



Normative or economic behavior? Fertility and women's employment in Israel

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ABSTRACT

Women's employment and childrearing are competing activities, which exert much pressure on their time and energy. Many studies have found that women in paid employment, especially in a demanding career, limit their fertility and have few children or none. This negative correlation was explained mainly in terms of opportunity costs and the incompatibility of women's employment and childrearing. This study focuses on the interplay between women's employment and fertility decisions in Israel, a socially diverse country, characterized by high levels of both fertility and female employment. We argue that in an environment which supports and encourages high fertility women's employment activity is less consequential for family planning. The study analyzes simultaneously the decision to have a third child and the decision to work. The findings show that fertility affects negatively women's work activity, but women's employment has no effect on their decision to have an additional child. Also, cultural variables affect the fertility decision but not economic considerations, while the opposite holds for the work decision.

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1. Introduction

Women's employment and their childrearing are competing activities, which exert much pressure on their time and energy. Many studies have found, accordingly, that women who participate in paid employment, and especially those who pursue a demanding career, limit their fertility and either have relatively few children or none at all (Brewster and Rinfuss, 2000; Budig, 2003; Ekert-Jaffé, 1986; Hakim, 2003; Spain and Bianchi, 1996). In an attempt to explain this negative correlation, economic theory emphasizes the opportunity costs to women, pointing out rational calculations of the costs of having children against opportunities in the labor market. Sociologists, from a similar standpoint, focus on the incompatibility of women's employment with their role in rearing and caring for children (Spain and Bianchi, 1996). Concomitantly, the recent decline in fertility in most industrialized countries was attributed largely to the changing role of women as providers, their improved economic opportunities, and the absence of policies aimed at alleviating the tension between the incompatible demands of work and family.

Recently, however, more emphasis has been given to the role of culture in affecting fertility goals (e.g., Pollak and Cotts-Watkins, 1993) on the one hand, and women's economic activity on the other. Culture, in this sense, affects the set of choices and opportunities available to women, to use Pollak and Cotts-Watkins' terms, and shapes the context within which they make their decisions. In some societies, values and norms dictate women's aspirations on whether to have children, how many, and at what intervals, or whether to join the labor force; the decision is independent of market opportunities and

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“rational choice” calculations. One factor that was found to affect fertility is religion. It had been argued that religion is related to fertility behavior through norms that adhere to specific fertility-related behaviors and fertility expectations; religious organizations that enforce such norms; and group solidarity that places religion as an important source of individual identity (Hayford and Morgan, 2008; McQuillan, 2004). In light of these theoretical contentions, and emphasizing mainly the strength of religiosity, numerous studies document a positive impact of religiosity on fertility, especially through socialization, beliefs and attitudes towards gender roles (Brañas-Garza and Neuman, 2006; Hayford, and Morgan, 2008; Zhang, 2008). Similarly, fertility behavior differs between ethnic groups due to cultural differences regarding family life and gender roles (Andersson, 2004; Goldscheider, 1996).

We focus on the interplay between women's employment and their fertility decisions in Israel. That country was chosen for two main reasons: first, women in Israel are similar to most European and North American women in their employment behavior. However, Israel's level of fertility is higher than in any other industrialized country. The high fertility rate, currently about 2.9 in the total population, and 2.75 among Jews, is partly attributed to cultural values that encourage high fertility and the centrality of the family. In this respect Israel is an interesting setting to test the relationship between work and family decisions. Second, Israel as an immigrant country is socially diverse, in terms of ethnicity and cultural background of different social groups. Moreover, a unique feature of Israel is its religious composition with some groups (especially *haredim*¹) holding more traditional views on family and reproduction but at the same time encouraging women's labor force participation (Friedman, 1991; Sheleg, 2000). In this setting we emphasize the role of culture, in addition to economic considerations per se, in determining the relationship between women's work and their fertility, and argue that in an environment that supports and encourages high fertility, women's employment activity is less consequential for family planning. By analyzing simultaneously childbirth and work decisions we reveal their main determinants and assess the role of culture and economic considerations in shaping women's behavior in each sphere.

2. The interdependence of work and fertility

In the life of women, work and family are considered as competing institutions (Coser, 1974; Walsh, 1995). Due to changes in women's education, market opportunities and gender-role attitudes, women have increased their participation in paid employment. As a result, in many countries the majority of couple-headed families have two providers. However, the change in women's economic roles has not resulted in a dramatic change of the gendered division of labor at home: women are still the main care-takers of children and family duties (Gornick and Meyers, 2003; Stier and Lewin-Epstein, 2007). As a result of the imbalances in care work and the time pressures that both work and family create for women, many women adjust their working lives according to the demands of their family. In other words, women's decisions on whether to work, how much time to allocate to paid work, and which occupation to choose are affected by their care work. At the same time, opportunities available to them in the labor market affect women's family decisions. The postponement in marriage and parenting timing is generally attributed to the rise in women's education and their market orientation (Blossfeld and Huinink, 1988; Oppenheimer, 1997; Taniguchi, 1999). Similarly, the decline in fertility in the Western world, especially during the last three decades, is related to women's changing economic role (Brewster and Rindfuss, 2000; Engelhardt and Prskawetz, 2004).

To explain the relations between work and fertility decisions, economic theory emphasizes the effect of economic considerations on both domains in women's lives (Becker, 1960; Becker and Lewis, 1973; Hotz et al., 1997; Willis, 1973). From this point of view women take account of their own resources, time budget constraint, the costs of children and the opportunities before them in the market when deciding on how many children they would like to raise and whether to participate in paid employment. In explaining fertility decisions, this approach focuses on “income vs. substitution” considerations, arguing that higher wages ease budget constraints [especially child-care payments, (Ekert-Jaffé, 1986)] and allow a rise in the number and quality of children: this is the “income effect” on fertility decisions. Women's work, however, affects the number of children negatively, because child care is time costly, and while rearing children women cannot earn money (substitution effect). While women who participate in paid employment contribute to a rise in their family income (hence can afford to have more children), at the same time they must limit their fertility because of forgone earnings while the children demand more of their time, and because career interruptions, associated with having children, adversely affect their long-term achievements in the market (Becker 1965, 1981; Mincer, 1963). In the latter case, the substitution effect dominates the income effect, especially among women with higher wages who carry higher opportunity costs (Ekert-Jaffé et al., 2002). Because of the inherent tension between income and substitution effects, empirical evidence at the micro-level is not clear. Some studies support the notion that individual income affects fertility decisions, while others do not (DiPrete et al., 2003).

From this point of view, education is an important resource for women in the labor market, and as such is expected to affect their fertility too. Women's work decisions depend on their educational level because women take into account their opportunity costs, that is, their forgone earnings while staying at home. Accordingly, higher education, which is translated into higher reservation wages, is expected to have a strong positive effect on women's labor force participation. This argument gained empirical support in the numerous studies that analyzed the determinants of women's employment activity

¹ Haredim are highly orthodox Jews among whom a sizable share of men devotes their life to full time Talmudic Studies.

(e.g., Spain and Bianchi, 1996; Cohen and Bianchi, 1999; Gornick et al., 1998; Van der Lippe and van Dijk, 2002). At the same time, because education increases women's opportunity costs, it depresses the quantity of children (Becker, 1981; Cigno and Ermish, 1989; Ekert-Jaffé et al., 2002; Willis, 1973). As many studies demonstrate, this is because the main obstacle to women's employment, especially continuous employment, is the presence of pre-school children (see Budig, 2003; Stier et al., 2001; Uunk et al., 2005). Consequently, a negative effect of both education (as a proxy for income) and of women's work activity on women's fertility is expected.

In recent years, growing attention has been paid to issues of work–family integration and to the inter-correlation between employment and fertility decisions (Ahn and Mira, 2002; Brewster and Rinfuss, 2000; Del Boca and Locatelli, 2006; Ekert-Jaffé et al., 2002; McDonald, 2000; Morgan, 2003; Pampel, 2001). Recent studies have shown that policies aimed at supporting women's employment are successful in alleviating the tension between home demands and market activity (Gornick et al., 1998; Gornick and Meyers, 2003; Mandel and Semyonov, 2005; Neyer, 2003; Stier et al., 2001). Gornick et al. (1998), for example, demonstrated that in countries that support women's employment the presence of pre-school children is less of an obstacle to their mothers' economic activity. Similarly, Stier et al. (2001) showed that in supportive settings women can maintain continuous employment when the children are young. In such cases, mothers of young children can earn higher incomes.

From a similar point of view, DiPrete et al. (2003) argued that countries (through different policies and arrangements) can lower the costs of children, thereby allowing women to increase their fertility. Such arrangements directly exert an effect on the monetary costs of children, but also indirectly, by influencing the compatibility of work and family demands on women's time. Their findings also imply that factors other than economic considerations affect women's employment and their fertility levels (e.g., perceived conflict between home and work demands).

The general pattern of rational considerations in work and fertility decisions may not apply to all social groups. Factors other than economic considerations may affect fertility decisions and the relationship between employment (hence income) and fertility (Hammel, 1990; Hakim, 2003; Pollak and Cotts-Watkins, 1993). In particular, cultural norms may affect fertility aspirations; institutional arrangements and structural attributes of the labor market may facilitate mothers' employment and thus weakening the relationship between fertility and work; and family (mainly pro-natalist) policy may enhance the desirability of children (Ekert-Jaffé, 1986). In a recent article Hakim (2003) argues that what determines women's fertility decisions are their lifestyle preferences. Home-centered women, even if they participate in paid employment, are likely to have more children than women who are interested mainly in employment. This can be facilitated by working on a part-time basis or in less demanding occupations. While Hakim's explanation centers on individual preferences, we contend that the cultural context within which women make their employment and fertility decisions shapes these preferences and affects the extent to which employment considerations are perceived to interfere with family building.

In this paper, we argue that much like work decisions, family decisions are context-dependent. While technically women and men are free to choose whether they want a family, and whether and how many children they would like to raise, the choice is embedded in culture, ideologies, social norms, and to some extent social policies. Such norms, we contend, also affect the relationship between work and fertility. We use Israel as a case study that exemplifies how culture and ideology shape the relationship between women's work and family patterns. We argue that independent of market opportunities, policies, and even individual orientations, a cultural environment that encourages both employment and family formation may reduce the need to make a choice between the two. Next we review the cultural bases of women's choices in Israel and the mechanisms that both compel and allow them to “have it all”: family (and children) together with employment.

3. The Israeli context

Israel is an industrialized country which resembles most western European and North American countries in many respects. The work pattern of Jewish women and the problems they face as mothers and workers are similar to what has been found in many other countries (Kraus, 2002). For example, of all Jewish women aged between 25 and 54, 80% participate in the labor force, a rate that has risen dramatically in the last three decades. The figures are only slightly lower among mothers (Israel, 2007). As in many European countries, policies in Israel have been implemented to allow the incorporation of women into paid employment. These include 14 weeks of fully paid maternity leave, now broadened to include fathers as well, different arrangements for unpaid paternity leave, a variety of public and private (partly subsidized) day-care facilities which accommodate more than 75 percent of children age 2–5 (more than 90 percent at ages 4 or 5) (Israel, 2007), and laws which enhance gender equality in the labor market (Stier et al., 2001). In addition, part-time employment is well protected and available in professional as well as non-professional jobs, and several occupations, especially in education, offer full-time short-hour jobs (Kraus, 2002; Stier, 1998). Part-time work, indeed, is prevalent among women: about a third of all working women hold part-time jobs and another 10% are employed in full-time jobs with short hours. It is also important to note that about half of all working women are employed by the state, in occupations where work regulations are closely followed. Women employed in this sector are more likely than others to work when they have young children and less likely to interrupt their employment (Okun et al., 2007; Stier and Yaish, 2008). Studies on the work pattern of Israeli women reveal that the majority resume working within a short time of giving birth, and maintain continuous full-time employment when they have young children, at rates similar to those observed in the U.S. and Canada and higher than in Sweden, Norway, the U.K. or Germany (Stier et al., 2001). Israeli women also share similar attitudes to women's employment as women in Europe and North America, and Israel is commonly defined as a “work-oriented” country (Treas and Widmer, 2000).

Yet, while Israeli women seem similar to western European and North American women in their work behavior, they are quite different in their family patterns. Israel is often referred to as a “family oriented” society, in which marriage is universal [about 93% of women aged 40–45 were ever married in 2005 (Israel, 2007)] and although the age of first marriage has risen in the last three or four decades it is still relatively low [24 for all women, 25 for Jewish women in 2005 (Israel, 2007)]; divorce rates [27% of all marriages in 2001 (UNECE, 2003)] are lower than in most Western countries (excluding Ireland, Italy, Greece and Spain), but most important – the fertility level is relatively high and amounts to 2.9 children [2.75 among the Jews (Israel, 2007)]. Concomitantly, the rate of out-of-wedlock birth is extremely low, and fertility aspirations are high (Levin-Epstein et al., 2000).

The high fertility of Jewish women has been attributed to the ethnic and social diversity of the Jewish population (Goldscheider, 1996; Landau, 2003). Mainly, a quarter of all Jews define themselves as religious (or observant) and, according to Jewish tradition which celebrates high fertility, have (and aspire for) large families (Friedlander and Feldmann, 1993; Landau, 2003; Peritz and Baras, 1992). Also, Jews who arrived in Israel from Asian or African countries (first or second generation, comprising about half of the Jewish population) had large families, and while their fertility declined over time they still have more traditional views of family life (Goldscheider, 1996). Fertility is high even among non-traditional groups [e.g., highly educated; Jews from European origin (Goldscheider, 1996; Peritz and Baras, 1992)], partly because the dominant Zionist ideology perceives high fertility as a way to overcome demographic threats (Berkovitch, 1997) or because of the unique history of the Jewish nation (Peres and Katz, 1981). Emphasizing the importance of having large families for the existence of the Jewish majority in the state of Israel, pro-natalist policies were formulated since the 1960s, including child allowances, which until recently increased dramatically with the rise in the number of children (National Insurance Institute, 2005).

A unique feature of Israel is the work behavior of observant women. Unlike women who hold traditional values and have large families, who devote most of their time to family work, or prefer, in Hakim's terms, to concentrate on family life, Jewish religious women take part in providing for their families (Friedman, 1991; Gottlieb, 2007; Sheleg, 2000). This is partly because a large part of *haredi* men refrains from work in the labor market and devotes most of their time to religious studies (Berman and Klinov, 1997; Gottlieb, 2007). While these men are supported by the state and other religious institutions their studies require a regular and non-flexible attendance which is not compatible with work activity or child care. So while observant women are expected to have higher fertility than non-observant, it is not clear whether fertility affects their work patterns in a way different from that of the secular population.

In the Israeli context of high fertility, the rate of childlessness is low and the vast majority of women have at least two children. As Toren (2003) states “giving up motherhood for an occupational career is not an endorsed lifestyle choice for most Israeli women.” (p. 67). Accordingly, only 5% of women aged 40–65 were childless in 2004 and 61% had three children (Stier, 2005). Therefore, our study focuses on the relationship between women's decision to have a third child and the decision to work following the birth of their second child. Focusing on mothers to two children may create a bias since it is plausible to argue that the more career oriented women have fewer children and thus, will not be represented in the study (see for example Kravdal, 2001). However, in the Israeli case, no significant bias is expected since about 90 percent of married women have at least two children (own calculation from the Israeli Social survey 2005) and, at parity one, education affects positively the likelihood of having an additional child (Peritz and Baras, 1992). Our study, then, raises three research questions regarding the relationship between work and fertility among women who already had two children:

- (1) To what extent does women's employment affect their decision to have an additional child?
- (2) What is the effect of fertility on mothers' labor force participation?

We try to assess whether one decision causes the other or whether the two decisions are simultaneously determined.

- (3) Do cultural norms, reflected in religiosity and ethnicity, affect women's work and fertility behavior and the relationship between them, and if they do, in what way?

4. Data and method

We used data obtained from a national survey conducted in the first half of 2001 that studied persons aged 16 or over in a sample of 1203 men and women, of which 1053 were Jewish and 150 were non-Jewish. Each respondent reported her or his own socio-demographic characteristics, current labor force and employment details, and complete marriage, fertility and employment history as well as parental educational and employment details. For the present analysis we selected only Jewish women who mothered at least two children². We excluded Arab women since their cultural context differs considerably from that of the Jews, especially regarding the relationship between work and fertility. From the information on the 347 women included in our study we constructed a person-year file, from the time the woman had her second child until the time she gave birth to her third child or was censored, at age 46 or at the time of the survey. The person file is composed of 2182 observations.

² About 15% of ever-married women in the survey had only one child at the time of the survey. Most of these women were young and recently married. Since, as we argued earlier, most women who form a family in Israel have at least two children we limited the analysis to this group.

The discrete-time analysis was based on bivariate probit within a person-year file. Our dependent variables were the probability of mothers who had two children to have a third, and the probability that they would participate in the labor market. That is, for each year since they gave birth to their second child we indicated whether they worked or not, and whether they had an additional birth. Our models, then, took into consideration the relationship between employment and fertility.

To establish causality, we successively tested the influence of work at time $t - 1$ on fertility at time t – the main focus being fertility; and the influence of fertility at time $t - 1$ on work at time t – where our main objective was to explain women's participation in the labor force.

5. Model specifications

5.1. The problem of endogeneity of work on fertility

When modeling fertility and work decisions, if one decision (say work) is endogenous to the other (say fertility), that is, if work, which enters as a regressor in the fertility equation, by itself depends on fertility, its coefficient can be biased. In this section we explain the endogeneity problem and provide a test of the simultaneity of work in the fertility decision. For simplicity, we do not consider the time process and refer to the decision taken at a fixed time t .

The relationship between fertility and women's labor force participation can be viewed as a general model where the fertility decision is jointly determined with the decision to participate in the labor force. Fertility decision of a mother of $n - 1$ children, i , is modeled as a continuous implicit variable y_{i1}^* that expresses her desire and possibility to have one more child at time t ; this implicit unobservable desire is translated into the observable variable y_{i1} that takes the value 1 if the woman has a child.³

Among the variables that influence fertility, we particularly focus on the desire – or necessity – to work in the market during the year t . The latent variable y_{i2}^* models the decision to work, which is studied in relation to the fertility decision

The general model of the joint decision can be written as:

$$y_{i1}^* = x_{i1}\beta_1 + \alpha d_i + u_{i1} \quad (1)$$

$$y_{i2}^* = x_{i2}\beta_2 + u_{i2} \quad (2)$$

With

$$\begin{pmatrix} u_{i1} \\ u_{i2} \end{pmatrix} \sim N \left[\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} \sigma_{11}^2 & \rho\sigma_{11}\sigma_{21} \\ \rho\sigma_{11}\sigma_{21} & \sigma_{21}^2 \end{pmatrix} \right]$$

the error terms, and x_{i1} , x_{i2} being exogenous to y_{i1}^* and y_{i2}^* .

We only observe the signs y_{i1} and $y_{i2} = d_i$ of the variables y_{i1}^* and y_{i2}^* , and the actual decisions can be written as

$$y_{i1} = \begin{cases} 0 & \text{if } y_{i1}^* \leq 0 \\ 1 & \text{if } y_{i1}^* > 0 \end{cases} \quad y_{i2} = \begin{cases} 0 & \text{if } y_{i2}^* \leq 0 \\ 1 & \text{if } y_{i2}^* > 0 \end{cases}$$

Fertility is equal to zero if the woman has no child at time t and 1 if she gives birth to the n th child. Work is equal to 0 if the woman is out of the labor force and 1 if she is working at time t .

Given Eq. (2), Eq. (1) can be written

$$y_{i1}^* = x_{i1}\beta_1 + \alpha d_i + \rho \frac{\sigma_1}{\sigma_2} (y_{i2}^* - x_{i2}\beta_2) + w_{1i}$$

where the distribution of w_{1i} is normal with a mean of zero and variance equal to $\sigma_1^2(1 - \rho^2)$.

Hence $E(u_{i1}/x_{i1}, y_{i2}) = \rho \frac{\sigma_1}{\sigma_2} (y_{i2}^* - x_{i2}\beta_2) + w_{1i}$. When $\rho \neq 0$, $E(u_{i1}/x_{i1}, y_{i2}) \neq 0$ and estimating the Eq. (1) without taking Eq. (2) into account may lead to biased coefficients ($\alpha + \rho \frac{\sigma_1}{\sigma_2}$ instead of α).

Modeling y_{i1} and y_{i2} as bivariate probit, we obtain the test of $H_0 \rho = 0$ which enables us to test the endogeneity of work activity on fertility: activity is endogenous if ρ is significantly different from zero. In this bivariate model the coefficient α of work in the fertility equation measures the causal impact of work on fertility.

The person-year file allows us to model the instant (annual) risk of giving birth in the proportional duration model, taking into account the duration structure and the right censoring bias (see Courgeau and Lelièvre, 1992). The procedure allows clustering of all observations belonging to the same woman, in order to account for the duration model's error structure. To show the magnitude of the endogeneity bias, we estimate successively separate simple probit models for the probability of mothers who already have two children to have a third child, and bivariate probit models of this probability jointly estimated with the probability that the mothers work. According to this procedure, fertility is explained by a set of exogenous variables and an endogenous variable (work). The work variable, then, is predicted using an equation with a set of explanatory variables, which are assumed to be exogenous to fertility. A similar procedure is applied to women's work decisions: to test the effect of fertility on their decision to participate in paid employment, the work equation includes both exogenous variables and indicators for fertility, while the fertility equation contains only variables that are not correlated to the work decision.

³ For simplicity we do not note the time variable t and the birth order variable n .

5.2. The explanatory variables

We included two main types of exogenous variables to explain work and fertility decisions: economic and cultural indicators. Our major economic indicator was education. According to economic theory, the educational level that serves as a proxy for earning potential is expected to affect positively the decision to work and negatively the decision to have another child. We tested its explanatory power in each of these domains. *Education* was measured as a time-varying covariate taking into account the years of schooling completed at each year. We constructed a three-category variable which differentiates those with less than high school, those who completed high school (as a reference category), and those who completed more than high school education. We also introduced (in the work equation) a measure of women's work experience prior to their second birth to capture work interruptions. A more accurate measure of economic considerations would lead us to include family income and husbands' economic activity. However, given the retrospective nature of the data, income information for specific points of time in the woman's life history was not available. Similarly, no information was provided on husbands' work history. This is a limitation of our study, so results should be taken with caution. It was possible, however, to use the husband's education at the time of the survey for a subset of the sample. We elaborate on this issue later in the text.

To reveal the influence of cultural diversity we introduced a variable which accounted for self-declared *religiosity*: we distinguished observant or strictly observant women from traditional or non-religious respondents. Following prior findings in Israel (e.g. Anson and Avinoam, 1996; Friedlander and Feldman, 1993; Peritz and Baras, 1992) we expected religious women to have higher fertility than non-religious ones, although, as we explained earlier in the text, it was not clear whether they would also have a lower likelihood to work. In addition to religiosity, we distinguished, based on women's country of origin, those born in or originating from Asian or African countries from those born in or originating from European countries. The former were expected to have a higher likelihood to giving birth to a third child but a lower likelihood to work (Goldscheider, 1996; Kraus, 2002).

Several other variables were included in our different models. Past fertility behavior was measured by the mother's age at the birth of her second child. It denoted the woman's fertility orientation and was expected to have a negative effect on the likelihood of a third birth. To capture a direct causal influence of work on fertility, we introduced the woman's employment status in the previous year. All models controlled for the baseline duration. In the work equation we measured the number of years since the woman had her second birth. This variable exercises an effect on the work decision equivalent to the effect of the age of the second child. In the fertility model, we introduced a non-linear measure of the time elapsed since the second birth because the distribution showed a very sharp increase in the probability of having a third birth up to the third year after the second birth, and a sharp decrease thereafter. Thus the duration baseline of the instant risk of a third birth was modeled by two splines distinguishing "short duration" and "long duration": the former takes declining values from the year following the second birth to three years after birth and is equal to 3 minus the age of the second child; the latter equals the age of second child minus 3. The fertility model also controlled for the woman's birth cohort (1 = women born after 1965), expecting lower probability of having a third child to younger cohorts of women.

In the fertility equation we included education; cultural variables (religiosity and ethnicity) and cohort; age at 2nd birth⁴; duration (as two splines) and an interaction between religiosity and long duration. The latter was expected to have a negative sign to denote the faster pace of having a third birth among religious women. The major work indicator was whether the woman had worked during the previous year. Because we were interested in the effect of work on fertility, we employed in the work equation explanatory variables exogenous to the fertility decision (education, ethnicity, and religiosity and duration).

To examine the effect of fertility on the work decision, we included in the work model education, religiosity and ethnicity, and women's cohort of birth (as exogenous variables). As main indicators of fertility we used the woman's age at second birth and the spacing between the first and second child. These two indicators were expected to affect positively the work decision. We further tested the effect of fertility on work decision for ever-worked women. In this model, we also included characteristics of the last job, which included its socio-economic status (measured in SEI scores: see Semyonov et al., 2000) and the sector of employment (1 = public; 0 = otherwise). We expected that women employed in jobs with higher status to be less likely to have a third birth because of their opportunity costs, and those working in the public sector to have higher probability of having another child because the public sector offers better conditions to combine work and family duties (Okun et al., 2007; Stier and Yaish, 2008).

6. Findings

We start by presenting the fertility and work patterns of mothers in Israel. Fig. 1 presents the survival function (for those remaining with two children) and depicts the rate and pace of having a third child in the total population. Accordingly, the figure shows that more than two thirds of Israeli women had an additional child within 10 years. Most of these births took place within the first three years following the birth of the second child, and by the fifth year half of all mothers had had an additional birth.

Fig. 2 presents the work behavior of women in the time since they gave birth to their second child. The figure depicts the high commitment to work of Jewish women in Israel, with about 60% of the women who never interrupted their employ-

⁴ Age at second birth may also indicate fecundity, so its effect should be interpreted cautiously.

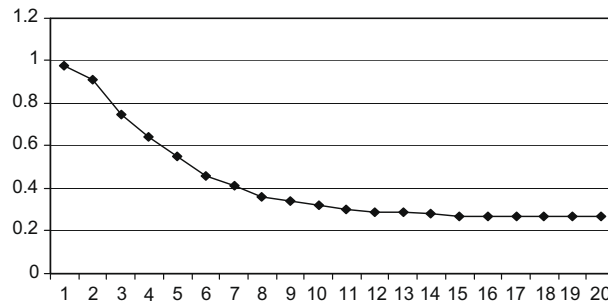


Fig. 1. Proportion having only two children by year following second birth.

ment and a growing rate of labor force participation as the second child grew older. By the fifth year after birth 70% of the women who did not have an additional child were in the labor force.

We now examine the relations between work and fertility in a multivariate framework. Table 1 presents the effect of work behavior at time $t - 1$ on fertility decisions. Column 1 shows a simple probit model predicting the probability of mothers who had had two children giving birth to a third child. Columns 2 and 3 set out the results of a bivariate probit model which allowed testing for *endogeneity of work's effect on fertility*. First, in the simple probit model it can be seen that education had no effect on fertility. This finding, which is a recognized feature of the Israeli context (Peritz and Baras, 1992), indicates that fertility in Israel is not affected by economic considerations, as economic theory argues. The findings show that fertility depends on cultural determinants – religiosity and ethnicity. Independent of education and other variables, observant women and those originating from Asian–African countries evinced a significantly higher probability of having a third child. Moreover, the interaction between religiosity and duration indicates that being observant hastened the timing of the third birth – the decrease in the “long duration” indicator is significantly steeper for more religious women. To test whether the behavior of religious women is affected by economic indicators, we tested for possible interactions of education and religiosity in the different models. The effect was not significant⁵. Our main interest was in the effect of work on fertility. The simple probit model reveals a negative and significant effect ($b = -0.209$), indicating that working in the labor market postpones or prevents having a third birth.

Comparison of the simple and bi-probit models reveals interesting findings. While the effect of the cultural indicators, prior fertility behavior, and duration remained the same, the work effect became insignificant. That is, when taking into account the simultaneity of work and fertility decisions, work does not seem to affect fertility decisions ($b = 0.022$). The bivariate probit analysis shows that the correlation between fertility and work decision, ρ , is statistically significant at 5% level, and equals -0.161 (columns 2 and 3). This means that work was endogenous to fertility, namely, the fertility decision was jointly taken with the work decision. That is, the negative effect of work on fertility observed in the simple probit model reflects the fact that women were not employed at time t because they expected to have another child at time $t + 1$ ⁶.

Table 2 presents the results of the work equation. Again, the first column shows a simple probit analysis of work decision. This model shows that work decision was affected by economic considerations as exemplified in the effect of education. Lower education is associated with a lower probability to work, as those with less than high school proved significantly less likely to work than those with high school education ($b = -0.580$). Those with higher education were more likely to work than those with only high school ($b = 0.522$). Women's work experience prior to the second birth also increased the likelihood that they work afterwards. Controlling for education and experience, ethnicity did not affect work decision but religiosity did: observant women were more likely to work, other things being equal. The model shows that the fertility indicators affected work decisions in the expected direction. That is, when the interval between the two children was longer, women were more likely to work ($b = 0.100$). The net effect of age at second birth was negative (and significant at 9%) indicating that women who gave birth to their first two children later in life were less likely to work. This counter-intuitive finding may suggest that women who give birth at an older age, and do not increase spacing between children, have already established their expected career and are willing to stay longer outside the labor force.

⁵ We considered the possibility that husbands' characteristics affect their wives' fertility and work decisions. To test this hypothesis, we analyzed a subset of the data for which husband's education was available. The results (not shown here) indicated no significant effect of husband's education on the woman's fertility or work decisions. Moreover, including the husband's education in the models did not alter the effect of other variables, such as religiosity and ethnicity.

⁶ It is possible that women who already decided to have two children are less career-oriented than those who have only one child. In a separate analysis we examined the probability of having a second child for those who had already given birth to their first child. The results showed a non-linear effect of education on fertility for highly educated women, and a lower likelihood of having a second child for women with less than high school education. However, this model also indicated that work affected positively the likelihood to have a second child, and that fertility and work decisions were not endogenous. These results are similar to patterns observed recently for first births in the Nordic countries (Nicoletti and Tanturri, 2008; Andersson, 2000).

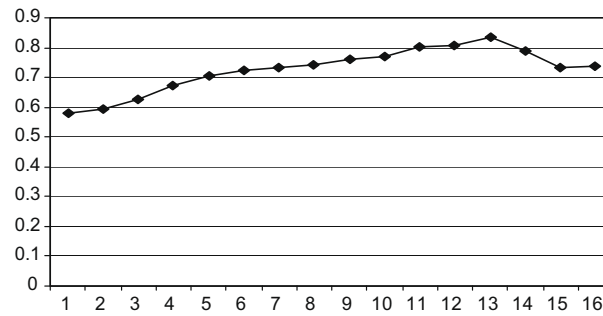


Fig. 2. Proportion working by year following second birth.

Table 1

The effect of work on fertility: results from simple probit and bivariate probit models.

	Simple probit	Bivariate probit	
	Fertility equation	Fertility equation	Work equation
Education			
Less than high school	−0.045 (0.106)	0.037 (0.107)	−0.532*** (0.204)
More than high school	0.092 (0.091)	0.061 (0.092)	0.476*** (0.174)
Social and demographic characteristics			
Asian–African origin	0.344*** (0.087)	0.360*** (0.086)	−0.206 (0.171)
Observant	0.678*** (0.120)	0.655*** (0.123)	0.236 (.195)
Cohort	−0.260** (0.127)	−0.254** (0.126)	
Fertility behavior			
Age at 2nd birth	−0.046*** (0.009)	−0.046*** (0.009)	— ^a
Short duration	−0.368*** (0.064)	−0.365*** (0.064)	— ^a
Long duration	−0.082*** (0.013)	−0.085*** (0.013)	— ^a
Observant*long duration	−0.086** (0.039)	−0.086** (0.039)	— ^a
Duration			0.044** (0.017)
Work behavior			
In labor force year $t - 1$	−0.209** (0.088)	0.022 (0.135)	— ^a
Constant	0.246 (0.283)	0.090 (0.292)	0.314 (0.153)
ρ		−0.161** (0.080)	
N	2182	2182	
Pseudo R^2	0.12		
Wald χ^2		183.99*** (15 df)	

^a Not included in the model.* $p < 0.10$.** $p < 0.05$.*** $p < 0.010$.

The bi-probit model (columns 2 and 3) suggests again that work and family decisions are simultaneously determined ($\rho = -0.162$ and significant at 0.01 level). More important, in the bivariate probit, which takes this simultaneity into account, the fertility variable is significant. This indicates a causal influence of fertility on work. The explanatory variables in column 1 (simple probit) and 3 (bivariate probit) have the same coefficients, in magnitude and statistical significance alike. In other words, introducing fertility features as an explanatory variable in the simple probit regression of the work decision did not lead to any biased estimates.

Table 2

The effect of fertility on work: results from simple probit and bivariate probit models, Jewish mothers of two children.

	Simple probit	Bivariate probit. All women		Bivariate probit. Ever worked	
	Work equation	Work equation	Fertility equation	Work equation	Fertility equation
Education					
Less than High school	–0.580*** (0.204)	–0.581*** (0.204)	– ^a	–0.075 (0.262)	– ^a
More than high school	0.522*** (0.174)	0.525*** (0.173)	– ^a	0.229 (0.198)	– ^a
Work characteristics					
Work experience prior to 2nd birth	0.111*** (0.028)	0.111*** (0.028)		0.020 (0.028)	
SEI				0.009** (0.004)	– ^a
Public sector				0.567*** (0.189)	– ^a
Social characteristics					
Asian–African origin	–0.073 (0.181)	–0.075 (0.181)	0.336*** (0.082)	–0.168 (0.202)	0.292*** (0.093)
Observant	0.367** (0.172)	0.368** (0.172)	0.655*** (0.120)	0.178 (0.219)	0.622*** (0.135)
Cohort	– ^a	– ^a	–0.256** (0.172) (0.124)	– ^a	–0.237* (0.144)
Fertility behavior					
Age at 2nd birth	–0.036* (0.021)	–0.035* (0.021)	–0.048*** (0.009)	–0.057** (0.024)	–0.048*** (0.011)
Spacing between child 1 and 2	0.100*** (0.038)	0.099*** (0.038)	– ^a	0.133*** (0.041)	– ^a
Duration	0.047*** (0.017)	0.047*** (0.017)	– ^a	0.041** (0.018)	– ^a
Short duration	– ^a	– ^a	–0.367*** (0.063)	– ^a	–0.346*** (0.071)
Long duration	– ^a	– ^a	–0.086*** (0.013)	– ^a	–0.090*** (0.015)
Observant* long duration	– ^a	– ^a	–0.084** (0.039)	– ^a	–0.062 (0.040)
Constant	0.451 (0.568)	0.445 (0.567)	0.187 (0.263)	0.883 (0.653)	0.158 (0.311)
ρ		–0.162*** (0.053)		–0.128** (0.063)	
N	2182		2182		1809
Pseudo R ²	0.15				
Wald X ²			204.10*** (15 df)		172.13*** (17 df)

^a Not included in the model.* $p < 0.10$.** $p < 0.05$.*** $p < 0.010$.

In the next model we tested whether the effect of fertility simply differentiates between those who had ever worked and those who never had. We repeated the bi-probit analysis on a sub-sample of ever-worked women, introducing into the model more characteristics of women's employment. In addition to education, work experience, cultural indicators, fertility behavior and duration, we inserted into this model the socio-economic status of women's last job, and whether it was in the public sector. As can be expected, once the socio-economic feature of the job was taken into account, education and past work experience had no effect on work decision. SEI, on the other hand, was positively and significantly correlated with work, indicating that those holding better (more prestigious and probably better paid) jobs were also more likely to work at any given time following their second birth. Also, women who worked in the public sector proved more likely to stay in the labor market ($b = 0.567$). Interestingly, once we controlled for sector and any involvement in paid employment, religiosity had no effect on work decision. That is, religious and non-religious women had similar work probabilities. This finding emphasizes the important role of the family-friendly sector in helping the reconciliation of high fertility and work. However, the effect of age at second birth and birth spacing remained significant and even increased in magnitude, emphasizing again the causal direction of fertility on work, and the simultaneity of both decisions ($\rho = -0.128$ and significant).

7. Discussion

We set out to assess the relationship between work and family in Israel. Theoretical positions as well as empirical findings emphasized the reciprocal effect of these two domains, arguing mainly that opportunities in the labor market compel women to lower their fertility aspirations, and that the presence of children, especially young ones, interferes with mothers' work patterns (Gornick et al., 1998; Moen and Han, 2001). Nonetheless, we argued that in a cultural environment that promotes both high fertility and women's employment, the mutual effects of one sphere on the other is not that straightforward. Cultural considerations, supported by policies and arrangements, may affect women's decision whether to have an additional child even though they have good market opportunities, and have already invested in a career. Likewise, normative encouragement of women assuming a provider role may affect women's choice to continue their labor force participation even when family demands are high. Israel is a unique case, in that the two incompatible activities – work and raising a family – are culturally encouraged.

Our findings show that the decision to have a third child in Israel is not affected by women's human capital and market considerations. Fertility is mostly affected by cultural indicators, as exemplified in the higher tendency of religious women, and those originating from Asian or African countries, to extend their family size. Yet fertility affects the decision to work. In other words, our findings suggest that in Israel fertility norms take precedence over work norms. They demonstrate that in a pro-natalist environment, where the family is seen as an important social institution, fertility becomes an important source

of identity and is given priority over other considerations (Anson and Avinoam, 1996; Berkovitch, 1997). In a context of institutional and normative support from the state, women's decision to have a third child is independent of their work activity, and reflects mainly their preferences and attitudes to fertility.

We may conclude from this study that in Israel work activity is not seen as an obstacle to family formation. This is achieved mainly by providing the necessary conditions for women to structure their work activity around family constraints. In this case, the high rate of activity among mothers reflects, at least partly, the institutions and arrangements intended to alleviate the incompatibility of work and family (Okun et al., 2007; Stier and Yaish, 2008). This general conclusion should be taken cautiously since marriage patterns and fertility behavior are changing in Israel, in a way similar to changes observed in most industrialized countries. Women who postpone marriage and invest in higher education may be more affected by their market prospects. Thus, future research should focus on more recent cohorts to determine the extent to which Israel remains a family oriented country. Our study, then, highlights the role of cultural and institutional contexts in affecting fertility considerations. Further studies which compare pro-natalist countries with other countries could contribute to the understanding of work–family considerations and the role of policies aimed at reconciling work and family, under different cultural conditions.

An important finding in this study is that while fertility was affected by cultural rather than economic considerations, this was not the case regarding work. Women made decisions on whether to participate in paid employment based on their market prospects and opportunity costs. The absence of differences among the various social groups indicate that even when cultural norms did not fully support their involvement in the labor market, women responded to economic opportunities and needs. The high rate of employment among religious women raises the question of how work and family reconcile. It may point to the importance of two major strategies that allow the incorporation of these women into paid employment: one is the informal network and community ties that may facilitate their work activity, and the other is the structure of their employment. Most strictly observant women, for example, are often employed as teachers (Gottlieb, 2007). Teaching in Israel offers a full-time short-hour arrangement and is most compatible with children's school schedule. So this occupation allows women to combine work and family duties (Stier, 1998). Religious women may also utilize informal child-care arrangements more often than other women because many live in relatively homogeneous communities. There is not enough information on child-care arrangements in this group, which leaves this issue as a challenge for future research.

In conclusion, this study showed that economic considerations alone can not fully explain the desire to reproduce. Social norms, supported by policies and institutional arrangement, have an important role in shaping personal orientations and aspirations, and consequently, the actual behavior of women.

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Appendix A.

See Table A1.

Table A1

Percentage distribution and means (standard errors) of variables included in the models.

Variables	Means/percentage
Education	
% Less than high school	22.6
% More than high school	26.4
Social and demographic characteristics	
% Asian–African origin	45.2
% Observant	25.2
% Young Cohort (age <36)	19.0
Fertility behavior	
Mean Age at 2nd birth	26.9 (4.8)
Mean Space between child 1 and 2	3.3 (2.4)
Duration	5.6
% Short duration	36.0
Work behavior	
% In labor force year $t - 1$	58.3
For women who ever worked	
SEI in last job	46.1 (24.6)
% In public sector	44.7

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