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Abstract

Expectant parents experience a variety of emotions, including joy, anticipation as well as anxiety and fear related to the health of the fetus, the delivery and the newborn. These sources of uncertainty and stress render expectant mothers suspectible to the influence of popular beliefs. We design an experiment to evaluate the widespread Israeli belief that a baby's room should remain unfurnished until after the baby is born. We test the impact of this belief on the economic decisions of pregnant Jewish women in Israel. Our findings show that many pregnant women, especially in the second half of pregnancy, prefer to avoid challenging popular beliefs – even at a financial cost. The negative affective consequences of "tempting fate" lead to a preference for a small monetary amount over new furniture for the newborn. The strength of popular beliefs and its influence on individual choice vary in accordance with ethnic origin and degree of religiosity.

Keywords: experimental economics, individual choice, pregnancy, popular beliefs, superstition, repugnance.

JEL Codes: C90, Z10.

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1. Introduction

Popular beliefs, rituals and magical practices are central to many cultures. These beliefs are sometimes called 'superstitions', stemming from the view that they are irrational, unfounded or vague beliefs.[1] Various thinkers have considered such beliefs to be attempts by human beings to understand and control the uncertainty in their world (Freud, 1950; Frazer, 1959; Piaget, 1967; Thomas, 1971; Mauss, 1972). Evolutionary models claim that superstition progressively develops over time into religion and later into science. This hypothesis does not sit well with the persistence of superstition, even in modern societies, despite rapid scientific developments in the twentieth century (Jones, Rissell & Nickell, 1977; Zusne & Jones, 1982; Blackmore & Troscianko, 1985; Gallup & Newport, 1991; Newport & Strausberg, 2001; Diaz-Vilela & Alvarez-Gonzalez, 2004; Musella, 2005).

Anxious periods such as pregnancy trigger popular beliefs. A Jewish superstition that continues to survive is the popular belief that expectant parents should wait to decorate the nursery room until after their baby is born. The fear is that decorating the room of an unborn child is presumptuous and may bring undue harm to the fetus or mother. In this paper, we design a novel experiment to evaluate the strength and widespreadness of this popular belief and the set of socio-demographic factors that predict its existence. Pregnant Jewish women choose between a sequence of pairs of options. One constant option is the immediate receipt of baby furniture. The other option in each pair is an ever increasing cash payment. In the first pair, the cash payment is zero. Thus, we anticipate that all but the most superstitious participants will prefer the furniture. As the size of the cash payment increases from one pair to the next, we expect a larger fraction of subjects to switch from the choice of the baby furniture to the cash. The pair at which a subject switches to the cash is our dependent measure.

We observe a stronger tendency in the second half of pregnancy not to challenge popular beliefs by avoiding the choice of the baby furniture, even for the smallest monetary amounts. The strength of popular faith and its influence on individual choice varies in accordance with ethnic origin and degree of religiosity. An analysis of the popular beliefs index found that women of *Sephardi*c origin and women who define themselves as "traditional" in their religious beliefs tend to believe more in popular beliefs.

[1] The designation 'superstition', as opposed to 'legitimate' belief, is subjective; as such, this term is often considered to be judgmental or pejorative.

Survival of magical beliefs may stem from the human aspiration to understand, control and assign meaning to events. Reliance solely on scientific explanations does not always satisfy the desire to attribute a reason to everything that happens. Dudley (1999) assigns an adaptive value to superstitions in situations of helplessness, and demonstrates their relative advantage for emotional balance. Situations that involve uncertainty and lack of control increase the tendency to search for explanatory mechanisms and to find patterns and causality in places in which they may not exist (Galinsky & Whitson, 2008).

Previous studies also indicate that people who state that they do not believe in fate still act in a manner that takes into account certain deterministic beliefs regarding fate and attempts to overcome it. Based on his research on popular beliefs in the United States, Ferm (1989) claims that even people who do not believe in fate still refuse to tempt it, sensing that, "The universe punishes such modest acts of hubris." Risen and Gilovitch (2007) show that people believe that if they exchange the lottery ticket they are holding with someone else, the trade will decrease their chances of winning – even though they cannot explain the mechanism or rationale that would bring a change in their luck. Miller and Taylor (1995) claim that people believe in Murphy's Law that states, "Things will go wrong in any given situation, if you give them a chance." For instance, people believe that there is a greater chance of rain falling when they have forgotten their umbrellas. Another belief is that leaving a queue to search for a faster-moving line will result in the abandoned queue speeding-up soon after one's departure. Risen and Gilovitch (2008) study the belief that 'tempting fate' brings bad luck. Subjects were presented with two cases: one in which someone 'tempts fate' and another in which someone avoids doing so. Then, subjects were asked to evaluate the likelihood of negative consequences for that person's actions. Most respondents thought that 'tempting fate' brings bad luck, even among those respondents who had previously stated that they do not believe in luck.

Tykocinski (2008) analyzes the effect of possessing an insurance policy on the perceived probability of losses that may be incurred from a specified peril. The results of her experiments reveal that when people are reminded that they are covered by health, automobile or travel insurance, they feel safer and less likely to experience misfortune.

Some studies deal with luck or misfortune attributed to certain numbers. In different cultures there are numbers considered lucky or unlucky. The number 13 is known in many Western cultures as unlucky and ominous. Fear of Number 13 has even been recognized as a phobia called

Triskaidekaphobia. Those who suffer from this phobia try to avoid bad luck by distancing themselves from everything that is so numbered. Friday the 13th is considered an unlucky day in which some people refrain from or take extra care in certain activities (Hoffman, 1987). Lucey (2000) analyzed the differences between the returns in the capital market on Friday the 13th compared to other Fridays in 19 countries between 1988 and 2000. Eleven of the 19 countries showed significantly higher returns on Friday the 13th. Kramer and Block (2006) conduct a field experiment that reveals that interviewees behave in a more risk-averse fashion on Friday the 13th.

In Chinese culture, the number 4 has a negative connotation and is considered unlucky because its pronunciation in Mandarin and Cantonese is similar to the word "death". On the other hand, the number 8 is considered a lucky number since its pronunciation resembles the word "prosper" or "wealth". Woo and Kwok (1994) found that the prices of license plates in Hong Kong vary depending on the presence of numbers on the license plate considered lucky or unlucky in Chinese culture. Shum et al. (2014) observed similar effects in China's housing market. Brown et al. (2002) found evidence of the influence of lucky numbers and holidays from the Chinese calendar on price clustering in the Asia–Pacific stock markets.

In many cases, popular beliefs are empowered when they relate to significant life-cycle events. In most societies, popular beliefs surround pregnancy and childbirth (Trachtenberg, 1961). The period of pregnancy and childbirth can be life-and-death events. Maternal fatalities remain a major source of mortality, especially in less developed countries. For example, the number of maternal deaths per 100,000 live births in women aged 15 to 49, was 546 in Sub-Saharan African countries and 25 in European countries in 2015.[2] In addition, neonatal death still occurs even in an age of advanced hospital care. The neonatal death ratio, per 1,000 live births, was 28 in Sub-Saharan African countries and 5 in European countries in 2015.[3] Prenatal tests are now the norm in the modern field of obstetric medicine, which enables the monitoring of fetal development throughout pregnancy. In the past, however, far more uncertainty hovered over all aspects of human gestation. For instance, there was no scientific framework for explaining neonates born with various defects. Moreover, childbirth was a radically different experience before the modern advent of anesthesia. Women giving birth often endured prolonged, painful, and exhausting

[2] Source: World Health Organization, UNICEF, United Nations Population Fund and The World Bank, Trends in Maternal Mortality: 1990 to 2015, WHO, Geneva, 2015.

[3] Estimates developed by the UN Inter-agency Group for Child Mortality Estimation (UNICEF, WHO, World Bank, UN DESA Population Division) at childmortality.org.

periods of labor and delivery. Thus, pregnancy has been fraught with a great deal of uncertainty surrounding the health of mother and fetus. Due to its powerful emotional valence, this life event may be perceived as one that awakens anxiety (Carlson, 1979; Teichman, 1988). Historically, this has made pregnancy susceptible to an especially wide variety of associated popular beliefs. Our research evaluates the existence of a modern expression of these pregnancy-related fears and anxieties.

The period of expectant parenthood lasts, on average, about 40 weeks. Often, pregnancy is experienced by parents as a time of confusion and instability. In addition, the pregnant mother's stress level and psychological functioning can be affected by hormonal imbalance (Glynn et al., 2001; Glynn et al., 2004). Other factors may increase the mother's prepartum anxiety. Physical-health factors may include prior miscarriages (Grimm, 1961; Statham & Green, 1994; Klock et al., 1997; Armstrong & Hutti, 1998), in vitro fertilization (IVF; Merari et al., 1992), excessive vomiting (Caplan, 1957; Jahan, 1987), exhaustion (Reeves, Potempa & Gallo, 1991), weight gain (Grimm, 1961), and the experience of first pregnancy (Rofe, Lewin & Padeh, 1981). Emotional-health factors may also play a role: unplanned pregnancy (Najman et al., 1991), care team attitude (Caplan, 1957; Glazer, 1980), worry over normal fetus development (Glazer, 1980; Statham, Green & Kafetsios, 1997), and quality of the marital relationship (Teichman, 1988). As a result, Teichman (1988) concludes that pregnancy is a time of potential crisis.

Research carried out on anxiety levels of mothers during pregnancy found a significant, negative correlation between the level of prepartum anxiety and age, educational level, and marital or couple stability (Pagel et al., 1990; Da Costa, 1999). Women with high degrees of anxiety during pregnancy are usually younger, uneducated, and have been married or in an intimate relationship a shorter time than women who suffer less prepartum anxiety. Pregnant women with high anxiety levels also experience higher situational anxiety than their less anxious peers. There are conflicting opinions regarding the time at which this prepartum anxiety peaks. Grimm (1961) claims that prepartum anxiety rises until the second half of the third trimester, from which point it remains constant, while Glazer (1980) claims that anxiety continues to increase throughout the pregnancy. She identifies motherly prepartum anxiety as a risk factor for various complications of both the mother and the fetus.

1.1 Women's Characteristics and Decision Making

Our hypothesis is that pregnant women, influenced by popular beliefs, would prefer not to furnish the baby's room or deal with the subject before the baby is born. Therefore, they will undervalue the grand prize in our experiments (a furnished baby's room). Similar to the conceptual framework in Risen and Gilovich (2008), acceptance of this prize may be considered taboo and tempting fate, which may bring about harmful consequences for the infant or mother, such as complications during delivery, death of mother or infant or a birth defect. Such outcomes become more likely in the eyes of the believer if fate is rashly tempted. Our expectation that pregnant women will prefer relatively small monetary amounts over the baby furniture implies that, all else equal, believers in popular beliefs will forego larger sums of money in order not to violate their beliefs than those with less conviction and nonbelievers.

There are other factors that may affect choice: low-income women may well prefer a cash payment to meet urgent economic needs, for instance. Even so, relinquishing the grand prize means foregoing the furniture they will need in the foreseeable future, which may be costlier for those with low incomes. Overall, we hypothesize that the level of individual income will be positively associated with the payment amount required to forego the baby furniture. We also postulate that highly educated individuals will tend to require larger amounts, in light of research showing that educated women tend to experience less anxiety during pregnancy (Pagel et al., 1990; Da Costa, 1999). As a result, education offsets superstition-based prepartum anxiety.

As noted, studies have shown that first-time pregnancies ('primigravida' in medical terms) are accompanied by more anxiety than subsequent ones (Rofe, Lewin and Padeh, 1981). As higher levels of uncertainty cause increased dependence on supernatural explanations, the hypothesis is that first-timers will show a greater tendency to avoid violating their beliefs. In addition, the number of the pregnant woman's children can also affect her choices. Our prediction is that a greater number of children will translate into lower prepartum anxiety levels and, therefore, diminished adherence to popular beliefs, either because they have already experienced pregnancy and childbirth or because mothers with previous children are less likely to need baby furniture, and may instead prefer cash amounts.

Research on the connection between religious affiliation and adherence to popular beliefs is relatively scarce. Even in established religions such as Judaism, no authoritative consensus exists on these beliefs. While most rabbinic authorities are repelled and completely reject popular beliefs

– or at least make public declarations to that effect – such as the 'evil eye', some in the religious establishment are much more hesitant to do so.

Israeli Jewish society is culturally diverse, consisting mostly of immigrants and their offspring, who arrived from different corners of the world. The beliefs of Israelis are varied and include, in addition to Jewish cultural beliefs, beliefs from the immigrants' lands of origin (Abuhav et al., 1998; Calderon, 2000). Many and diverse popular beliefs related to pregnancy and childbirth are common among all ethnic groups (Klein, 1998). In Israel, 31.6% of the population are *Mizrahim/Sephardim*, originating from Jewish communities in North Africa and Arab countries.[4] Studies dealing specifically with *Sephardic* popular culture (Weingrod, 1998; Garb, 2000; Bilu, 2009) note that it incorporates a variety of unique popular beliefs, especially relating to pregnancy. Klein (1998) suggests that *Sephardim* tend more to avoid challenging the 'evil eye' during pregnancy, in comparison to Ashkenazim Jews.[5] If such is the case, then we expect *Sephardim* to adhere more to popular beliefs and avoid tempting fate.

Respondents were asked where they currently reside in Israel and their country of origin. Various populations may exhibit unique characteristics, and these may affect decision-making. We focus on three distinct populations: a) *Kibbutz residents*[6]: many *kibbutzim* residents collectively own and share baby equipment passed between members as needed; therefore, they may assign a lower value to the grand prize; b*) Settlers in Judea and Samaria*[7]: settlers tend to be characterized by a unified ideology and may experience a riskier lifestyle due to security threats; thus, they may exhibit a more exaggerated tendency toward acceptance of popular beliefs; and c) *Non-native women*: due to a foreign background (in our sample, immigrants mostly from the former Soviet Republics), they may be characterized by cultural and popular beliefs distinct from those of native Israeli women (*sabras*).

[4] This percentage includes Jews who born in Asia/Africa or Israeli born whose father born in Asia/Africa. Source : Central Bureau of Statistics, 2016. .

[5] The term *Ashkenazim* refers to all 'western' Jews not considered *Sepharadim* with Germanic origin or European descent, who often spoke Yiddish in addition to the European language of their region of residence.

[6] The *kibbutz* is a type of settlement unique to Israel, in which some aspects of daily life are carried out collectively and cooperatively.

[7] Judea and Samaria (i.e., the West Bank) are areas currently contested by Israel and the Palestinians.

2. Experimental Design and Procedure

2.1 Preliminaries

In order to understand the phenomenon of popular beliefs during pregnancy in Israel, a preliminary qualitative study was carried out. Thirty interviews were conducted with young Jewish pregnant women in Israel, focusing on religious perceptions and popular beliefs during pregnancy. In addition, a comprehensive study was made of "She'elot U'Teshuvot" or so-called rabbinic responsa (i.e., queries put to a rabbi on a variety of subjects) on this topic. This qualitative study served as a preliminary stage for identifying the most common popular beliefs in the Israeli population and determining the one most suitable for measuring its economic impact.

A variety of popular beliefs related to pregnancy were expressed in the interviews. Many of the women interviewed thought that pregnant women are considered more vulnerable to 'the evil eye'. The majority of interviewees expressed concern for their own wellbeing and especially for the welfare of the fetus during pregnancy. Future mothers used various apotropaic measures to ward off negative magical influences: talismans, prayers, spells, and other actions to counter evil powers or negate unwanted or accidental effects.

Some of the popular beliefs were unique to certain ethnic groups, while others characterized most of the interviewees with only minor variations between them. One belief that spanned across ethnic groups was that the baby's room should remain unfurnished until after it is born. As noted, violation of this belief would bring bad luck and even harmful outcomes, the most extreme being infant death. Manifestations of this belief are found in the fact that large retail stores in Israel that sell baby merchandise invite prospective parents to order items for the baby in advance of its birth, while the entire order is paid for and delivered to the home only once the baby is actually born.[8] No such arrangement exists in the retail sale of conventional furniture, supporting the claim that this former belief is widespread in Israeli society. Thus, we selected this prohibition in an effort to evaluate and to quantify its impact on the economic decision-making of pregnant women in Israel.

[8] Through personal communication with store managers, we learned that the three largest baby-product retail chains in Israel (i.e., Dr. Baby, Shilav, and Motsetsim) all make available, without advertising, this arrangement to expectant parents, thereby enabling them to prepare for the birth of their child, while circumventing the superstitition.

2.2 Experimental Treatments

The subjects were asked to answer a questionnaire (see Appendix A). By completing the questionnaire, the respondents were eligible to participate in a lottery with the winner choosing one of two options: a) a gift certificate for the amount of 3,000 NIS (about $860 USD) to be used by the expectant parents to buy baby furniture at a participating store and b) a cash sum. The participants were presented with a list of 16 monetary amounts increasing from 0 NIS to 3,000 NIS in increments of 200 NIS. The complete list appears in Table 1. For each cash sum, they were asked to choose between the offered amount and the prize worth 3,000 NIS. The respondents were told that a lottery would be held among those who completed the questionnaire and one winner and one pair of options would be randomly chosen. The winner would receive either the sum of money or the gift certificate according to their indicated choice for the randomly chosen pair.

[insert Table 1 here]

Two treatments were conducted. In the first treatment (*Immediate*), it was emphasized in the questionnaire that the nontransferable prize would be granted immediately with the completion of the data gathering – within a month. In the second treatment (*Flexible*), it was stated that the prize winner would be allowed to pick a date of her choice, up to a year after the conclusion of the research, that is, the purchase could be postponed until after childbirth. This second treatment allows us to compare respondents' valuations of the grand prize in the presence, and in the absence, of challenges to their popular beliefs. Any difference between the two can be attributed to the strength of the popular belief. In essence, the two different treatments compare the immediate granting of the prize accompanied by a breach of this popular belief with the delayed receipt of the prize but preservation of the popular belief. In this manner, the individual's readiness to compromise this belief for the sake of economic gain is tested. The strength of that belief is measured by the respondent's readiness to relinquish the baby room furniture. Specifically, the lowest sum of money for which the respondent prefers the cash over the furniture determines the strength of her popular beliefs.

In addition to completing the questionnaire, participants answered questions on their degree of faith and para-normal beliefs, enabling the construction of a 'belief scale' ranking, similar to the questionnaire used by Tobacyk (2004). We adapted this questionnaire to accord with common beliefs in Israel. We elicited subjects beliefs about the existence of supernatural beings, supernatural powers, the evil eye, fate and the power of one's thoughts to influence the fate of

others (see Part B of Appendix A for the precise questions). A belief scale was constructed by computing each subject's mean reponse to the five belief questions.

We included a measure of risk preferences (used previously by Booij and van Praag, 2009, and Lahav et al., 2011) to capture the notion that a mother's decision whether to 'try her luck' by preferring the baby furniture over smaller monetary payments involves risk. On the basis of their beliefs, perhaps certain individuals consider tempting fate a dangerous choice. Alternatively, a person who does not believe in this particular superstition may not regard tempting fate as risky.

In order to control for differences in women's risk preferences, we asked respondents to price a lottery ticket:

"Assume that we are offering to sell you a lottery ticket. In this lottery, there is a coin toss. If the coin lands on 'heads', you win 2,000 NIS; if it lands on 'tails', you don't get anything (0 NIS). How much would you be willing to pay for a lottery ticket?
I would be willing to pay the sum of ____ NIS to participate in the lottery."

The more the individual is willing to pay for the above lottery ticket, the greater her willingness to take risks.

Finally, we also include a number of demographic questions to collect week of pregnancy, ethnicity, religion, degree of religiosity, economic status, country of origin, and other characteristics.

2.3 Subjects

Subjects are young pregnant women (ages 20 – 40) who were recruited in Israel via an internet advertisement offering a monetary prize (as described above) which would be drawn among participants in an online questionnaire. The advertisement was posted electronically at various universities, colleges, forums and interest groups on the Internet and workplaces. Eligible respondents to the advertisement were sent a link to the experiment materials.

Participation was restricted to women age 40 or less since above 40 the risk of pregnancy-related complications greatly increases, adding significantly higher stress levels (Grimm, 1961; Merari et al., 1992; Statham and Green, 1994; Klock et al., 1997; Armstrong and Hutti, 1998). The sample includes 434 Jewish pregnant women in Israel. The characteristics of this population are summarized in Table 2.

[insert Table 2 here]

This sample includes pregnant women at all the stages of pregnancy. The youngest fetus was 5 weeks old and the oldest 40 weeks old (mean = 23.98, std. dev. = 9.95). The distribution may be seen in Figure 1. The sample consists of 50.5% *Ashkenazim*, 30.4% *Sephardim*, and 19.1% of mixed ethnic backgrounds. Participants are also characterized by various levels of religiosity: 3.9% atheists, 36.1% secular, 15.9% traditional, 35.9% religious, and 8.2% ultra-orthodox. Moreover, the household self-reported income distribution is as follows (on a 1-5 scale, where 1 indicates very low income): 1 - 14.1%, 2 - 20.3%, 3 - 31.6%, 4 - 28.6%, and 5 - 5.4%. The distribution of individual respondent's personal income was: 1 - 25.6%, 2 - 35.0%, 3 - 20.5%, 4 - 16.6%, and 5 - 2.3%.

The sample distribution of the popular belief scale, which appears in Figure 2 (1 refers to complete nonbelievers in popular beliefs, while 5 refers to devout believers), attests to diverse beliefs in our sample. The questionnaire was found to be highly reliable (Cronbach's alpha, 0.871).

[insert Figures 1 and 2 here]

3. Results

In the next subsection, we analyze the factors affecting individuals' popular beliefs. In section 3.2, we analyze the determinants of subjects' willingness to forego monetary amounts to receive the grand prize.

3.1 Popular Belief Scale

Table 3 presents the results of the linear regression in which the belief scale is the dependent variable. Model 1 includes ethnic origin, level of education, religiosity, and duration of pregnancy as independent variables. We added the number of prior children as an explanatory variable in Model 2 and dummy variables for Kibbutz residents, settlers in Judea and Samaria, and non-native Israeli women in Model 3.

[insert Table 3 here]

As may be observed, *Sephardic* Jews display a significantly higher tendency to accept popular beliefs relative to *Ashkenazim*. However, individuals of 'mixed' ethnic origin do not significantly differ from *Ashkenazim* in degree of belief. These findings are unchanged in all three models tested. This is consistent with previous research that attributes a greater tendency to accept popular beliefs to members of *Sephardic* ethnic groups (Weingrod, 1998; Garb, 2000; Bilu, 2009).

It also supports Klein's (1998) research on aspects of popular beliefs during pregnancy among *Sephardim* and *Ashkenazim*.

Religiosity is also positively correlated with the degree of acceptance popular beliefs, as seen in Table 3. Secular, traditional, and religious women all exhibit significantly higher levels of popular beliefs than atheists. The coefficients of these variables are large compared to the other explanatory variables. Pairwise t-tests of the coefficients indicate that there is no significant difference between secular and religious women, nor between ultra-Orthodox and religious women. All of the remaining differences between coefficients are significantly different from zero.

With the exception of the estimate for "high school", all of the coefficients on the dummy variables for the highest level of education obtained by the respondent are negative and significantly different from "primary school" (the omitted category), thereby indicating that higher education is associated with lower levels of popular beliefs.

A variable for the number of prior children is introduced in Models 2 and 3, but does not differ significantly from zero in either model. Alternatively, a dummy variable for whether the mother has previous children is also not significant.

Model 3 incorporates variables that distinguish between the populations in Israeli society with unique lifestyles that may influence their predisposition to popular beliefs. Dummy variables were included for kibbutz members, settlers in Judea and Samaria, and women not born in Israel.

Kibbutz members, in many respects, lead a unique and cooperative lifestyle, often based on anti-religious ideology, although this ideology has eroded somewhat in recent years as many kibbutzim have undertaken measures of privatization. Table 3 reveals no significant evidence that kibbutz members subscribe to popular beliefs more or less than other individuals with similar characteristics. It is possible that the dilution of kibbutz ideology in recent decades or the fewness of kibbutz members in our sample (eight) account for this lack of a difference.

The second group are settlers in Judaea and Samaria, a substantial portion of whom live a pioneering lifestyle, motivated by ideology, and often in relatively dangerous surroundings. The analysis affirms that settlers in Judaea and Samaria tend significantly less toward popular beliefs than other populations with similar characteristics (by an average of 0.31 points). There are at least two explanations for this result. First, perhaps their daily confrontations with danger lead them to regard pregnancy as less threatening and thus the need to hold popular beliefs to protect the fetus, newborn and mother as less valuable. Second, a disproportionate fraction of settlers originate from

the U.S. where such popular beliefs are uncommon.[9] Inclusion of a dummy variable for women not born in Israel and therefore with different belief systems than *sabra* women was not a significant predictor of popular beliefs in either model.

Variables for the duration of the pregnancy (in terms of weeks, months, trimesters or halves of pregnancy) were included in all models. Contrary to expectations, no significant relationship was found between the pregnancy duration and the tendency to subscribe to popular beliefs.

3.2 Decision Making – Accepting Cash versus Baby Furniture

The sample mean of the chosen amount is 965.9 NIS (standard deviation 932.13 NIS). The lower the amount, the more the subject is willing to relinquish receipt of the grand prize. Thirty-five percent of respondents preferred to forego the grand prize even for a payment of 0 NIS. In other words, when faced with the choice of receiving the baby furniture worth 3,000 NIS and being paid nothing at all, these subjects chose the latter. From an economic standpoint, this choice is irrational. Even if they value the baby furniture below its retail value of 3,000 NIS, they ought to attribute some positive value to it, if nothing else to sell it or give it away as a gift. Assigning zero value to the furniture attests to their desire to avoid receiving it because they view its receipt negatively. The data also reveal a modest tendency to choose 'round' numbers (e.g., 1,000 NIS or 2,000 NIS) more than the other available amounts.

Taking into account both the treatment and pregnancy periods together demonstrates that the *Immediate* treatment prompts women in the second half of their pregnancy to opt for lower amounts of money than those in the first half. Figure 3 makes this point by displaying the cumulative distribution of the minimal chosen amounts by treatment and stage of pregnancy. If offered the grand prize in a month's time rather than up to a year later, women in the second half of their pregnancy prefer to take the cash immediately for substantially smaller amounts.

[insert Figure 3 here]

In order to assess the manner in which the degree of faith in popular beliefs predicts choices among pregnant women, a number of models were tested to explain the variance in the minimal sums that pregnant women are prepared to accept in lieu of the baby furniture. The models differ by the set of explanatory variables included. The minimum chosen amount is interpreted as the

[9] In our sample, the percentage of women settlers that originate from the U.S. is only 6%. Therefore, the strength of the second explanation is limited.

strength of the woman's popular beliefs and degree to which she does not want to violate her beliefs. Table 4 presents the linear regression results.[10] The popular-belief scale has a large (between 108 and 129) highly significant negative coefficient in all five regression models. Specifically, a single-point increase on the popular-belief scale is associated with a reduction in the value the respondent attributes to the baby furniture by 108 NIS to 129 NIS.

[insert Table 4 here]

Contrary to our hypothesis, the minimal amount chosen in the *Immediate* treatment was found to marginally significantly higher than in the *Flexible* treatment. The indicator variable for the woman being in the second half of her pregnancy does not differ significantly from zero. Yet, when *Immediate* is interacted with the second half of the pregnancy, the highly significant negative coefficients imply that women in the second half of their pregnancy offered the grand prize in a month's time accept between 449 and 486 NIS less than women offered the grand prize up to a year later. These large estimates coincide with the interpretation that anxiety increases as pregnancy progresses (Glazer, 1980). On the other hand, fetal age on its own is not significantly different from zero (the coefficient on the dummy for the second half of pregnancy).

The more children already in the household, the lower the amount requested by respondents, on average: each additional child reduces the cash payment chosen by 87 or 88 NIS (Models 2 and 4). Models 3 and 5 replace the count measure with a dummy variable equal to one for women delivering their first time. The coefficient of the first-born dummy variable inflates to -264 NIS (Model 3) and -286 NIS (Model 5). These highly significant estimates are consistent with the notion that first births are the most stressful and, as such, are associated with a stronger adherence to popular beliefs. Put differently, more childbearing experience reduces stress. An alternative explanation is that with more children in the family, additional baby furniture may not be needed, hence the preference for a cash reward.

Models 2 to 5 show that kibbutz members require lower sums (amounts between 463 NIS in Model 3 and 495 NIS in Model 5) in comparison to other groups. A likely explanation is that

[10] Given the left (choosing zero) and right (choosing 3000) censoring in the dependent variable, we also estimated all five of our reported models using Tobit regressions. The significance and non-significance of almost all of our independent measures remain robust to this alternative specification. Only the significance of the kibbutz members and non-native Israelis controls changes between the OLS and Tobit regressions. The assumption of homoskedasticity is not met with our data, thereby we choose to report the OLS results.

most kibbutzim have furnished collective children's rooms used by all the members as needed, making the acquisition of new baby furniture unnecessary relative to the general population.

The estimate on the indicator variable for the southern population of Israel (Model 5), included to account for the perception that many 'southerners' tend to believe in popular beliefs (see the literature review), is nonsignificant. This is likely so because geographic differences in populations are already accounted for by other variables in our models. Models 2 to 4 show that non-native mothers require lower sums (amounts between 209 NIS in Model 3 and 230 NIS in Model 2) in comparison to native mothers. Similarly, the coefficient of the dummy variable for mothers born in the former Soviet Republics in Model 5 is negative and highly significant. Attempts to incorporate additional geographic variables into the models did not yield significant results, nor did the inclusion of self-reported income or the risk-preference measure.[11] The age at pregnancy was not a significant predictor of the variable in the popular-beliefs scale, nor does it account for the variance in choices of minimum payments.

4. Conclusions

A prevalent popular belief in Israel is that a baby's room should remain unfurnished until after the baby is born. Using a unique sample of pregnant women, we design an experiment that quantifies the extent to which each pregnant participant maintains this belief. We also elicit the extent to which these respondents believe in other popular beliefs unrelated to pregnancy, such as supernatural beings, the evil eye and fate. We find that ethnic origin, degree of religiosity and additional demographic characteristics explain individual variation in the tendency to maintain popular beliefs. Moreover, the degree of faith in popular beliefs predicts the economic decisions of pregnant women in our experiment. Specifically, pregnant women who are inclined to accept popular beliefs forego the receipt of baby furniture for miniscule monetary amounts, far below the value of the furniture. The tendency to avoid the furniture, namely, to avoid tempting fate is strongest in the second half of pregnancy.

Our results have several specific business implications. From several converations with baby-products retailers, the percentage of the expectant parents that take advantage of the option to order and pay now and pick up the baby furniture after the baby is born exceeds 50%. Therefore, retailers should openly advertise this option and salesperons should mention it to expectant parents

[11] Replacing these variables with multiple categorical dummies categories does not change the results significantly.

shopping in the store since this option is not only preferred by many parents, but can also lead to a higher willingness to pay and higher profits.

More broadly, this paper contributes to the literature acknowledging cultural constraints on markets. Roth (2007) reviewed various transactions that are, or were, considered repugnant. Prominent examples include the selling and buying of human organs, abortion, incest, and ticket scalping. The objection to such activities is a matter of *tastes* (and context; Khalil and Marciano, 2018). We demonstrate that people may view certain transactions as repugnant because of popular beliefs. Fully 35% of our participants prefer zero cash payment over the receipt of the baby furniture. As with other instances of repugnance, economists, social scientists and policymakers need to be aware of the constraints that popular beliefs place on markets.

Table 1: List of amounts in the experiment

Amount of Cash	I prefer the cash	I prefer the gift certificate
0 NIS	☐	☐
200 NIS	☐	☐
400 NIS	☐	☐
600 NIS	☐	☐
800 NIS	☐	☐
1000 NIS	☐	☐
1200 NIS	☐	☐
1400 NIS	☐	☐
1600 NIS	☐	☐
1800 NIS	☐	☐
2000 NIS	☐	☐
2200 NIS	☐	☐
2400 NIS	☐	☐
2600 NIS	☐	☐
2800 NIS	☐	☐
3000 NIS	☐	☐

Table 2: Descriptive statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
Age	425	30.18	4.02	20	40
Fetal age (Weeks)	434	23.98	9.95	5	40
Number of prior children	434	1.25	1.32	0	8
First Pregnancy	434	0.33			
Non-native women	434	0.11			
Immigrants from former Soviet Union	434	0.06			
Settlers in Judea and Samaria	434	0.15			
Kibbutz residents	434	0.02			
Minimal Amount Chosen – Immediate	434	978.07	920.28	0	3000
Minimal Amount Chosen – Flexible	434	952.43	947.12	0	3000
Minimal Amount Chosen – Overall	434	965.90	932.13	0	3000
Belief Scale	434	2.38	0.92	1	5

Table 3: Linear Regression, Popular Belief Scale			
	Model 1	Model 2	Model 3
Constant	1.97***	2.12***	2.01***
	(0.22)	(0.3)	(0.31)
Ethnic Origin (Ashkenazim=0)			
Sephardi	0.34***	0.34***	0.3***
	(0.1)	(0.1)	(0.1)
Mixed Origin	0.073	0.07	0.07
	(0.12)	(0.12)	(0.12)
Level of Education (Primary School=0)			
High school	-0.14	-0.27	-0.18
	(0.21)	(0.27)	(0.27)
Post-secondary education	-0.45**	-0.59**	-0.47*
	(0.2)	(0.27)	(0.28)
Professional education	-0.45**	-0.59**	-0.43*
	(0.2)	(0.26)	(0.26)
Student	-0.49**	-0.67**	-0.57*
	(0.2)	(0.3)	(0.3)
B.A.	-0.45***	-0.60***	-0.50**
	(0.12)	(0.23)	(0.23)
M.A.	-0.54***	-0.69***	-0.59**
	(0.13)	(0.23)	(0.23)
Ph.D.	-0.67***	-0.81***	-0.71**
	(0.26)	(0.31)	(0.3)
Religiosity (Atheist=0)			
Secular	0.78***	0.79***	0.81***
	(0.2)	(0.2)	(0.2)
Traditional	1.30***	1.31***	1.33***
	(0.22)	(0.22)	(0.22)
Religious	0.65***	0.68***	0.78***
	(0.2)	(0.2)	(0.21)
Orthodox	0.45*	0.51**	0.53**
	(0.24)	(0.25)	(0.26)
Number of prior children		-0.028	-0.008
		(0.035)	(0.036)
Kibbutz Residents			-0.37
			(0.25)
Settlers in Judea and Samaria			-0.31**
			(0.13)
Non-native Israelis			0.02
			(0.15)

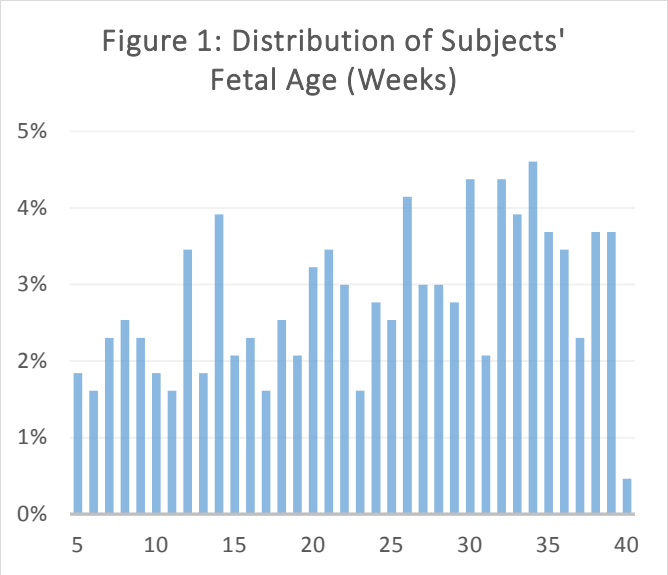
N	429	429	429
Adjusted R-squared	0.15	0.15	0.16

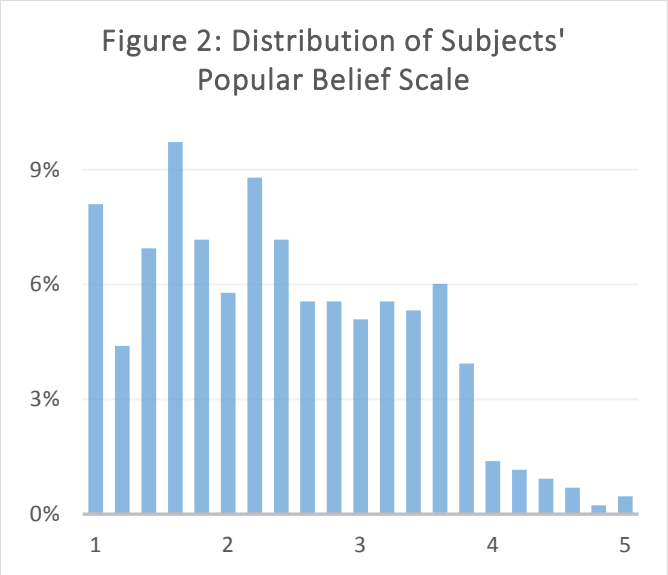
Note: Dependent variable is Popular-belief scale. Model 1 includes ethnic origin, level of education, religiosity, and duration of pregnancy as independent variables. We added as explanatory variables the number of prior children in Model 2 and dummy variables for Kibbutz residents, settlers in Judea and Samaria, and women who were not born in Israel in Model 3. Variables of the duration of the pregnancy (in terms weeks, months, trimesters or halves of pregnancy) were included in all models but their coefficients were not significant. We also tried the variable "Immigrants from the former Soviet Republics" in place of "Non-native Israelis" in model 3, but it was not statistically significant and did not produce significantly different results from the model presented. *** p<.01, ** p<.05, * p<.10.

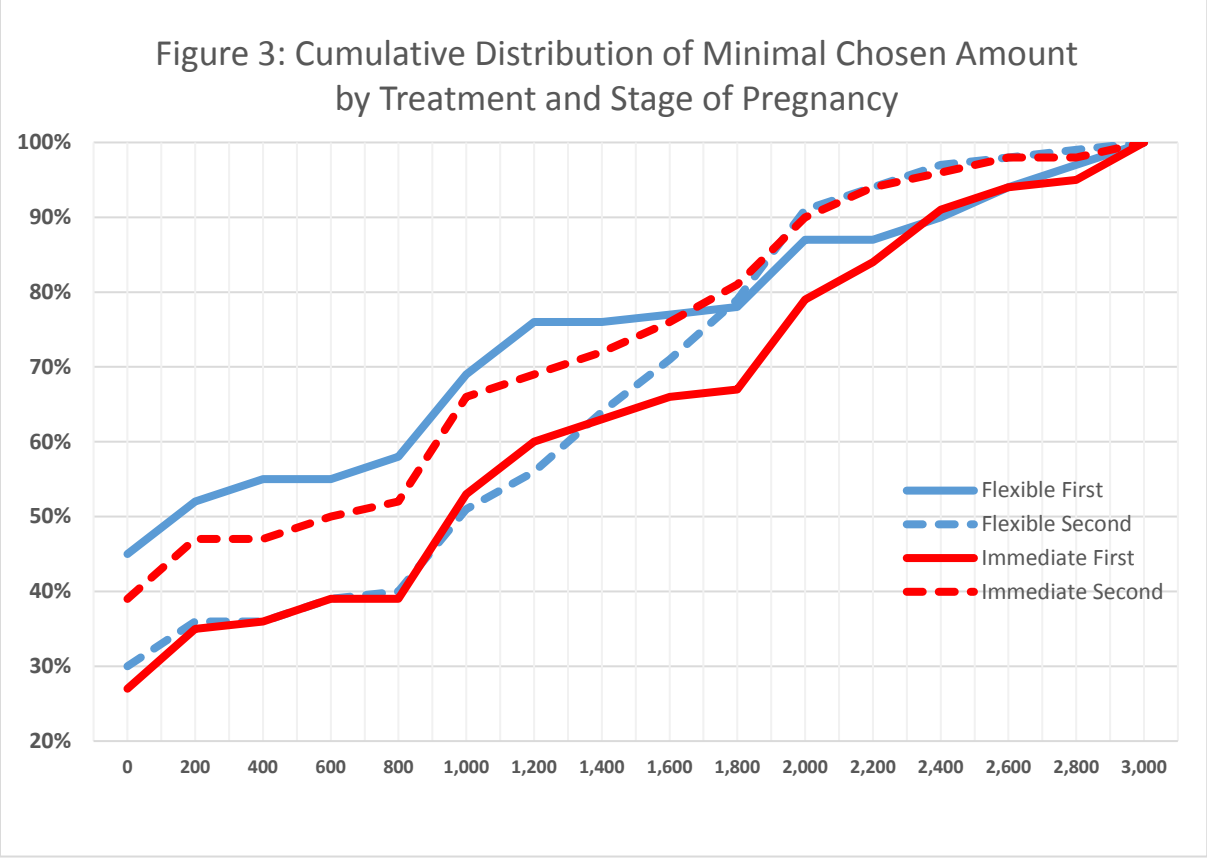
Table 4: Linear Regression, the Minimal Amount Chosen

	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	1235.35***	1467.94***	1512.67***	1316.88***	1354.38***
	-119.65	(208.43)	(212.56)	(226.82)	(226.45)
Popular-beliefs scale	-112.95***	-128.54***	-125.83***	-122.16***	-108.03**
	-45.45	(46.08)	(45.87)	(46.3)	(46.58)
Immediate Treatment				270.06*	295.92*
				(161.78)	(163.17)
Second Half of Pregnancy		-50.59	-59.94	167.23	171.08
		(97.58)	(97.98)	(134.1)	(134.03)
Second Half of Pregnancy * *Immediate* Treatment				-449.05**	-486.20**
				(192.93)	(193.16)
Number of prior children		-87.32***		-87.54***	
		(32.56)		(32.53)	
First-born child			-263.50***		-286.22***
			(100.24)		(99.56)
Kibbutz members		-490.66***	-462.6***	-496.18***	-494.63***
		(157.75)	(164.4)	(142.43)	(156.5)
Non-native Israelis		-230.45*	-209.35*	-217.97*	
		(118.21)	(118.87)	(117.60)	
Immigrants from the former Soviet Republics					-328.29**
					(138.74)
Southern population of Israel					-143.17
					(169.27)
Income level		-5.22	1.8	-6.24	0.43
		(29.83)	(39.36)	(40.12)	(39.61)
Estimate of risk preference		-0.08	-0.1	-0.0007	-0.01
		(0.68)	(0.65)	(0.67)	(0.64)
N	434	434	434	434	434
Adjusted R^2	0.01	0.02	0.03	0.03	0.04

Note: The minimal chosen amount is the dependent variable. *** p<.01, ** p<.05, * p<.10







Note: Cumulative distributions of minimal amounts preferred to the baby furniture by treatment (*Immediate* vs. *Flexible*) and by first- and second-half of the pregnancy.

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Appendix A: Questionnaire

Part A

A lottery will be held for the female research participants. The lottery winner may choose one of the two following options:

1. A gift certificate for all the furniture necessary for the baby's room, each piece personally chosen from the selection available at any branch of one of the leading chain-stores, valued at 3,000 NIS (see the illustrative photos attached at the bottom of this page).

The chosen furniture will be delivered to your home immediately with the conclusion of the data collection, sometime during the coming month (*Immediate* Treatment) **or** The chosen furniture will be delivered to your home at the time for your choice, within one year of completing the questionnaire (*Flexible* Treatment)

   Receipt of this grand prize cannot be delayed and this gift certificate may not be gifted to anyone else. The awarding of this grand prize is conditional on the granting of permission to photograph the awarded furniture after its placement in the home, as part of the publicity regarding the winner.

2. A cash sum, the amount of which will be determined by you in answering the questions found on the next page.

The grand prize winner and a monetary award are determined as follows:

1. One of the research participants is randomly chosen to receive the grand prize by means of a lottery. This choice is not affected in any way by your answers on the questionnaire.
2. A random sum is selected for a cash award. This amount may be any sum between 0 NIS and 3,000 NIS, at 200 NIS increments.
3. The lottery winner may either accept the cash award or the gift certificate.

Since the precise sum of money suggested in lieu of the furniture certificate can only be determined after all the participants have filled out their questionnaires, we ask that you indicate in the following table, for each possible amount, whether you prefer that sum or would rather accept the gift certificate.

Amount of Cash	I prefer the cash	I prefer the gift certificate
0 NIS	☐	☐
200 NIS	☐	☐
400 NIS	☐	☐
600 NIS	☐	☐
800 NIS	☐	☐
1000 NIS	☐	☐
1200 NIS	☐	☐
1400 NIS	☐	☐
1600 NIS	☐	☐

1800 NIS	☐	☐
2000 NIS	☐	☐
2200 NIS	☐	☐
2400 NIS	☐	☐
2600 NIS	☐	☐
2800 NIS	☐	☐
3000 NIS	☐	☐

Part B

You are asked to relate to each different statement. Please read all items carefully and assess how true each one is for you.

statement	To a very great extent	To a great extent	Somewhat	To a small extent	Not at all
I believe in supernatural beings that influence events in our world.	☐	☐	☐	☐	☐
I believe that the 'evil eye' can harm people.	☐	☐	☐	☐	☐
I believe in the existence of supernatural powers that influence our fate.	☐	☐	☐	☐	☐
I believe in that fate exists and determines the course of our individual lives	☐	☐	☐	☐	☐
I believe that people's thoughts can affect the fate of others.	☐	☐	☐	☐	☐

Part C

1. Of the following five alternatives, mark your preferred alternative:
   - o get 40 NIS for sure
   - o A 50% chance of receiving NIS 72 and a 50% chance of receiving NIS 24
   - o A 50% chance of receiving NIS 104 and a 50% chance of receiving NIS 8
   - o A 50% chance of receiving NIS 136 and a 50% chance of receiving NIS 8
   - o A 50% chance of receiving NIS 168 and a 50% chance of receiving NIS 24

2. Of the following five alternatives, mark your preferred alternative:
   - o get 64 NIS for sure
   - o A 50% chance of receiving NIS 96 and a 50% chance of receiving NIS 48
   - o A 50% chance of receiving NIS 128 and a 50% chance of receiving NIS 32
   - o A 50% chance of receiving NIS 160 and a 50% chance of receiving NIS 16
   - o A 50% chance of receiving NIS 192 and a 50% chance of receiving NIS 0

3. Assume that we are offering to sell you a lottery ticket. In this lottery, there is a coin toss. If the coin falls on 'heads', you win 2,000 NIS; if it falls on 'tails', you don't get anything (0 NIS). How much would you be willing to pay for a lottery ticket? I would be willing to pay the sum of ____ NIS to participate in the lottery.