	0.871 (0.025)	-0.007 (0.026)	0.946 (0.021)	0.949 (0.023)	0.003 (0.021)
Average number of children	2.001 (0.105)	2.094 (0.112)	0.093 (0.116)	4.011 (0.229)	3.800 (0.177)	-0.210 (0.199)
Average number of children up to age 4	1.594 (0.086)	1.548 (0.080)	-0.047 (0.088)	1.811 (0.104)	1.906 (0.089)	0.095 (0.101)
Proportion of men with 1-2 children	0.491 (0.039)	0.421 (0.035)	-0.071 (0.039)	0.171 (0.036)	0.148 (0.032)	-0.023 (0.035)
Proportion of men with 3-4 children	0.297 (0.035)	0.341 (0.033)	0.044 (0.037)	0.376 (0.045)	0.396 (0.042)	0.020 (0.047)
Proportion of men with 5+ children	0.035 (0.013)	0.046 (0.013)	0.011 (0.016)	0.366 (0.044)	0.384 (0.041)	0.018 (0.046)
Born in Israel	0.837 (0.031)	0.836 (0.027)	-0.001 (0.029)	0.850 (0.035)	0.844 (0.031)	-0.006 (0.034)
Number of observations	291	385	676	198	256	454

Standard deviations in parentheses are standardized to the level of correlation of the repeated observations (apart from the differences). The observations are weighted on the basis of the Central Bureau of Statistics weighting coefficient. The ultra-Orthodox are identified according to the narrow definition, i.e. if the last educational institution attended by a member of the household during the relevant year is a *yeshiva*.

5.   ESTIMATING THE EFFECT OF THE TAL LAW

a.   The trends in the rates of labor force participation

Figure 1 presents the labor force participation rates among ultra-Orthodox men during the period 1998–2011. The survey of the trends in labor force participation focuses on the ultra-Orthodox according to the narrow definition. Nonetheless, the appendix also presents the trends for the ultra-Orthodox according to the expanded definition (Figure A-1 and A-2).

Figure 1
Labor Force Participation Rate for the 25–29 and 30–34 Age Groups
(Ultra-Orthodox, narrow definition)

Subjects are defined as ultra-Orthodox under the narrow definition if the last educational institution attended by a member of the household during the relevant year is a yeshiva. Treatment group: ultra-Orthodox men aged 25–29 who were affected by the Tal Law. Reference group: ultra-Orthodox men aged 30–34 who were virtually unaffected by the Tal Law. The lack of continuity in the data for 1998: In 1998, the methods of sampling and extrapolation were changed.
Source: Calculated from Labor Force Survey data. The observations were weighted according to the Central Bureau of Statistics weighting coefficients.

The hypothesis is that as a result of the Tal Law the change in the labor force participation rate is greater in the 25–29 age group. This hypothesis is tested by means of a difference-in-differences model, but first the model's assumption—that in the absence of the intervention the changes in the labor force participation rates would have been similar in the two groups—is tested.[32] Since the effect of the Tal Law is restricted to a limited age group, the study's point of interest is the comparison of changes in the labor force participation rate between two age groups: the treatment group, which consists of men aged 25–29, who were affected by the Tal Law, and the reference group, which consists of men aged 30–34, who were virtually unaffected. In addition, the trends among the 35–39 age group are discussed for comparison purposes.

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[32] The trends in the rates of employment are relatively similar to the trends in the labor force participation rates. In this study, it was decided to focus on the trends in labor force participation, since during the sample period there was an increase in the unemployment rate, which mainly affects the rate of employment.
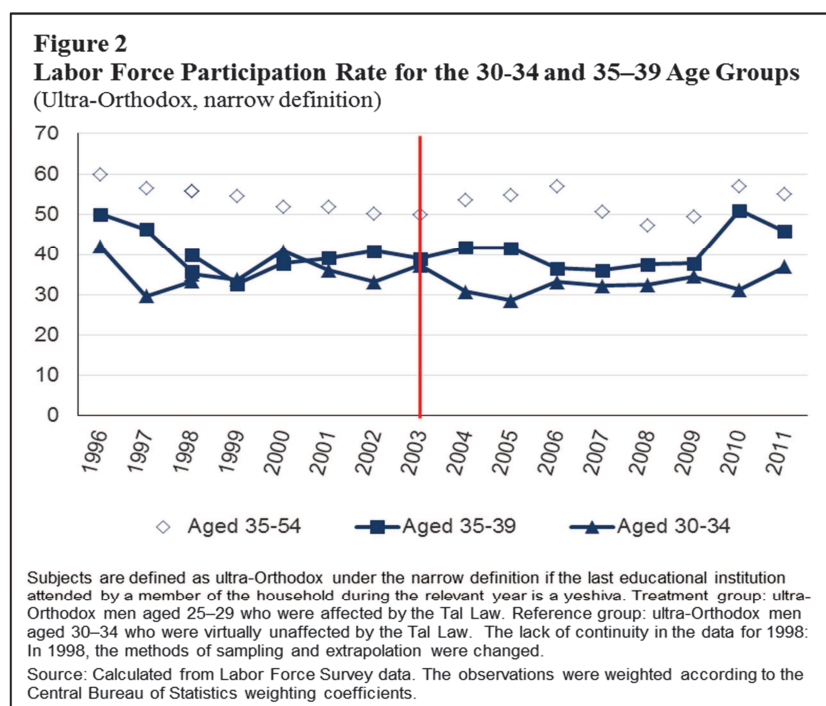
Until 2004, the labor force participation rate among the 25–29 age group was lower than among the 30–34 age group, both among ultra-Orthodox men and non-ultra-Orthodox men.[33] In 2004, there was a break point in the difference in labor force participation rate between the two aforementioned age groups among the ultra-Orthodox, and the difference almost disappeared. Among non-ultra-Orthodox men, the gap remained unchanged.

Between 2002 and 2005, labor force participation among the 25–29 age group increased by 8.5 percentage points, and that of the 30–34 age group dropped by 4.5 percentage points. When we control for the explanatory variables (as in the estimation in Section 5b), the result is that labor force participation in the 25–29 age group increased during this period by 10 percentage points, and that of the 30–34 age group declined by 4 percentage points.

Among the 30–34 age group, the labor force participation rate rose in 2006 relative to 2005, and during the subsequent period up to 2010 there was no major change. It is possible that the increase in 2006 was due to the positive effect of the reform, which allowed those aged 31 or older to leave the *kollel* without losing their future eligibility for support, a reform that, as mentioned, went into effect in August 2004 (Section 2b (2)). Among the 35–39 age group, during the period 2000-9, the labor force participation rate was relatively stable. In 2006 it fell somewhat, and subsequently it was again relatively stable (Figure 2).

These data indicate that labor supply did not increase significantly among men aged 30–39 during the period after the Tal Law went into effect, and during part of the period it even fell somewhat. This is in spite of the fact that men who were aged 25–29 immediately following the cut gradually shifted to the 30–34 age group, while the men that were in the 30–34 age group after the cut gradually shifted to the 35–39 age group. The increase in labor supply, primarily among the 25–29 age group relative to the lack of change in the older age groups, indicates that it was due to the Tal Law. While the reforms, such as the cut in the child allowance, had an effect on all the age groups, the Tal Law was meant to reduce the age of entry into the labor force, since it made employment more worthwhile only among younger individuals. (An empirical discussion of the identification of the effect of the Tal Law against the background of the cut in the child allowance appears in Section 5c.)

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[33] In 2003, the year in which the Tal Law went into effect, there was a one-time increase in labor force participation among the 30–34 age group, although the increase in the gap between the two age groups is not statistically significant. Moreover if the trends among only native ultra-Orthodox men are examined, the increase in 2003 is very moderate.

Figure 2
Labor Force Participation Rate for the 30-34 and 35–39 Age Groups
(Ultra-Orthodox, narrow definition)

◇ Aged 35-54   ■ Aged 35-39   ▲ Aged 30-34

Subjects are defined as ultra-Orthodox under the narrow definition if the last educational institution attended by a member of the household during the relevant year is a yeshiva. Treatment group: ultra-Orthodox men aged 25–29 who were affected by the Tal Law. Reference group: ultra-Orthodox men aged 30–34 who were virtually unaffected by the Tal Law. The lack of continuity in the data for 1998: In 1998, the methods of sampling and extrapolation were changed.
Source: Calculated from Labor Force Survey data. The observations were weighted according to the Central Bureau of Statistics weighting coefficients.

b. The estimation of the effect

Table 3 presents the estimation results for the difference-in-differences Equation (2), which estimates the effect of the Tal Law on labor force participation and employment. The table presents the estimated coefficients of the explanatory variables, as well as the coefficient of the effect. This equation was estimated for two definitions of ultra-Orthodox: in the first, households are identified as ultra-Orthodox according to the narrow definition, i.e. if the last educational institution attended by a member of the household is a *yeshiva* (columns 1 and 2); in the second, they are identified according to the expanded definition, which includes, in addition to those identified by the narrow definition, those who reside in the core ultra-Orthodox cities (columns 3 and 4). The triple equation was estimated for Jewish married men only and the results are presented in columns (5) and (6).

Table 3
Estimation of labor supply among men aged 25–34 for the years 2002 and 2005; estimation of the probit difference-in-differences equation

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)
	Ultra-Orthodox according to narrow definition[1]		Ultra-Orthodox according to expanded definition[2]		Married Jews (triple model)[3]	
	Employed	Labor force participant	Employed	Labor force participant	Employed	Labor force participant
Coefficients Age	0.987** (0.433)	0.900** (0.436)	1.108*** (0.395)	0.997** (0.399)	0.587*** (0.202)	0.613*** (0.217)
Age squared	-0.016** (0.007)	-0.015** (0.008)	-0.018*** (0.007)	-0.016** (0.007)	-0.009** (0.003)	-0.009** (0.004)
Number of children	-0.035 (0.032)	-0.045 (0.032)	-0.057* (0.030)	-0.080*** (0.031)	-0.098*** (0.021)	-0.134*** (0.022)
Years of ultra-Orthodox schooling	-0.021 (0.018)	-0.012 (0.011)	-0.025 (0.019)	-0.017 (0.013)	-0.038*** (0.015)	-0.027** (0.011)
Population of the city 100K-250K[4]	0.321** (0.150)	0.287** (0.146)	0.522*** (0.143)	0.512*** (0.140)	0.154** (0.069)	0.212*** (0.073)
Population of the city 59K-99K[4]	1.143*** (0.337)	0.913*** (0.343)	1.083*** (0.342)	0.872** (0.358)	0.182* (0.098)	0.162 (0.106)
Population of the city 2K-50K[4]	0.360** (0.145)	0.428*** (0.140)	0.413*** (0.142)	0.469*** (0.138)	0.087 (0.065)	0.185*** (0.070)
Population of the city up to 2K[4]	1.139*** (0.297)	1.403*** (0.291)	1.093*** (0.285)	1.427*** (0.283)	0.328*** (0.120)	0.269** (0.130)
Married	-0.430** (0.185)	-0.726*** (0.181)	-0.532*** (0.159)	-0.743*** (0.160)		
The effect variable[5]	**0.529** (0.217)	**0.540** (0.213)	**0.483** (0.196)	**0.536*** (0.195)	**0.462** (0.236)	**0.536** (0.240)
Average marginal effect	**0.125*** (0.044)	**0.140*** (0.048)	**0.127*** (0.046)	**0.149*** (0.048)	**0.111** (0.049)	**0.139*** (0.053)
Number of observations pseudo R[2]	1,130 0.078	1,130 0.094	1,276 0.091	1,276 0.112	6,419 0.252	6,419 0.302

* p<0.1 ** p<0.05 *** p<0.01. The standard errors in parentheses are standardized for repeated samples. The observations are weighted on the basis of the CBS weighting coefficient.

1   The last educational institution attended by a member of the household in the relevant year is a *yeshiva*.

2   Ultra-Orthodox according to the narrow definition, or where the household is located in one of the core ultra-Orthodox cities.

3   Jewish married men.

4   Relative to residents of Jerusalem, Tel Aviv and Haifa.

5   In the regular model (columns 1–4) the effect variable is the interaction of the variables "after the law" (2005) multiplied by the treatment group (aged 25–29). In the triple model (columns 5–6) it is the interaction of the variables: "after the law" multiplied by the treatment group multiplied by ultra-Orthodox (expanded definition).

Other variables: the dummy variables "after the law" and the treatment group. The triple model also includes years of schooling and the following dummy variables: ultra-Orthodox, "after the law" multiplied by the treatment group, ultra-Orthodox multiplied by the treatment group, and also ultra-Orthodox multiplied by "after the law".

The results obtained are similar between the various models. It was found that the average effect of the Tal Law on labor force participation is 14-15 percentage points, and on employment it is 11–13 percentage points. This implies that the Tal Law increased the probability of ultra-Orthodox participation in the labor force by 14–15 percentage points, and the probability of them being employed by 11–13 percentage points.

c. The cut in the child allowance

As mentioned in Paragraph 5a, the data indicate that among men aged 30–39 labor supply did not increase significantly during the period after the cut in the child allowance, and in part of the period there was even a moderate decline. The increase in labor supply primarily among the 25–29 age group, with no significant change among the older group, indicates that it was due to the Tal Law. While reforms such as the cut in the child allowance have an effect on all age groups, the Tal Law was meant to affect the labor supply only of the younger individuals, since it made employment more worthwhile only for them. An additional finding is the positive relationship between the size of the child allowance and employment found by Toledano et al. (2009) only among ultra-Orthodox men and women.[34] As mentioned, these findings are reasonable if the cut in the child allowance did not have a significant effect on the labor supply of ultra-Orthodox men, since it did not change the price of entering the labor force. (It may be that other events offset the small effect of the child allowance.)

In any case, even if the cut in the child allowance had a significant effect on labor supply, and if indeed the effect of the cut was greater among younger individuals, we would expect that the labor supply among the 30–34 age group (the reference group) would increase more than among the 35–39 age group. These two groups experienced the cut in the child allowance with different intensities, but were hardly affected by the Tal Law.[35]

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[34] Their research used a large database, based on administrative sources.

[35] For example, about 56 percent of the ultra-Orthodox men in the 35–39 age group have five or more children, as compared to about 36 percent of the 30–34 age group.

However, as can be seen in Figure 2, after the cut, labor force participation increased among the 35–39 age group relative to the labor force participation of the 30–34 age group, which contradicts the claim that the effect of the cut should be larger among younger individuals.

This test was broadened by estimating the difference-in-differences equation in which the treatment group includes ultra-Orthodox men aged 30–34 (the original reference group) and the reference group includes men aged 35–39. If the cut in the child allowance had a strong positive effect on younger individuals, we would expect that the coefficient of the effect in this difference-in-differences equation will be positive. The estimation results show that the coefficient of the effect in this equation is negative and not significant (Table 4). This estimation therefore supports the hypothesis that the effect of the cut in the child allowance is not larger among younger individuals, and it therefore supports the hypothesis that the estimated positive effect was due to the Tal Law rather than the cut in the child allowance.

Table 4

Test of the model's assumption: difference-in-differences estimates of the effect on labor supply – the 30–34 age group (treatment group) vs. the 35–39 age group (reference group) in the years 2002 and 2005[4]

	(1)	(2)	(3)	(4)	(5)	(6)
	Ultra-Orthodox according to narrow definition[1]		Ultra-Orthodox according to expanded definition[2]		Ultra-Orthodox men whose last educational institution attended is a *yeshiva*[3]	
Dependent variable	Employed	Labor force participant	Employed	Labor force participant	Employed	Labor force participant
All individuals						
	0.023-	0.083-	0.065-	-0.117	0.053-	0.078-
	(0.077)	(0.084)	(0.077)	(0.080)	(0.079)	(0.083)
# observations	790	790	923	923	673	673
Among native Israelis only						
	0.157-	0.129-	0.088-	0.160-	0.086-	0.115-
	(0.090)	(0.096)	(0.087)	(0.091)	(0.091)	(0.095)
# observations	668	668	763	763	570	570

The standard errors in parentheses are standardized for repeated samples.

[1] The last educational institution attended by a member of the household in the relevant year is a *yeshiva*.

[2] Ultra-Orthodox according to the narrow definition, or where the household is located in one of the core ultra-Orthodox cities.

[3] Men who reported that the last educational institution they attended is a *yeshiva*.

[4] The effect variable is the interaction between the variables: "after the law" (2005) multiplied by aged 30–34.

Other variables: number of children, age, age squared, years of schooling, married, size of the city, and dummy variables for the period after the Tal Law went into effect and the 30–34 age group. The difference-in-differences is defined as the average marginal effect among the 30–34 age group in 2005, standardized using the Central Bureau of Statistics weighing coefficient.

It is possible to further test the effect of the cut in the child allowance by examining the changes that occurred over time in the labor force participation rate in the various age groups. The reduction in discounted income from the child allowance that was experienced by the younger individuals was, as mentioned, higher than that experienced by the older individuals, since the older individuals benefited from the child allowance prior to the cut and because the reduction in the size of the child allowance for children born before the cut was more moderate. Therefore, it can be argued that the effect of the cut on the increase in labor force participation will be significantly higher among the younger individuals (for further discussion, see Section 4d).

But if this claim is correct, we would expect that when the members of the younger group grow older and join the 30–34 age group their labor supply will be higher than that of the men who were in the 30–34 age group in the period prior to the cut, since it is unreasonable that the effect of the cut in the child allowance on labor supply was reflected only in the reduction of the age of entry into the labor force and not in the growth of the labor supply in every age group. Therefore, it is possible to check this claim by testing the labor force participation in the 30–34 age group over time. If the positive effect on the labor force participation rate of the younger individuals is not due to the Tal Law but rather to the cut in the child allowance, then we would expect that the participation rate of the 30–34 age group will rise over time.

On the other hand, among men under the age of 30, during the first period after the cut, the drop in discounted income from the child allowance as a result of the cut is relatively similar in the various cohorts. Therefore, there is no expectation that over time, the increase in the participation rate among the 25–29 age group as a result of the cut will be higher than in the 30–34 age group.[36] If the relative increase in labor force participation in the 25–29 age group was not due to the Tal Law but rather the cut in the child allowance, we would expect that over time the gap in the labor force participation rate between the 30–34 and 25–29 age groups would gradually resume its increase.

However, the data indicate that in every period after the cut the labor supply in the 30–34 age group did not increase, apart from a sharp increase in 2006. Furthermore, the difference in the labor force participation rate between the 25–29 age group and the 30–34

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[36] Almost 70 percent of the men in the 25–29 age group did not benefit from the old child allowance, and even for those who did it was only for a short time. The cut was felt primarily among families that had three or more children, since the child allowance for the first and second child was reduced by only NIS 50 per month. For the third child, the child allowance for children born after the cut was reduced by NIS 50, while the child allowance for children born before the cut was reduced by NIS 200. For the fourth and subsequent children the gaps are even larger. The data indicate that in 2002 only 21 percent of the men in the 25–29 age group had three children, and 11 percent had three children or more (in contrast to the 30–34 age group, in which 14 percent had three children and 60 percent had more than three).

age group remains constant even in the period of a diminishing gap in discounted income from the child allowance between the two groups.

The findings therefore indicate that the cut in the child allowance did not have a significant effect on the labor supply of ultra-Orthodox men, and even when there was a small effect it was not stronger among the younger men (under the age of 40). This implies that the cut in the child allowance did not shift the estimated effect of the Tal Law upward. Nonetheless, the hypothesis cannot be ruled out that the cut in the child allowance served as a catalyst for the incentive created by the Tal Law, and that due to its influence the Tal Law worked mainly to lower the age of entry into the labor force among the younger group, but did not increase the participation rate for the over-30 age group over time (see below).

6.   TESTS OF ROBUSTNESS AND THE VALIDITY OF THE MODEL'S ASSUMPTION

a. The estimation of the effect on various groups

In order to test the consistency of the estimation results and to what extent they change with sociodemographic characteristics, the effect of the Tal Law was estimated among the following subgroups: married men, men with up to four children, men who are native Israelis, and men whose last educational institution attended is a *yeshiva*. Table 5 presents the average effect for these subgroups. The estimation results for the various subgroups were found to be consistent and very similar to the results of the regular model, particularly for the models in which the ultra-Orthodox are identified according to the narrow definition.

Table 5

Difference-in-difference estimates (average marginal effect) – effect of the Tal Law on labor supply for various subgroups among men aged 25–34 in the years 2002 and 2004[4]

Dependent variable	(1) Ultra-Orthodox by narrow defintion[1]	(2)	(3) Ultra-Orthodox by expanded definition[2]	(4)	(5) Ultra-Orthodox whose last educational institution is a *yeshiva*[3]	(6)
	Employed	Labor force participant	Employed	Labor force participant	Employed	Labor force participant
Regular model (Table 3)						
	0.125***	0.140***	0.127***	0.149***	0.108***	0.140***
	(0.044)	(0.048)	(0.046)	(0.048)	(0.040)	(0.044)
# observations	1,130	1,130	1,276	1,276	953	953
Married only						
	0.125***	0.140***	0.110**	0.135***	0.108***	0.140***
	(0.044)	(0.048)	(0.044)	(0.047)	(0.040)	(0.044)
# observations	1,003	1,003	1,103	1,103	898	898
Among parents with up to 4 children						
	0.123**	0.137**	0.120**	0.145***	0.103**	0.128**
	(0.051)	(0.057)	(0.054)	(0.056)	(0.048)	(0.054)
# observations	905	905	1,042	1,042	746	746
Among native Israelis						
	0.126***	0.141***	0.141***	0.159***	0.114**	0.152***
	(0.048)	(0.053)	(0.050)	(0.052)	(0.045)	(0.049)
# observations	953	953	1,062	1,062	807	807

*p<0.1 ** p<0.05 *** p<0.01.

The standard errors in parentheses are standardized for repeated samples.

[1]   The last educational institution attended by a member of the household in the relevant year is a *yeshiva*.

[2]   Ultra-Orthodox according to the narrow definition, or where the household is located in one of the core ultra-Orthodox cities.

[3]   Men who reported that the last educational institution they attended is a *yeshiva*.

Variables: number of children, age, age squared, years of schooling, married, size of the city, and dummy variables for the period after the law (2005) and for the treatment group (24–29 age group). The difference-in-differences is defined as the average marginal effect on the treatment group in 2005 standardized by the Central Bureau of Statistics weighting coefficient.

b. Estimation of the dynamic model

Table 6 presents the estimation results for the multi-period model, which tests the difference-in-differences over time before the intervention and afterwards. The dynamic model presents a series of effect coefficients for each of the years investigated (Equation 4). The dynamic model is estimated, as mentioned, for the period after the law went into effect and for the period prior to that. For the period after the law went into effect, we will test the change in the law's effect over time. In contrast, for the period before the law went into effect we will test the main assumption that without the intervention the time trend would be fixed for the treatment group and the reference group.

The law went into effect in February 2003. Therefore, the year 2002 is defined as the base year in the model and all of the model's values relate to changes starting from that year. From an examination of the components of the dynamic model that test the effect after 2002, it is not possible to unambiguously determine the year in which the Tal Law first had a positive effect on employment. The data appear to indicate that the law began to have an effect on employment in 2004, but its main effect was in 2005. In the years 2005–6, the difference-in-differences that was obtained is not significant in some of the models (as will be described below), and in 2009 it was low and not significant in all of them (perhaps due to the economic crisis). In the years 2010–11, which were years of recovery from the crisis, the difference-in-differences that was obtained is similar to that for the year 2005.

In the years 2006–8, as mentioned, the difference-in-differences was somewhat lower than in 2005. The difference-in-differences in the rate of employment ranges from 8.4 to 13.6 percentage points and was significant in most of the specifications.[37] In the case of labor force participation, in the triple model (which compares the changes between ultra-Orthodox and non-ultra-Orthodox), the difference was significant during the entire period (10.2 to 16.7 percentage points), while in the models that include only the ultra-Orthodox, the results were not significant. This decline might have been due to a specific increase in labor supply among the 30–34 age group, or due to the weakening of the effect of the Tal Law. It is possible that at least two factors could have increased labor supply in the 30–34 age group: First, as mentioned in Section 2(1), in June 2004 the condition restricting eligibility for a stipend for *kollel* students to individuals with the status of fulltime *yeshiva* students continuously from age 31 and onward was cancelled. If this revision had a positive effect, and if the main effect was felt starting from 2006, it might have led to a smaller difference-in-differences by means of an increase in the supply of labor in the 30–34 age group. In any case, even if the cause is a decrease in the effect of the Tal Law, the fact that the difference-in-differences obtained is significant in most of the years indicates that overall, its effect is positive, even if less so than in 2005.

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[37] Apart from 2008 in the model of ultra-Orthodox according to the expanded definition.

Table 6
The dynamic model – difference-in-differences estimates of the effect on labor supply for men in the 25–34 age group during the years 1999–2011

	(1)	(2)	(3)	(4)	(5)	(6)
	Ultra-Orthodox by narrow defintion[1]		Ultra-Orthodox by expanded definition[2]		Married Jews (triple model)[3]	
Dependent variable	Employed	Labor force participant	Employed	Labor force participant	Employed	Labor force participant
1999	0.050 (0.052)	0.029 (0.061)	0.082 (0.056)	0.075 (0.061)	0.058 (0.059)	0.083 (0.063)
2000	0.074 (0.057)	0.045 (0.065)	0.069 (0.060)	0.056 (0.065)	0.007 (0.077)	0.016 (0.080)
2001	0.019 (0.049)	-0.023 (0.055)	0.016 (0.051)	-0.008 (0.054)	0.012 (0.060)	0.005 (0.063)
2003	0.008 (0.046)	0.009 (0.050)	-0.001 (0.047)	0.003 (0.050)	0.019 (0.050)	0.040 (0.052)
2004	0.114*** (0.043)	0.086 (0.053)	0.123*** (0.046)	0.111** (0.053)	0.085 (0.054)	0.078 (0.061)
2005	0.125*** (0.044)	0.128*** (0.050)	0.127*** (0.046)	0.138*** (0.049)	0.115** (0.048)	0.141*** (0.051)
2006	0.101** (0.049)	0.071 (0.056)	0.084* (0.050)	0.064 (0.055)	0.088* (0.052)	0.102* (0.055)
2007	0.100** (0.047)	0.066 (0.054)	0.088* (0.048)	0.069 (0.053)	0.103** (0.044)	0.119** (0.047)
2008	0.103** (0.052)	0.075 (0.057)	0.084 (0.056)	0.070 (0.057)	0.096* (0.050)	0.125*** (0.046)
2009	0.067 (0.049)	0.048 (0.055)	0.049 (0.049)	0.044 (0.053)	0.001 (0.061)	0.027 (0.062)
2010	0.142*** (0.051)	0.144** (0.058)	0.136*** (0.051)	0.159*** (0.055)	0.096 (0.064)	0.145** (0.063)
2011	0.121** (0.054)	0.118** (0.059)	0.096* (0.054)	0.112** (0.056)	0.121** (0.057)	0.167*** (0.055)
# observations	7,567	7,567	8,253	8,253	40,441	40,441

*p<0.1 ** p<0.05 *** p<0.01
The standard errors in parentheses are standardized for repeated samples.

[1]   The last educational institution attended by a member of the household in the relevant year is a *yeshiva*.

[2]   Ultra-Orthodox according to the narrow definition, or where the household is located in one of the core ultra-Orthodox cities.

[3]   Married Jewish men.

Variables: number of children, age, age squared, years of schooling, married, size of the city, and dummy variables for each of the years and the treatment group (25–29 age group). In the triple model, years of schooling and the following dummy variables were added: ultra-Orthodox (expanded definition), year multiplied by treatment group, ultra-Orthodox multiplied by treatment group, year multiplied by ultra-Orthodox. The difference-in-differences is defined as the average marginal effect among the treatment group in a given year, which is standardized using the Central Bureau of Statistics weighting coefficient.

In the dynamic model, the coefficients of the effect for the period prior to the intervention are of central importance. According to the assumptions of the model, we should observe that the coefficients of the effect are not significant during the years prior to the intervention. Therefore, it is possible to use them to test the assumption that in the absence of the intervention the changes in the characteristics of employment in the reference group and the treatment group would be similar. According to the results, although the estimated coefficients indicate a positive gap until 2003, they are not significant, which validates the model's assumptions.

c. Estimation of a placebo model

The main assumption required in a difference-in-differences model is that in the absence of an intervention, the changes over time in the treatment group and in the reference group are identical. In other words, if the Tal Law had not been implemented, the differences over time in employment characteristics between the treatment group and the reference group would have remained fixed. This assumption cannot be verified with certainty. Nonetheless, this section will strengthen the assumption of the model by examining the changes in labor supply in the years before the law went into effect.

The assumption of the model is, as mentioned, that without the intervention the treatment and reference groups behave similarly. Another way of testing the assumption of the model is to estimate the regular difference-in-differences model for the periods in which there was no intervention (dummy periods). According to the assumption of the model, we expect that the changes in labor supply in the treatment group and in the reference group in these periods will be similar. To this end, the difference-in-differences equation was estimated for a series of 11 different periods. The treatment group, the reference group and the time between the base year and the year of the effect were defined as in the main estimation: the treatment group is the 25–29 age group, the reference group is the 30–34 age group and a window of three years between the base year and the effect year was tested. The period for which the difference-in-differences equation was estimated begins in 2001 with the comparison to 1998, continues with the comparison of 2005 to 2002 (the period being studied), and ends with the comparison of 2011 to 2008. The equations estimated the probability of being employed and the probability of participating in the labor force, while using the narrow definition for identifying the ultra-Orthodox. The estimate results, which are presented in Figure 3, are similar to those of the dynamic model. The difference-in-differences is in the vicinity of zero for the following comparisons: 2001 to

1998, 2002 to 1999 and 2003 to 2000. As in the dynamic model, the break point in the time trend occurred in 2004. These results strengthen the assumption that without the intervention the treatment group and the reference group would have behaved similarly.

Figure 3
Placebo Model: Estimated Difference-in-Differences for 11 Different Periods in 3 Different Time Windows
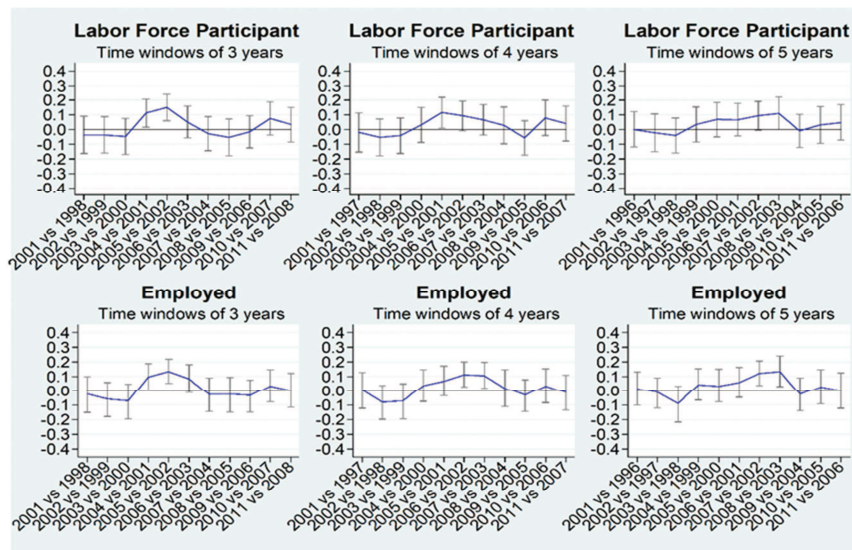
A repeat estimation of the difference-in-differences equations for a number of periods. The treatment group (Aged 25–29) and the comparison group (aged 30-34) are fixed for all periods. The Figure presents the average effect and the reference space for equivalized errors for repeat samples. The variables: number of children, age, age squared, years of schooling, married, size of locality, residential area, and dummy variables for the treatment group and for the last year in the estimation. The difference-in-differences is defined as the average marginal effect among the treatment group in the last year, which is equivalized by the Central Bureau of Statistics weighting coefficient.
The estimation includes ultra-Orthodox Jews by the narrow definition (the last educational institution in which one of the household members in the relevant year studied is a *yeshiva*).

These models were also estimated for time windows of four and five years. Up to 2004, the difference-in-differences in these models is in the vicinity of zero, while in the year 2005 compared to 2001 and 2006 compared to 2002 the difference-in-differences is statistically significant and is about 10 percentage points. Similar results were obtained in the comparison of 2007 to 2002 and 2008 to 2003. These findings raise the possibility that the definition of the time window may be affecting the results, such that the estimated effect in the basic model may be somewhat higher than it really is (14 percentage points as opposed to 10 percentage points). In any case, it is possible to explain the relatively small effect in the models with large time windows and the downward bias caused by the reform

that allowed individuals aged 31 and older to leave the *kollel* without losing their future eligibility for support (Section 2b(1)). This reform went into effect in August 2004, as mentioned, and it is possible that it had a positive effect in the years 2006 and 2007.

7. CONCLUSIONS AND DISCUSSION

The study tested, for the first time, the effect of the Tal Law on the participation of ultra-Orthodox men of draft age in the labor force. The findings indicate that the Tal Law had a large positive effect on the labor supply of ultra-Orthodox men aged 25–29. The probability of being employed and participating in the labor force increased among this group by 10–15 percentage points relative to ultra-Orthodox men aged 30–34, who were almost unaffected by the law.

The data indicate that this relative increase in employment in the 25–29 age group is maintained to a large extent during the years after the Tal Law went into effect (tested up to 2011). In all those years, there was no major change in labor supply in either the 25–29 age group or in the 30–34 age group. The results imply that the Tal Law had a permanent effect on lowering the age of entry into the labor force and that it had no effect on the employment of men aged 30 or older, including those who were affected by the law when they were younger.

The study empirically tested the counterclaim that the increase in labor force participation among men aged 25–29 was not a result of the Tal Law but rather of the cut in the child allowance. According to the results, if the cut in the child allowance had an effect, then it was small and was not larger among younger men (under the age of 40). These results strengthen the claim that the cut in the child allowance did not upwardly bias the estimated effect of the Tal Law. However, it is not possible to rule out the possibility that the cut in the child allowance served as a catalyst for the incentive created by the Tal Law, and that due to it, the response to the Tal Law was relatively rapid.

The Tal Law enabled ultra-Orthodox men, for the first time, to report that they are working without being drafted. Therefore, one cannot rule out the assumption that the increase in the indices of labor force participation and employment that was recorded as a result of the Tal Law was in fact due to the increase in the rate of employment in reported work, which, without the Tal Law, would not have been declared in the Central Bureau of Statistics surveys. In any case, the very fact that employment is being reported—if it is accompanied by reporting to the tax authorities—is important (for instance, through Income Tax and National Insurance revenues and pension savings).

The findings support the claim that the removal of negative incentives may encourage ultra-Orthodox men to join the labor force and can therefore contribute to the formulation of policy for the integration of ultra-Orthodox men in the labor force. These negative incentives include the requirement to give up income from labor in exchange for a deferral of military service, which is analogous to a tax on labor income, and an array of stipends

and benefits (such as stipends for *kollel* students and discounts that do not require any exploitation of earning power), which are conditioned on a lack or low level of labor income and also act like a tax.

This research did not examine the effects of the various components of the Tal Law on labor supply. Furthermore, the question of the effect of the Tal Law on the average period of studies in a *yeshiva* was not examined. The findings suggest that the effect of the Tal Law on labor force participation was summed up in the reduction of the age of entry into the labor force, but this issue requires a more in-depth analysis.

Appendix

Figure A1
Labor Force Participation Rate for the 25-29 and 30-34 Age Groups
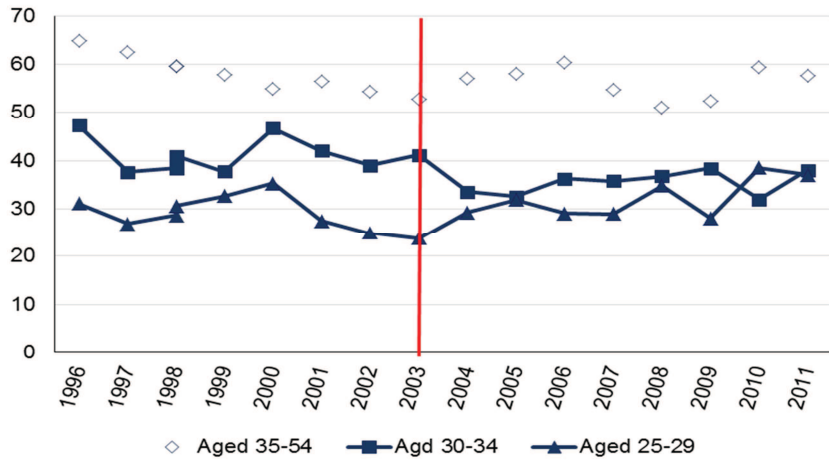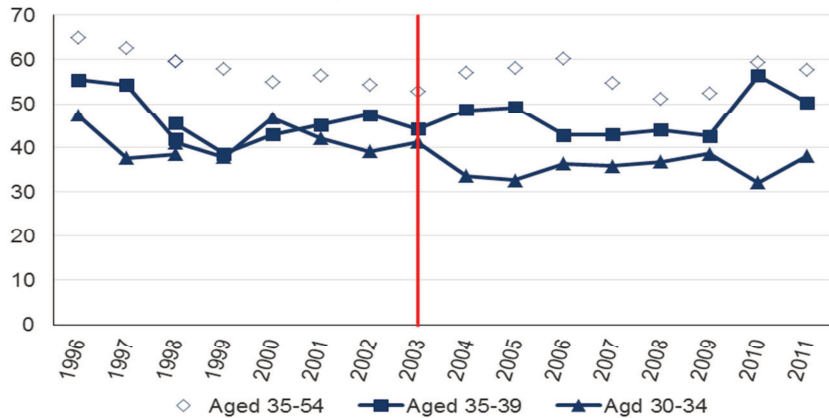(Ultra-Orthodox, broad definition)

◇ Aged 35-54 ■ Agd 30-34 ▲ Aged 25-29

Figure A2
Labor Force Participation Rate for the 30-34 and 35-39 Age Groups
(Ultra-Orthodox, broad definition)

◇ Aged 35-54 ■ Aged 35-39 ▲ Agd 30-34

Subjects are defined as ultra-Orthodox under the expanded definition if the last educational institution attended by a member of the household during the relevant year is a *yeshiva*, or if the household is located in one of the core ultra-Orthodox cities. Treatment group: ultra-Orthodox men aged 25–29 who were affected by the Tal Law. Reference group: ultra-Orthodox men aged 30–34 who were virtually unaffected by the Tal Law. The lack of continuity in the data for 1998: In 1998, the methods of sampling and extrapolation were changed.
Source: Calculated from Labor Force Survey data. The observations were weighted according to the Central Bureau of Statistics weighting coefficients.

REFERENCES

In Hebrew:

Almasy, Oriana (2012), *Implementation of the Law Delaying Service for Yeshiva Students in Full-Time Torah Study (The Tal Law)*, Knesset Research and Information Center.

Bank of Israel (2011), *Annual Report for 2010*, Chapter 5 "The Labor Market".

Bank of Israel (2012), *Annual Report for 2011*, Chapter 5 "The Labor Market".

Ben-Bassat, Avraham, Momi Dahan and Mordechai Kremnitzer (2013), *Ultra-Orthodox to the IDF*, Agenda Proposal number 4, Israel Democracy Institute, Jerusalem.

Berman, Eli (2000), "Subsidized Sacrifice: The State's Support of Religion in Israel", *Economic Quarterly* 48: 115–192.

Brender, Adi, Osnat Peled-Levi and Nitza Kassir (Kliner) (2002), "Government Policy and the Labor Force Participation Rate of the Prime Working Age Population—Israel and the OECD Countries in the 1990s", Discussion Papers Series 2002.02, Bank of Israel Research Department.

Collection of Articles (2004), *Tests of Distribution of Money for Ministry of Education and Sport Support of Public Institutions*, Number 5317, Page 3498.

Court proceedings (2004), *State of Israel v Zecharia Ohev Shalom and David Cohen*, CF 007526/99, Be'er Sheva Magistrate's Court. Ruling handed down in June 2004.

Dahan, Momi (1998), *The Ultra-Orthodox Population and the Local Authority. Part A: Smoothing of Income in Jerusalem*, Jerusalem Institute for Israel Studies.

Ekstein, Zvi, et al. (2010), *Final Report of the Committee to Examine Employment Policy*, Ministry of Industry, Trade and Labor.

Elran, Meir and Yehuda Ben-Meir (2012), *Recruiting the Ultra-Orthodox into the IDF – Renewal of the 'Tal Law'*, Memorandum number 119, National Security Research Institute.

Friedman, Menahem (1991), *Ultra-Orthodox Society: Sources, Trends and Processes*, Jerusalem Institute for Israel Studies.

Gonen, Amiram (2000), *Between Studying Torah and Livelihood: A Society of Learners and Earners in London*, Floersheimer Institute for Policy Studies.

Gonen, Amiram (2005), *From Yeshiva to Work: The American Experience and Lessons for Israel*, Floersheimer Institute for Policy Studies.

Gottlieb, Daniel (2007), *Poverty and Labor Market Behavior in Ultra-Orthodox Society*, Van-Leer Jerusalem Institute.

Gottlieb, Daniel and Esther Toledano (2011), *Employment Composition by Population Groups in Israel in the 2000s*, National Insurance Institute, Research and Planning Administration.

Kahonai, Sami (2004), *Integration of the Ultra-Orthodox Sector in the Labor Market: Situation and Significance*, Knesset Research and Information Center.

Levin, Hagai (2009), *The Ultra-Orthodox Sector in Israel: Empowerment Through Employment Integration*, National Economic Council, Jerusalem.

Levin, Hagai and Roni Cohen (2010), *Methods of Identification and Quantitative Characterization of the Ultra-Orthodox Sector*, National Economic Council, Jerusalem.

Ophir, Michal and Tami Eliav (2005), *Child Allowances in Israel: A Historic Perspective and International View*, National Insurance Institute, Research and Planning Administration.

Pepperman, Benny and Asaf Malhi (2010), *Employment Characteristics in the Ultra-Orthodox Sector and Government Assistance Tools for Advancing Employment in This Sector*, Ministry of Industry, Trade and Labor, Research and Economics Administration.

Rosenberg, Yaakov (2001), "The Club Model and the Ultra-Orthodox Community", *Economic Quarterly*, 48: 106–120.

Sefer HaHukim (2002), *Delaying Service for Yeshiva Students in Full Time Torah Study Law*, August 2002, Number 1862, p. 521.

Sefer HaHukim (2003), *Amendment to the Delaying Service for Yeshiva Students in Full Time Torah Study Law*, June 2003, Number 1892, p. 494.

Supreme Court of Israel (2012), *Yehuda Ressler et al. v The Knesset, Minister of Defense et al.* File 6298/07. Ruling handed down in April 2012.

Tal, Zvi et al. (2000), *Report of the Committee to Formulate the Appropriate Arrangement Regarding the Enlistment of Yeshiva Students*, Jerusalem.

Toledano, Esther, Noam Zusman, Roni Frish and Daniel Gottlieb (2009), *The Effect of Child Allowance Levels on Birth Rates*, Studies, 101, National Insurance Institute, Research and Planning Administration.

Trajtenberg, Manuel et al. (2011), *Report of the Committee for Economic and Social Change*, Jerusalem.

In English:

Berman, Eli (2000), "Sect, Subsidy, and Sacrifice: An Economist's View of Ultra-Orthodox Jews", *The Quarterly Journal of Economics* 115(3): 905–953.

Berman, Eli and Ruth Klinov (1997), *Human Capital Investment and Nonparticipation: Evidence from a Sample with Infinite Horizons:(Or, Jewish Father Stops Going to Work)*, Maurice Falk Institute for Economic Research in Israel.

Blundell, Richard, Mike Brewer and Andrew Shephard (2005), "Evaluating the Labour Market Impact of Working Families' Tax Credit using Difference-in-Differences" Institute for Fiscal Studies, HM Revenue and Customs Working Paper 4.

Blundell, Richard, Monica Costa Dias, Costas Meghir and John Reenen (2004), "Evaluating the Employment Impact of a Mandatory Job Search Program", *Journal of the European Economic Association* 2(4): 569–606.

Blundell, Richard and Thomas MaCurdy (1999), "Labor Supply: A Review of Alternative Approaches", Chap. 27, in Orley Ashenfelter and David Card (eds.), *Handbook of Labor Economics*, Vol. 3, 1559–1695: Elsevier.

Brender, Adi and Michel Strawczynski (2006), "Earned Income Tax Credit in Israel: Designing the System to Reflect the Characteristics of Labor Supply and Poverty", *Israel Economic Review* 4(1): 27–58.

Cameron, A. Colin and Pravin K. Trivedi (2005), *Microeconometrics: Methods and Applications*, Cambridge University Press.

Carvalho, Jean-Paul and Mark Koyama (2011), *Development and Religious Polarization: The Emergence of Reform and Ultra-Orthodox Judaism*, Department of Economics, University of Oxford.

Cohen, Alma, Rajeev Dehejia and Dmitri Romanov (2013), "Financial Incentives and Fertility", *Review of Economics and Statistics,* 95(1): 1–20.

Deutsch, Nathaniel (2009), "The Forbidden Fork, the Cell Phone Holocaust, and Other Haredi Encounters with Technology", *Contemporary Jewry*, 29(1): 3–19.

Eissa, Nada and Jeffrey B. Liebman (1996), "Labor Supply Response to the Earned Income Tax Credit", *The Quarterly Journal of Economics*, 111(2): 605–637.

Gottlieb, Daniel and Leonid Kushnir (2009), "Social Policy Targeting and Binary Information Transfer between Surveys", *Economics Discussion Paper* (2009–2019).

Iannaccone, L. R. (1992), "Sacrifice and Stigma: Reducing Free-Riding in Cults, Communes, and Other Collectives", *Journal of Political Economy*, 100(2): 271–291.

Moffitt, Robert A. (2002), "Welfare Programs and Labor Supply", Chap. 34 in Alan J. Auerbach and Martin Feldstein (eds.) *Handbook of Public Economics*, , Vol. 4, 2393–2430: Elsevier.

Moffitt, Robert A. (2003), "The Negative Income Tax and the Evolution of U.S. Welfare Policy", *The Journal of Economic Perspectives* 17(3): 119–140.

Puhani, Patrick A. (2012), "The Treatment Effect, the Cross Difference, and the Interaction Term in Nonlinear 'Difference-in-Differences' Models", *Economics Letters* 115(1): 85–87.