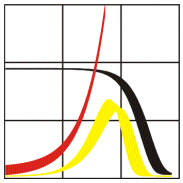

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Additional Work, Family Agriculture, and the Birth of a First or a Second Child in Russia at the Beginning of the 1990s

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Abstract

At the beginning of the transition period, many Russian households faced substantial economic hardships and uncertainties. An economic downturn had become one of the major factors responsible for the significant and rapid decline of Russian fertility. However, many households tried to cope with this situation by engaging in multiple income generating activities and the cultivation of food on private plots of land. The question therefore arises whether these activities had a positive impact on fertility decisions. This paper explores the association between additional employment or subsistence measures (second jobs, part-time self-employment, and part-time family agriculture) and the probability to have a first or a second child in Russia during 1990 and the spring of 1993. Data from 966 respondents from the Russian component of the survey "Social Stratification in Eastern Europe after 1989: General Population Survey" show that activities that generate an additional income were positively associated with the birth of a second child. This is especially the case if these activities produce half of a respondent's or her household's income. The birth of a second child was also positively associated with the fact that a household consumed food that was cultivated by the household itself. However, none of these activities was significantly connected with the birth of a second child.

Keywords: family agriculture, fertility, Russia, secondary employment, transition period.

1 Introduction

Between 1987 and 1997 the countries of the Russian Federation faced a serious decline in fertility. After a period of continuous fertility increase in the first half of the 1980s, the Total Fertility Rate (TFR) of these countries reached a local maximum of 2.23 in 1987 (see figure 1). However, this development converted immediately afterwards and the TFR declined within a ten-year period to a minimum of 1.22.

This significant decline was initially caused by a decreasing influence of pronatalistic policies that started at the beginning of the 1980s. These policies led to the temporary increase of fertility until 1987 (Scherbov & van Vianen 2002, Vishnevsky 1996, Avdeev & Monnier 1995). After 1990, the breakdown of the Soviet system and the deep changes in Russian society during the transition period became the dominant influence on most people's reproductive behavior. However, there is an ongoing discussion about how much changes in the social or the economic system are responsible for the observed decline of fertility (see Kohler & Kohler 2002 and Philipov 2002 for overviews for Central and Eastern Europe). This discussion cumulates in two questions: (1) To what extent do low levels of fertility in Central and Eastern European countries reflect processes of a second demographic transition and (2) how much are they caused by the deep economic crises in these countries during the 1990s? The first question is related to the argument that Russian people want to have a small number of children because they have started to orient their lives to western values and lifestyles, and these are associated with the postponement of births and a smaller number of children (Kharkova & Andreev 2000, United Nations 2000, Vishnevsky 1996, Zakharov & Ivanova 1996). The second question is related to the argument that deep and long-lasting economic crises cut down income for the majority of Russian households and, at the same time, raised the costs of having children (Kohler & Kohler 2002, Kohlman & Zuev 2001, Philipov & Shkolnikov 2001, United Nations 2000, Kharkova & Andreev 2000, Becker & Hemley 1998). Therefore, childlessness or having only one child became a meaningful strategy to avoid poverty and to support the economic survival of the household.

FIGURE 1 ABOUT HERE

Both questions lead to sound hypotheses about the determinants of low fertility in Russia, but both still miss a persuasive empirical confirmation. According to the thesis of the second demographic transition, marriage rather than fertility moved towards western patterns of behavior in the 1990s (Becker & Hemley 1998), and Russian women did not start to give birth to their first child at older ages (Philipov & Kohler 2001). Moreover, western values were already popular in Russia at that time, but they were not so dominant that they were able to induce such a significant decline of fertility as was observed (Lestaghe & Surkyn 2002). The impact of the economic crisis on Russia's fertility is unclear as well. On the macro-level, a clear positive association between

the decline of the Russian economy and the decline of fertility is reported (Kohler & Kohler 2002, United Nations 2000). However, this association can only partly be found on the micro-level. Different studies report positive, neutral and negative impacts of a household's or an individual's economic situation on fertility decisions or fertility intentions (Kohler & Kohler 2002, Kohlmann & Zuev 2001, Phillipov & Shkolnikov 2001, Andreev et al. 1998).

One reason for these contradictory results might be that research concentrates primarily on the official side of Russian economic life, such as official estimates of productivity on the macro level and monetary income or the official employment situation of an individual on the micro level. However, the Russian economy is substantially characterized by informal or hidden activities. Many Russians generate their income by two or more different kinds of work. They have, besides their official first job, second or third jobs, they are self-employed part-time, do odd jobs, or sell homegrown food. Many Russian households also live significantly from the food they cultivate on their own plot of land. All these activities may make an important contribution to a household's economic situation and economic security, but they are hardly covered by official statistics or standard survey questions about income and employment.

Therefore, activities that generate additional income or that reduce costs for basic needs, such as the consumption of homegrown food, have to be considered in order to receive a more realistic picture of the economic foundations of fertility decisions in Russia. All these activities should have a positive impact on the decision to have a child, because they enable a household to stabilize or to improve its economic situation and to reduce future economic risks. Moreover, these activities are meaningful strategies to cope actively with the economic hardships and uncertainties of the transition period, as Philipov and Shkolnikov argue: "Successful coping strategies ease the living situation of the individuals. They may relax their economic difficulties, and [the individuals] feel less uncertain about the future. Therefore, factors that depress fertility will be less efficient. Thus, people who develop successful coping strategies are more likely to have children" (2001:6).

Data from the Russian component of the survey "Social Stratification in Eastern Europe after 1989: General Population Survey" are used for empirical investigations. Analyses based on 440 individuals who were at risk of having a first child and 648 individuals who were at risk of having a second child between 1990 and the spring of 1993 report strong and significant associations between the birth of a second child and activities that generate additional income or the consumption of homegrown food. There are only weak and not significant associations with the birth of a first child. Due to data limitations, these results cannot be interpreted in a causal way, but they show that activities to improve or to stabilize an individual's or a household's economic situation or to reduce basic costs of living appear together with the birth of a second child in a very economically uncertain time in Russia.

After this introductory section, a brief overview of the empirical results about the relationships between the economic situation and the development of fertility at the beginning of the transition period in Russia is given. Section 3 presents empirical evidence from the literature that multiple income generating activities and family agriculture were common phenomena in the Russian society at that time. The conclusion is that these activities have to be considered if one wants to analyze the influence of an individual's or a household's economic situation on fertility events. Section 4 introduces the data and reports on the creation of the population of respondents that are employed in the analyses. The analyses focus on the association between strategies to generate additional income and/or the consumption of homegrown food and the birth of a first or second child between 1990 and the spring of 1993. This is done under the control of a couple's and their household's general characteristics. The construction of all these variables is discussed in section 5. Section 6 presents results from descriptive analyses and logistic regressions. Finally, section 7 summarizes and discusses the results.

2 The Economic Impact on Russia's Fertility Decline

In the first half of the 1990s, Russia's economy shrunk substantially. The annual Gross Domestic Product (GDP) decreased continuously after 1990 and stabilized around a level of 60% of the GDP of 1989 (UNICEF 1999)(see figure 2). Even though this decline is overestimated because official statistics underreport the real economic output (Johnson et al. 1997), high rates of inflation, an increase of unemployment, and a decline of real wages lead to a rise of poverty and a decrease in well-being (Grün & Klasen 2001, The World Bank 2000). Inequality almost doubled from 1990 to 1998 and Russia became one of the countries with the highest rates of socio-economic inequality in Central and Eastern Europe (The World Bank 2002). Therefore, the new economic and political system brought unemployment, uncertain employment situations, irregular salary payments, and a substantial decline of income to many Russian households. Having children became more expensive at the same time. Childcare benefits and child allowances were cut down. Social services became 'privatized'; i.e. people had to pay for them. Inflation made feeding and clothing of children expensive (Samorodov 1992). Consequently, families with children and especially single mothers have tended to become poor (International Labour Organization 2002) and families, being aware of this situation, postponed or stopped births in order to maintain their living standards (United Nations 2000) or to avoid poverty.

FIGURE 2 ABOUT HERE

There is mixed empirical evidence for a causal relationship between Russia's shrinking economy and the decline of fertility. On the macro-level, Kohler and Kohler (2002) find a clear association. Moreover, multivariate analyses for several Central and Eastern European countries show

that the rate of labor force participation, the unemployment rate, and the support of families by the state influenced the development of the TFR significantly in the 1990s (United Nations 2000). Becker and Hemley (1998) report indirect effects of changing income levels on fertility in Russia. Higher levels of income raise, on the one hand, the number of divorces, which has a negative impact on fertility. On the other hand, high levels of income reduce the number of abortions, which has a positive impact on fertility.

Studies on the micro-level only partly support the results on the macro-level. Using data from the Russian Longitudinal Monitoring Survey (RLMS), Philipov and Shkolnikov (2001) show that women's intention to have a first child is independent of their household's economic situation, which is measured by its income level. Nevertheless, women from households with a higher income report significantly more often about an intention to have a second child. However, using data from the 1994 mirocensus, Kharkova and Andreev (2000) report no significant influence of income on women's desired number of children or on the birth of a first, second, or third child. Moreover, if economic decline and economic uncertainty is operationalized by a couple's employment situation or concerns about the future, positive associations between childbirth or fertility intentions and unemployment or an uncertain economic future are found (Kohler & Kohler 2002, Kohlman & Zuev 2001).

3 Activities to Generate Additional Income and Family Agriculture in Russia: Empirical Evidence from the Literature

Heterogeneous results about the impact of the economic situation on individual fertility decisions in Russia might be caused, among other things, by the fact that research concentrates to a great extent on the official side of an individual's or a household's economic situation. However, Russian households adapted various to cope with the economic burdens of the transition period. They activated their social networks to receive help and support (Philipov & Shkolnikov 2001, Goodwin et al. 2000, Lokshin & Yemtsov 2001, Lonkila 1999, 1997, Ledeneva 1998), they moved in together to reduce housing costs (Lokshin & Yemtsov 2001, Lokshin et al. 2000), they cut down consumption (Lokshin & Yemtsov 2001, Lokshin et al. 2000), they did not pay taxes (Philipov & Shkolnikov 2001) or they started to engage in the hidden economy (Sik 1995). Russian households also intensified family agriculture by cultivating food on private plots of land for self-supply or sale (tho Seeth et al. 1998, tho Seeth 1997, Brainwaith 1995, Rose & Tikhomirov 1993,), and household members started to engage in activities to generate additional income, i.e. to have besides the first job an income from a second or third source. (Prokofieva & Terskikh 1998, Braithwait 1995).

Activities to generate additional income are not an invention of the transition period. They were also common before 1991 (Khibovskaia 1995, Sik 1995, Ofer & Vinkur 1992, Grossman 1989, 1977). In Soviet times, the cultivation of private plots, moonlighting, and freelance house building were the most important forms of additional income or informal work. The

significance of these activities for the Soviet economy is unclear because many of them were illegal or people hid them to avoid taxation. Consequently, estimates range from some percent to 40 percent of the GNP of the Soviet Union in the 1980s. However, the significance of informal working activities for the Russian economy after 1991 is unclear as well, because people still had an incentive to hide income due to illegality or high taxation of their work (Braithwaite 1995). Official statistics from the Russian Federal Employment Service estimate the overall size of additional employment in 1994 at 11 percent of the total employed population (Khibovskaia 1995). Data from surveys report a much higher number. In a survey of the "All-Russian Center for Public Opinion Research" in 1994, 20 percent of the interviewed work force had a secondary employment (Khibovskaia 1995). In the "New Russian Barometer I" from 1992, 27 percent of the interviewed households were involved in additional work (Rose & McAllister 1996: Table 2). Prokovieva and Terskikh (1998) state in their survey that about 50 percent of the families in St Petersburg had at least one second job in 1993.

The employment policy of state enterprises facilitated people's engagement in activities to generate additional income. Many state enterprises reduced the working time of their employees, but did not dismiss a substantial number of their workforce (Commander et al. 1993, Commander & Tolstopiatenko 1996). This led to the situation that, on the one hand, the first job in a state enterprise became a kind of insurance because it guaranteed a minimum income and access to social benefits. On the other hand, a second job in the private sector or self-employment became a relevant source of monetary income. Therefore, short time workers and people who were on forced vacation, but also officially registered unemployed were more often involved in informal economic activities than were full-time employees (Braithwaite 1995, Khibovskaia 1995).

However, this does not imply that short time workers or the unemployed had the opportunity to become wealthy because they had enough time to engage in additional or informal work. Unemployment was and is still one of the main causes of poverty (International Labour Organization 2002) and income from a second job or part-time self-employment was on average more a supplement rather than a substitute for income from a first job (Rose & McAllister 1996, Khibovskaia 1995). Moreover, the amount of income that was generated by additional work is positively associated with the amount of income that was generated by the first job. Therefore, additional income was a relevant factor for middle-class households to become wealthy. Prokovieva and Terskikh (1998) report in their study that 40 percent of upper-income husbands had at least one additional source of income. Poor households were less likely involved in any kind of additional jobs as were non-poor ones (Braithwaite 1995). Therefore, additional jobs were only of limited use to compensate for the loss of income due to unemployment, declining wages, or irregular salary payments.

Opportunities for second jobs or part-time self-employment were primarily located in larger cities. Households in small or middle-sized towns and in villages had to engage in the cul-

tivation of food.[1] However, there was also a remarkably high number of urban households that cultivated food on their dachas. Rose and Tikhomirov (1993) report in their study a share of 51% upon urban households. The cultivation and sale of homegrown food was tolerated by the Soviet Government for a long time and was legalized in 1977 (Shlapentokh 1989). Food from home production was an important factor in feeding the Russian population before 1991 and it became a central one after 1991. In the mid-1990s, around 55 million households were engaged in producing food on their dachas or plots of land and these households supplied the majority of food that was consumed by the Russian population (tho Seeth et al. 1998).

Although the major purpose of family agriculture was to support home consumption (von Braun et al. 1996), income from sales of homegrown food was for many households important, too. In the study of tho Seeth et al. (1998) from 1995, sales from private agriculture made up an average 31% of a household's income. In villages, its amount exceeded the wages from first and second jobs. Similar to the income from additional jobs, primarily middle class households profited from earnings from family agriculture. For poor households, this source of income was less important.

All these results highlight the relevance of activities to generate additional income and family agriculture for the income structure and economic situation of many Russian households. These activities need to be considered therefore if one wants to gain a better understanding of the economic determinants of fertility decisions in Russia during the transition period. However, wouldn't it be sufficient to analyze an individual's or a household's overall amount of income independently from the different working activities that generate these earnings? There are two replies to this question. First, at the beginning of the transition period, high inflation made it impossible for people to assess the value of money realistically. Non-monetary social benefits like free or subsidized housing, free education, childcare and medical treatment furthermore made up a substantial part of a household's income not only in the Soviet era, but also at the beginning of the transition period. Consequently, people had no experience in evaluating their welfare or their aspired standard of living in terms of money (Rose & McAllister 1996). Both arguments lead to the conclusion that the monetary value of earnings does not give sufficient information about the economic basis of reproductive behavior. Second, different working activities generate an income portfolio. Risks of declining income or losing a job as well as chances of raising one's income and generating wealth are divided between two or more working activities. There is thus the opportunity to tone down the consequences of income loss due to unemployment, declining wages, or irregular wage payments by the earnings of another job. If the working activities are located in different economic sectors, a person can profit from different developments in these

[1] Two different kinds of family agriculture exist: garden plots of urban households, on average 0.15 hectares large and mainly located in the outer districts of a city, and plots of rural households, on average 0.36 hectares in size (tho Seeth et al. 1998).

sectors. This can, in the end, give the opportunity for a smooth transition from one job to another. Therefore, not only the amount of money, but also the fact that to have two or more sources of income reduces an individual's or a household's uncertainty about its future economic situation.

4 Data

Data are from the Russian component of the multinational survey "Social Stratification in Eastern Europe after 1989: General Population Survey". This survey was conducted in 1993 and 1994 in six Central and Eastern European countries: Bulgaria, the Czech Republic, Hungary, Poland, Russia, and Slovakia.[2] The Russian survey was carried out on the territory of the Russian Federation from April to July 1993 and provided data for 5,002 people that were between 16 and 79 years old. Although the survey was not planned for purposes of fertility research, it offers basic information about individual fertility history. In addition, information about a respondent's and her family's economic and social situation, her occupational career and employment are available. This includes also the involvement in activities that generate additional income, like part-time agriculture, part-time self-employment, and second jobs. The primary purpose of the survey was to explore the individual consequences of the substantive social and economic changes in Eastern Europe resulting from the breakdowns of the socialist systems in these countries. The survey was therefore designed to gather especially retrospective data on the respondents' living conditions between 1988, i.e. before the breakdowns of the socialist systems, and 1993, i.e. after the breakdowns.

The data from the survey "Social Stratification in Eastern Europe after 1989: General Population Survey" have two advantages over other datasets on socioeconomic developments in Russia in the early 1990s. First, the number of respondents who experienced the birth of a child is sufficiently high to analyze the determinants of these events by the order of birth separately. Second, the data also contain an adequate number of respondents who were engaged in activities of family agriculture or to generate additional income. The data's disadvantage is that their period of observation ends in the spring of 1993 and that they therefore cover the very beginning of the transition period in Russia only. If one takes the data from this one-and-a-half year period, the number of fertility events is too small for meaningful quantitative analyses.

Therefore, the subsequent analyses concentrate on fertility events between 1990 and the spring of 1993. This period includes the beginning of Russia's economic crisis as well as the early beginning of the transition period. It also covers a substantial part of Russia's fertility decline. Russia's economic crisis became dramatic after the breakdown of the Soviet system in the autumn of 1991, but the political and economic problems had already begun in 1990 (Shkolnikov, personal communication). In 1990 and 1991, inflation was already high and it was be-

[2] See Treiman (1997) as well as the project's homepage at http://www.sscnet.ucla.edu/issr/da/SSEE/SSEE.home.html for further information about sampling, field work, and data quality.

coming increasingly difficult to buy food and even basic goods of the first necessity in state shops. Moreover, the disintegration of the former Soviet Union in 1991 significantly made people feel unsure about their future. In the beginning of 1992, the economy was liberalized and privatization begun. These measures ended the former lack of goods and services, but they also led to enormous economic hardships: real incomes decreased two-fold, savings were almost nearly liquidated, galloping inflation begun, and the Russian population faced exceptional economic uncertainty. The Russians were confronted with economic difficulties after the breakdown of the Soviet system that were different to those experienced in the pre-breakdown era. Before the breakdown, they were faced with a substantial shortage of goods and services. After the breakdown, they suffered from a substantial shortage of money. Additional work, self-employment, and family agriculture were important means of coping with both shortage situations. These coping strategies were to some extent facilitated by the politics of perestroika, because many forms of additional work and self-employment were legalized in 1990, providing people with better opportunities to respond to the economic problems.

Because the period of observation goes from 1990 to 1993, fertility events in two very different political and economic regimes are studied. Therefore, the following analyses will give only partial information about determinants of fertility in Soviet times and in the early period transition, but they will nonetheless give an impression about factors that influence fertility events within an economically hard and uncertain time in Russia.

The subsequent analyses are made for a specific sub-population of respondents who were 20 to 39 years old between 1990 and 1993, and who were married at the time of the interview. The lower age limit is the result of the survey's target population that consists of individuals aged 20 to 79 years at the time of the interview. However, the data also contain 58 respondents who were under 20, and they are excluded from the analyses. The upper age limit reflects the fact that during the Soviet era and at the beginning of the transition period, most births took place within a particular age range, namely between 18 and 34, and 18 and 36 years for women and men respectively. To cover most of the first or second births between 1990 and the spring of 1993 in the data, the upper age limit of the sub-population under analysis is defined by 39 years. During the Soviet era and at the beginning of the transition period, most births took place in marriages. After 1991, the number of children born out of wedlock increased (UNICEF 2001), but childbearing within marriage remained the dominant pattern. Consequently, the population of analyses is restricted to respondents that were married at the time of the interview.[3]

[3] The data do not offer histories of marriages. Only the date of first marriage and marital status at the time of the interview is known. Therefore, the marital status at the time of the interview has to be used as a selection criterion. This criterion is to some extent problematic, because one has to assume that respondents that were married in the spring of 1993 were also continuously married between 1990 and 1993 or entered marriage at that time. However, only 14.8% of the selected respondents married for the first time during the period of observation.

Within this sub-population, the number of births is sufficiently high to define two groups of respondents that were at risk to get a first or a second child between 1990 and spring 1993. 440 women and men were at risk to get a first child because they entered the period of observation childless. 648 women and men were at risk to get a second child, because they entered the period with one child or got a first child in 1990 or 1991.[4] The survey's sample size is too small to report about a sufficient number of third or higher births.

5 Variables

The subsequent analyses intend to identify factors that are associated with the birth of a first or a second child in Russia between 1990 and the spring of 1993. Therefore, two *dependent variables* are constructed: whether the respondent had a first child and whether he or she had a second child during that period (see table 1). Both variables are dummy-coded and therefore logistic regressions are used for analyses.

Decisions to have a child or not are mostly coupled decisions and therefore, the *explanatory variables* characterize - whenever it was meaningful and possible - the attributes or living conditions of couples and their household. Moreover, only variables that give information about the whole period of observation are used. Several questions of the survey cover the respondent's activities, which generate additional income, and activities of the household in consuming and selling homegrown food. Respondents were asked whether they were engaged in part-time self-employment or in a second job in 1992. If they gave an affirmative answer, additional information about the self-employment and second job was collected. Among these questions, respondents should estimate roughly the fraction of their income in 1992 that they earned from part-time self-employment or the fraction of their income that they earned from a second job. The response categories were: "just a little (10 per cent or less)", "more than 10 per cent but less than half", "about half ", "more than half but less than 90 per cent", and "almost all (90 per cent or more)".

The respondents were also asked whether they were engaged in part-time agriculture in 1992. If they gave an affirmative answer, they were requested to give a rough estimate about what fraction of their households' income came from the sale of homegrown agricultural products in 1992 and what fraction of the total food consumed by the household came from the household's own plot of land. The response categories were the same as for the questions about the fraction of income from part-time self-employment and second jobs.

Based on this information, a dummy coded variable was constructed to show whether the respondent or her household received any income from additional working activities or from the sale of homegrown food in 1992. Furthermore, the fractions of personal income and of family

[4] Respondents that got a first child after 1991 are excluded from the risk population to get a second child because it was highly unlikely that these respondents will get a second child within a period of one year.

income from additional working activities or from the sale of homegrown food were added up. This sum was organized into three dummy variables that give information about how much of the respondent's or her household's overall income came from these activities (see table 1). The fraction of food was organized in a similar way by three dummy variables, too.

Unfortunately, the variables about income from additional working activities and the sale of homegrown food have to be accepted as having a substantial inaccuracy. Members of Russian households pool their resources and consequently decisions are made more because of the household's resources and less because of the resources of individual household members. Therefore, to evaluate the significance of additional working activities on fertility decisions one has to know the fraction of the household's total income that comes from these activities. However, the data offer this information only in the case of the sale of homegrown food. In the case of part-time self-employment and second jobs, only the significance for the respondent's personal income is known.

All information about activities that generate additional income and family agriculture is related to the year 1992 and the question thus arises whether this cross-sectional measurement can be used to analyze events within a three and-a-half-year period. Family agriculture can be seen as a constant characteristic of a household during that time. A high number of households cultivated a private plot of land in Soviet times and most of them continued this work during the transition period. Earnings from part-time self-employment or second jobs have to be interpreted as innovations in a household's income structure because there were only very limited or illegal opportunities to engage in these kinds of work before 1990. However, due to the cross-sectional character of this information, no causal relationships between the start or the strengthening of activities to generate additional income or the consumption of homegrown food and the birth of a first or second child can be derived. Therefore, the coefficients of the subsequent models have to be interpreted in an associative, rather than causal, way.

TABLE 1 ABOUT HERE.

To receive a reliable picture about the relevance of additional working activities and family agriculture on fertility decisions in Russia, other determinants of fertility are also considered in the analyses: the wife's age in 1990, the husband's and wife's level of education, membership of at least one couple in the communist party, residential status, household's income development, and the place of residence.

The variable 'wife's age' reports the age of the wife when she entered the period of observation in 1990 and is represented by four dummy variables (see table 1). Husband's and wife's level of education is measured by years of schooling. In Soviet times, living conditions and career opportunities depended very much on the membership and position in the political

class or on relationships to people with political and administrative power. Because our period of observation also covers the last two years of the Soviet era, this important aspect of social stratification has to be considered. Moreover, members of the political class also coped better with the social and economic changes in the early transition period (Gerber 2001, 2000, Rona-Tas & Guseva 2001, Hanley et al. 1995, Rona-Tas 1994). A variable whether at least one couple is or was a member of the communist party covers this circumstance.

The variable about residential status measures whether the respondent lived in a state owned apartment or in a service apartment in 1992. Because there was no high mobility during the Soviet era and the early transition phase, this variable also represents, with a high probability, the residential status of the household from 1990 to the spring of 1993. This variable is used to measure non-monetary income in the form of free or cheap housing. In Soviet times, social benefits made around 50 percent of a household's income. These were primarily non-monetary in the form of free or cheap housing and free access to education, childcare-, and health-services (Buckley & Gurenko 1997, Milanovic 1992). Non-monetary social benefits still made around 35 percent of the labor income in 1992 (Commander & Jackman 1993).

Due to high inflation at the beginning of the transition period, the occurrence of irregular wage payments, and the changing importance of money for people's income, no variable about the development of a household's monetary earnings is considered in the analyses. Instead, a variable was constructed that gives information about respondents' evaluations of their households' income situations during 1988 and 1993. Respondents were asked to evaluate separately for 1988 and 1993 whether their households' incomes were compared with the incomes of Russian families, in general, "far below average", "below average", "average", "above average", or "far above average". The mean value of these two variables was computed and recoded into two dummy variables: The household's income was "far below average or below average" between 1988 and 1993 or its income was "average" during that period.

Finally, four dummy variables that cover the households' places of residence in 1992 are constructed. They give information whether the household was placed in the countryside, in a town, or in a big city during the period of observation. Opportunities for part-time self-employment and second jobs were primarily located in larger towns and cities. Opportunities for family agriculture were better in the countryside. On the other hand, fertility-related values and behavior differed significantly between the countryside and the cities (Avdeev & Monnier 1995). Therefore, variables that control for the respondents' place of residence are added to ensure that the variables about activities generating additional income and family agriculture do not reflect general differences in fertility-related values and behavior between the countryside and cities.

6 Results

The empirical results are presented in two parts. At the beginning, descriptive results are reported to discuss the significance of activities that generate additional income and of family agriculture in the daily life of many of the respondents. Afterwards, multivariate analyses explore for associations of these activities with the birth of a first or a second child between 1990 and the spring of 1993. To report about results that are fully comparable with national probability samples of the adult population in Russia in 1993, all analyses rest on weighted data.[5]

Descriptive Results

The following results rest on the two populations of respondents that were at risk of having a first or a second child (n = 966). 43.0% of these respondents were engaged in additional income generating activities in 1992. Income from family agriculture was the most prominent one. 36.4% mentioned this source of income, followed by a second job (9.3%), and part-time self-employment (3.6%). Thus, 85.2% of the respondents, who generated additional income, did this by family agriculture. 47.0% of the respondent's households consumed at least some food that was produced by the households themselves and 76.3% of these households sold food. Consumption and sale of food from family agriculture were therefore frequent phenomena for many of the respondents and their households. However, the share of respondents that were engaged in part-time self-employment or second jobs is rather low. It can thus be concluded that many respondents hid their activities in the interview. Consequently, the results give information primarily about the official side, but not about the whole extent of activities generating additional income at that time.

Most households that received earnings and food from family agriculture in 1992 did this also in 1988. 79.3% of the households that generated additional income in 1992 by selling homegrown food were doing this already in 1988. 79.5% of the households that lived to some extent from the products of their plots of land in 1992 did this in 1988, too. 15,0% of the households became more dependent on selling homegrown food, because this activity provided a larger proportion of the household's total income in 1992 than it did in 1988. 21.7% of the households consumed more homegrown food in 1992 than they did in 1988. On the other hand, part-time self-employment and additional jobs became a new source of income during 1988 and 1992. Two-thirds of the respondents who were self-employed part-time in 1992 and 50% of the respondents with a second job in 1992 started with these activities between 1988 and 1992.

FIGURE 3 ABOUT HERE

[5] Weighting adjusts the data according to the following dimensions: age restriction (20 to 69), place of residence, number of adults in the household, gender, and education. See Treiman (1997) for further details.

Income from additional work was on average a supplement to the respondent's personal income from a first job or to the household's total income (see figure 3). 49.5% of the respondents, who or whose households were engaged in activities of generating additional income, reported that income from additional work made up to 10% of their personal or their household's total income. Only 16.3% reported that these earnings made more than 50% of their personal or of their household's total income. Family agriculture made in many cases only a small contribution to the household's earnings, but it was important to feed the household. For 20.6 % of the respondents' households, homegrown food provided around half of the household's overall food consumption and it made more than a half for 33.7%.

Multivariate Analyses

The presentation of the results of the multivariate analyses start with a general discussion about the different factors that are associated with the birth of a first or a second child in Russia between 1990 and the spring of 1993. Afterwards, it turns to a more detailed presentation of the associations of activities that generate additional income and the consumption of homegrown food on fertility events.

Model 1 in table 2 shows the results of a general model of factors that are associated with the probability for a married couple to have a first or a second child between 1990 and the spring of 1993. The variables about a wife's age in 1990 document that the birth of a first or a second child was an event that primarily took place when a married woman was between 20 and 29. The wife's and husband's level of education show no significant association with the birth of a first child. However, the wife's education is positively and significantly associated with the birth of a second child. Subsequent analyses that make separate estimations for the birth of a second child in 1990 or 1991 (Soviet era) and 1992 or 1993 (transition phase) show that this is primarily an effect of the Soviet era. The same holds for the significant positive association between current or former membership of at least one couple in the communist party and the birth of a first child. This is an unexpected result. Former or current members of the communist party coped better with the uncertainties and economic hardships of the early transition phase and therefore one expects that these individuals should have a higher probability of having a child than are other individuals after 1991. First births are also strongly associated with whether the respondent's household lived in a state-owned apartment in 1992. Therefore, non-monetary income in the form of free or subsidized housing tended to have a positive impact on the birth of a first child, but not on the birth of a second one.

TABLE 2 ABOUT HERE

Respondents subjectively perceived average level of their households' income between 1988 and 1992 is negatively associated with the birth of a first or a second child. Therefore, the higher the subjective average level of income of the household the less likely a first or a second child was born between 1990 and the spring of 1993. A first interpretation of this result is that low fertility was not located in the poor strata of Russian society at that time, but in the more wealthy ones. However, due to the cross-sectional character of the data, the direction of causality between households' income levels and the birth of a first or a second child is unclear. Respondents might evaluate a household's income situation in relation to its general economic situation during the last years. In many households, this situation worsened due to the birth of a child and therefore, the negative association may not be caused by a household's average income, but by the birth of a child. Two additional analyses are made to test this possible reverse causality. First, two variables are added to the model in table 2 that measure a household's economic development directly, i.e. whether the financial situation of the family "stayed the same" or "has gotten better" since 1988. Under the control of these two variables, the negative and significant associations between the household's economic situation and the birth of a first or a second child remain. Second, the model in table 2 is estimated with a variable about the household's income situation in 1988. The variables about the average income development of the household are excluded. The results report a significant negative association between the household's income level in 1988 and the probability of the birth of a first child between 1990 and the spring of 1993. There is also a negative but not significant association with the birth of a second child. All these results can be interpreted as hints that a household's income situation influenced the birth of child and that households in better income situations had a child less likely than did households with a low income.

There is a significant positive association between activities that generate additional income and the birth of a second child between 1990 and the spring of 1992. Respondents who were involved in second jobs or in part-time self-employment or who lived in a household that had monetary earnings due to the sale of homegrown food, had – with a significantly higher probability – a second child during the period of observation compared to respondents who were not engaged in any kind of these activities. However, this association cannot be found for the birth of a first child. One possible explanation for this result is that the birth of a second child depended much more on a household's economic situation than on the birth of a first child. To have at least one child was something like a norm for married couples in Soviet times and this norm has continued since 1991, but is today less influential (Zeuv & Kohlmann 2001).

The next step of the analyses explores how much the positive associations between activities of generating additional income and childbirth depend on the significance of the additional income for the respondents' or their households' total income (see model 2 in table 2).

Relative to respondents that do not receive any kind of additional income, earnings from additional work are positively and significantly associated with the birth of a second child if they make about half of a respondent's or a household's total income. Therefore, activities generating additional income appears together with the birth of a second child if they spread the risk evenly among the first job and secondary sources of income. These activities also matter to some extent for the birth of a first child, if they make half of the respondent's or her household's income as well.

Finally, the implications of consuming homegrown food on fertility events are analyzed (see table 3). All variables about the generation or the significance of additional income therefore are excluded from the models and variables about the consumption of homegrown food are added. All other covariates are the same as in table 2.The results rest on a different population as the analyses before. All respondents that received additional income from a second job or part-time self-employment are excluded. This is done to gain a clearly interpretable reference category for the two sets of explanatory variables: whether the household consumes homegrown food or not and the importance of this homegrown food for the household's total food consumption relative to households that do not consume any food from their own plots of land. As model 1 in table 3 reports, only the birth of a second child is associated with the consumption of homegrown food. Thus, in households that consumed at least some food from private plots of land, the birth of a second child took place significantly more often than in households that did not consume any homegrown food. However, there is no linear relationship between the fraction of homegrown food at the households' overall food consumption and the birth of a second child. Households that lived only to a small – but perhaps important – extent from the products of family agriculture (10 percent or less) as well as households that were more or less self-sufficient were positively and significantly associated with the birth of a second child.

TABLE 3 ABOUT HERE

One central purpose of considering activities that generate additional income in the analyses is to understand the relationship between an individual's or a household's income situation and the birth of a child in a better way. Similar to the studies of Kohler and Kohler (2002) and of Zuev and Kohlman (2001), the results in table 2 report a negative association between the income situation and fertility events. However, subsequent analyses with both models that exclude the variables about activities generating additional income (not reported here in detail) show no significant changes in the direction and strength of the associations between the income situation and the birth of a first or a second child. Income from additional work makes up, on average, only a small fraction of a respondent's or their household's total income and therefore these

earnings correlate only weakly with respondents' overall evaluations of the households' income situation.

7 Discussion and Conclusions

The empirical analyses showed that at the end of the Soviet era and at the beginning of the transition period in Russia, many Russian households were engaged in additional income-generating activities and the production of food on private plots of land. Although the income from these activities are for most of the respondents and their households more a supplement than a substitute to the income from first jobs, earnings from these activities are positively and significantly associated with the birth of a second child during 1990 and in the spring of 1993. Moreover, income from part-time self-employment, second jobs, or the sale of homegrown food is of certain importance for the birth of a second child if it makes around 50 percent of the respondent's or her household's overall income. Therefore, income risks and income opportunities that are evenly distributed between two sources of income provide a sufficient basis for having a second child. However, this does not apply to the consumption of homegrown food. Here, respondents from households that live only to a small extent or that live primarily from the food from their own plot of land report significantly more often the birth of a second child than do respondents from households that do not cultivate any food. However, additional income generating activities and the consumption of homegrown food do not show any significant association with the birth of a first child. As already argued, to have at least one child was something like a norm in Russia during the Soviet era and this norm existed on into the transition period. Therefore, the decision to have a first child is less dependent on economic considerations than is having a second child. This interpretation is also supported by the result that the birth of first child is less related to the household's income level as is the birth of a second child.

One central intention of the paper was to explore whether the consideration of additional income-generating activities and the consumption of homegrown food leads to a better understanding of the interrelation between an individual's or a household's economic situation and fertility events. However, as the analyses show, both activities leave the negative associations between the individual or a household's economic situation and fertility untouched. On the one hand, this is because additional income-generating activities make, on average, only a small contribution to a household's overall income. On the other hand, the analyses use subjective evaluations of a household's income situations instead of objective measures of the monetary and non-monetary flows to the household. However, the variables that give information about additional income-generating activities rest on objective measures. Therefore, the non-correlation between these two sets of variables might also be caused by a discrepancy between subjective evaluations of income and objective income situations.

All presented results have to deal with a significant inaccuracy: they cannot be interpreted in terms of causality. The data offer only information as to whether additional income-generating activities, the consumption of homegrown food, and the birth of a first or second child appeared simultaneously in a period of three and a half years. They give no answer to the question: which was first? The additional income or the child? This lack of causality also raises the question as to whether the analyses rest on a realistic assumption of rationality of fertility-related behavior. An ideal perspective of rationality assumes that individuals who want to have a child shape their economic and material circumstances in such a way that they can have a child. Moreover, this way of reasoning and acting seems to be appropriate especially in times of high economic uncertainty. However, it is also a plausible assumption that the birth of a child generates a need for additional income or for intensifying the production of food on a private plot of land. Here, causality would be reverse, i.e. from the birth of a child to an additional income, and one has to conclude that informal economic activities and family agriculture do not influence fertility decisions. However, for at least a sub-population of households a causal relationship between these activities and fertility decisions can be assumed. Most of the additionally generated income comes from selling products from a private plot of land. Moreover, as almost every household that sells homegrown food also consumes these products. More than two-thirds of the households were already engaged in family agriculture in 1988 and continued this activity during the period of observation. Therefore, family agriculture is something like a constant that existed already before the birth of a first or a second child and causality can be supposed for these households, i.e. family agriculture provides a basis for having a second child.

However, one has also to take into consideration whether this strict causality is needed to explain the relevance of additional income-generating activities and family agriculture for the birth of a child. Under the assumption that fertility decisions are at least partly purposeful and rational, the outcome of these decisions depend on, among other factors, an estimation of the consequences of the different alternatives that can be chosen and how these consequences have to be treated. However, in situations in which a decision leads to consequences that will appear in the future, like in fertility decisions, concrete treatments of these consequences do not have to exist at the time the decision is made. Knowledge or perceptions of opportunities to treat these consequences in the near future are sufficient as well. Of course, the latter treatment of consequences is more risky than the former. Therefore, additional income-generating activities or family agriculture do not have to exist compellingly at the time a decision about fertility is made to influence these decisions. Opportunities to engage in these activities in the future may influence the decision to have a child as well.

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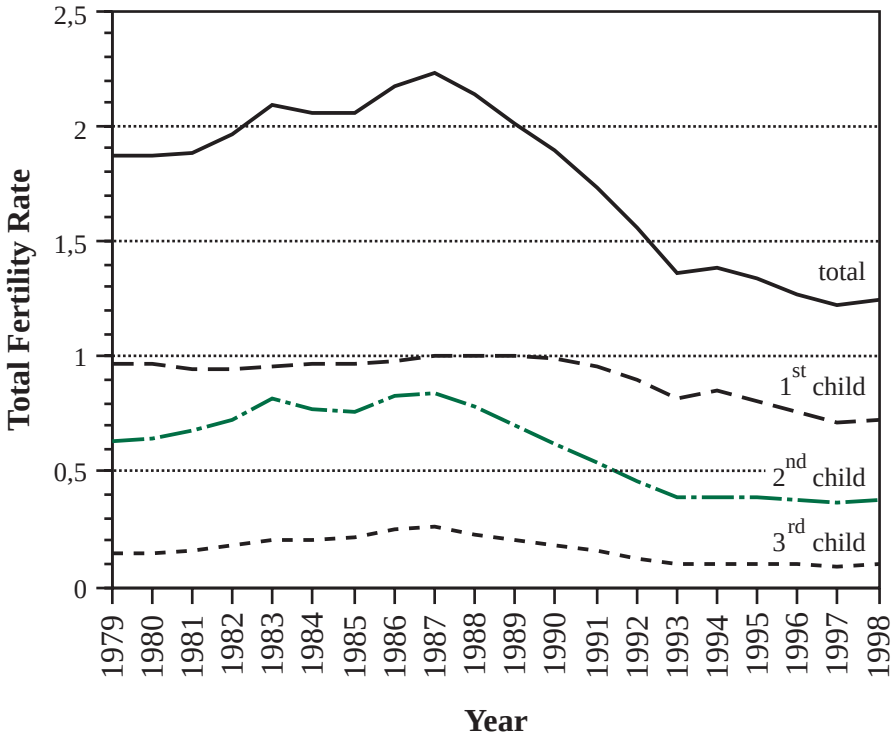
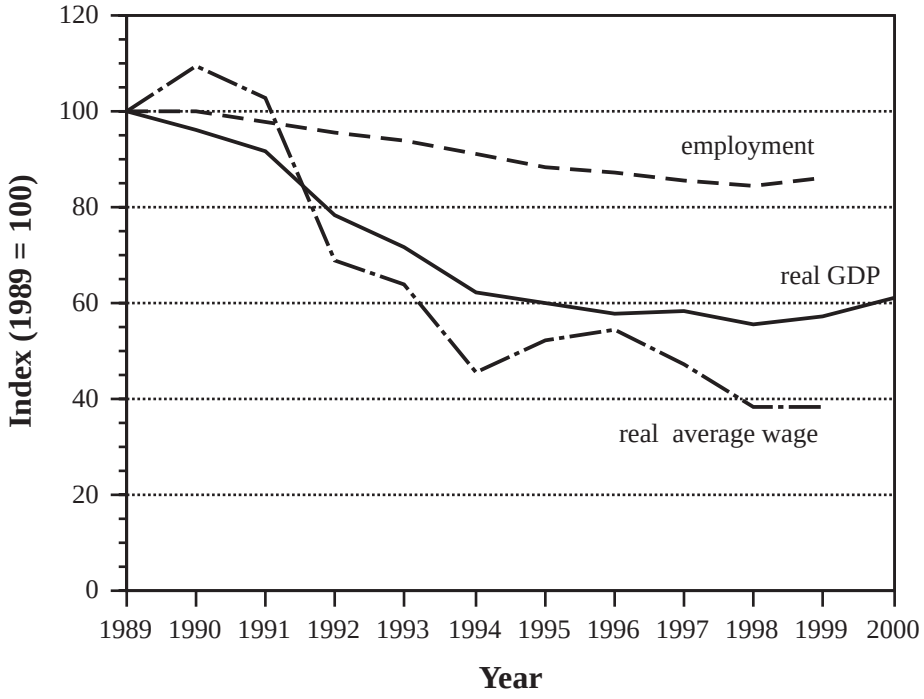
Figure 1:
Development of the Total Fertility Rate as well as of the fertility rates for the first, second, and third child in Russia between 1979 and 1998



Source: Unpublished data from the Centre of Demographic and Human Ecology, Institute for Economic Forecasting, Russian Academy of Science.

Figure 2:
Development of employment, real GDP, and real average wages in Russia between 1989 and 2000



Source: UNICEF (2002)

Figure 3:
Relevance of additional income and the consumption of homegrown food on individual's or household's overall income and household's overall food consumption

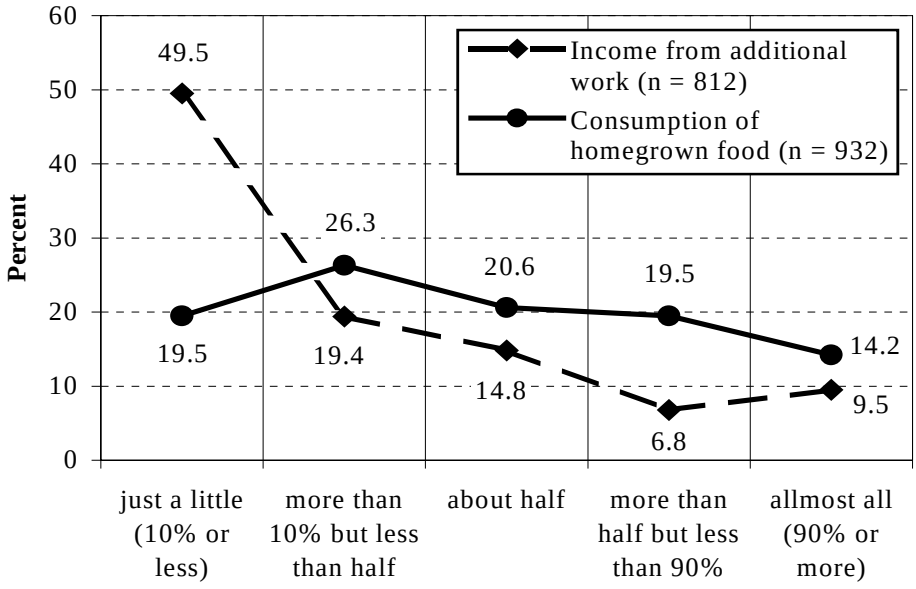


Table 1:
Construction and descriptive statistics of variables used in the analyses

		Descriptive statistics			
Variable	Content	First child		Second child	
First child	First child born between 1990 and spring 1993	0.48	(0.500)	--	
Second child	Second child born between 1990 and spring 1993	--		0.19	(0.391)
Income from additional work in 1992	Additional income generating activity (second job, part-time self-employment, family agriculture) in 1992.	0.40	(0.491)	0.47	(0.500)
Fraction of income from additional work in 1992	Fraction of individual's or household's income from activities of generating additional income in 1992				
no additional income	*reference category*	*0.60*	*(0.491)*	*0.53*	*(0.500)*
less than half	"just a little (10 percent or less)" or "more than 10 percent but less than half"	0.27	(0.443)	0.34	(0.475)
about half	"about half"	0.05	(0.217)	0.09	(0.236)
more than half	"more than half but less than 90 percent" or "almost all (90 per cent or more)"	0.09	(0.280)	0.07	(0.256)
Wife's age in 1990					
less than 20	*reference category*	*0.43*	*(0.496)*	*0.09*	*(0.279)*
20 to 24		0.28	(0.448)	0.28	(0.452)
25 to 29		0.12	(0.325)	0.27	(0.443)
30 to 34		0.12	(0.323)	0.24	(0.426)
35 to 44		0.06	(0.233)	0.13	(0.331)
Wife's level of education	Years spent in educational system	11.99	(2.414)	12.28	(2.537)
Husband's level of education	Years spent in educational system	11.82	(2.383)	11.66	(2.525)
Membership in communist party	At least one couple was ever a member in the communist party	0.11	(0.316)	0.17	(0.378)
Mean income level	Mean of household's income level in 1988 and 1992 compared to other Russian families				
far below or below average		0.20	(0.397)	0.23	(0.420)
average		0.66	(0.476)	0.65	(0.478)
above average or far above average	*reference category*	*0.15*	*(0.356)*	*0.12*	*(0.331)*
State-owned apartment	Respondent lived in a state-owned apartment or a service apartment in 1992	0.57	(0.495)	0.58	(0.494)
Place of residence	Size of respondent's place of residence in 1992				
less than 49,999 inhabitants		0.22	(0.415)	0.22	(0.413)
50,000 to 99,999 inhabitants		0.16	(0.366)	0.18	(0.388)
100,000 to 499,999		0.28	(0.451)	0.26	(0.441)
500,000 to 999,999		0.16	(0.367)	0.12	(0.328)
one million or more inhabitants	*reference category*	*0.18*	*(0.382)*	*0.21*	*(0.408)*
Number of cases		318		526	
Consumption of homegrown food	Household consumed homegrown food in 1992	0.40	(0.491)	0.54	(0.499)
Fraction of homegrown food	Fraction of homegrown food to the household's overall food consumption in 1992				
no consumption	*reference category*	*0.60*	*(0.491)*	*0.56*	*(0.499)*
just a little	"just a little (10 percent or less)"	0.06	(0.234)	0.12	(0.329)
more than 10 percent, but not more than half	"more than 10 percent but less than half" or "about half"	0.23	(0.421)	0.23	(0.422)
more than half	"more than half but less than 90 percent" or "almost all (90 per cent or more)"	0.11	(0.318)	0.19	(0.389)
N		274		457	

Table 2:
Factors associated with the birth of a first or a second child in Russia between 1990 and spring 1993

	First child		Second child	
	Model 1	Model 2	Model 1	Model 2
Wife's age in 1990:				
20 to 24	0.710**	0.705**	0.895*	0.882
	(0.311)	(0.312	(0.541)	(0.544)
25 to 29	–0.083	–0.173	1.071**	1.045*
	(0.406)	(0.415)	(0.546)	(0.548)
30 to 34	–1.865***	–1.848***	–0.198	–0.261
	(0.529)	(0.533)	(0.586)	(0.591)
35 to 44	–2.135***	–2.164***	–1.797*	–1.835*
	(0.760)	(0.765)	(0.962)	(0.969)
Wife's level of education	–0.023	–0.027	0.112**	0.106**
	(0.056)	(0.056)	(0.049)	(0.049)
Husband's level of education	–0.046	–0.044	–0.056	–0.050
	(0.056)	(0.056)	(0.053)	(0.053)
Membership in Communist party	0.991**	0.960**	0.464	0.507
	(0.489)	(0.489)	(0.328)	(0.328)
State-owned apartment	0.389	0.402	–0.026	0.032
	(0.275)	(0.279)	(0.250)	(0.254)
Mean income level				
far below average or below average	1.380***	1.397***	1.043**	1.105**
	(0.454)	(0.454)	(0.497)	(0.498)
average	–0.139	–0.116	0.906**	0.901*
	(0.354)	(0.356)	(0.460)	(0.461)
Income from additional work	0.239	--	0.504**	--
	(0.266)		(0.243)	
Fraction of income from additional work				
less than half	--	0.332	--	0.413
		(0.298)		(0.266)
about half	--	0.709	--	1.359***
		(0.635)		(0.454)
more than half	--	–0.279	--	0.123
		(0.477)		(0.499)
Place of residence				
less than 49,999 inhabitants	–0.601	–0.621	0.883**	0.865**
	(0.424)	(0.427)	(0.421)	(0.423)
50,000 to 99,999 inhabitants	–0.202	–0.252	1.078**	0.981**
	(0.472)	(0.474)	(0.427)	(0.433)
100,000 to 499,999	–0.101	–0.181	0.750*	0.757*
	(0.395)	(0.399)	(0.400)	(0.402)
500,000 to 999,999	–0.727*	–0.756*	0.099	0.129
	(0.436)	(0.437)	(0.524)	(0.527)
Constant	0.549	0.600	–4.545***	–4.554***
	(0.962)	(0.976)	(1.086)	(1.088)
–2LL	375.009	372.852	444.267	439.282
χ^2 (df)	65.533 (15)	67.691 (17)	64.780 (15)	69.764 (17)
Pseudo R^2	0.248	0.256	0.187	0.200
N	318	318	527	526

Levels of significance: * ≤ 0.1; ** ≤ 0.05; *** ≤ 0.01.
Reference categories: wife's age in 1990: less than 20; household's average income level between 1988 and spring 1993: above average or far above average; fraction of income from additional work: no income from additional work ; size of residence in 1992: one million or more inhabitants.

Table 3:
Associations of the consumption of homegrown food and the birth of a first or second child in Russia between 1990 and spring 1993

	First child		Second child	
	Model 1	Model 2	Model 1	Model 2
Consumption of homegrown food	0.205	--	0.588**	--
	(0.294)		(0.265)	
Fraction of homegrown food				
just a little (10 percent or less)				
	--	–0.016	--	0.862**
		(0.592)		(0.412)
more than 10 percent but not more than half	--	0.363	--	0.388
		(0.365)		(0.336)
more than half	--	0.247	--	0.740**
		(0.469)		(0.355)
–2LL	325.186	318.097	395.668	383.931
χ^2 (df)	62.044 (15)	61.181 (17)	51.952 (15)	53.730 (17)
Pseudo R^2	0.266	0.267	0.171	0.180
N	280	273	464	458

Levels of significance: * ≤ 0.1; ** ≤ 0.05; *** ≤ 0.01.
Reference category: fraction of homegrown food to the household's overall food consumption: no consumption of homegrown food.