How Much Does Household Income Matter for Fertility Intentions in Bulgaria?

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Abstract

Using data from the Bulgarian survey 'The Impact of Social Capital and Coping Strategies on Reproductive and Marital Behavior' from 2002, the influence of households' economic situations, measured by their monetary income and the share of income spent for food, on fertility intentions of individuals and couples is explored. The results show that men's quantum related intentions to have a child and women's tempo related reproductive plans are sensitive to the economic situations of their households. However, males and females from high-income households intend to postpone the birth of a first child. Higher levels of income and lower shares of income spent for food also increase the probability that both partners intend to have a second child in general. According to the timing of a second child however, a better economic situation of the household supports primarily males' intentions to have this child soon.

1. Introduction

Similar to other Central and Eastern European countries, Bulgaria went through a significant decline of fertility after the breakdown of the socialist regime in 1989. The Total Fertility Rate (TFR) decreased between 1989 and 1997 from 1.90 to 1.09 and after a temporary increase it remains on a constant level of around 1.2 since 2000 (see figure 1a). One obvious explanation for this profound change is the substantive economic crisis Bulgaria had to face during the 1990s. For example, the Gross Domestic Product (GDP) decreased between 1989 and 1997 for 34% (see figure 1b). Unemployment rose rapidly from a rate of 1.7 in 1990 to 16.4 in 1993 and remained on varying high levels during in the 1990s. Moreover, people had to face a significant increase of prices due to high rates of inflation and especially of hyperinflation in 1996 and 1997. Many Bulgarian people abandoned therefore their fertility due to the economic hardships and uncertainties they had to face or they postponed their fertility hoping for an improvement of their material situations in some near future. Adjusted Total Fertility Rates show that people stopped their fertility especially in the first half of the 1990s. Postponement – particularly of the first child – took place during the second economic crisis in 1996 and 1997 (Philipov et al. 2004, Philipov and Kohler 2001).

Since 1997 however, Bulgaria's economy recovered remarkably (Commission of the European Communities 2004). The GDP increased continuously and reached its level of 1989 in 2003. Inflation dropped from 1,000% in 1997 to 2.3% in 2003. Unemployment is significantly declining since 2000, especially in the segment of people aged 24 or younger. However, positive trends in fertility do not accompany this upturn in the economic sphere. Since 2000, the TFR is remaining at a level of around 1.2. Several reasons might be conceivable for this fact. On the one hand, processes of postponement could be responsible. The period of the economic upturn is too short for people to develop personal positive economic perspectives and to adjust or to speed up their fertility plans accordingly. Furthermore, changes in family and fertility related values and lifestyles lead to later entries into the reproductive period. For example, between 1990 and 2002 the mean age at first birth of Bulgarian women increases from 22.2 to 23.9 (Council of Europe 2003). On the other hand, Bulgaria could move towards a stable constellation of increasing wealth and low fertility similar to those observed in Western countries (Birg 2002).

To understand the relationship between wealth and fertility in Bulgaria, the paper explores the impact of individuals' economic situations and their childbearing intentions. Observed levels of fertility are the outcome of instrumental activities that rest on intentions according to the quantum and timing of children (Miller 1994). However, intentions do not directly lead to desired outcomes as people have to consider constraining situational aspects and unexpected events (Bongaarts 2001). Consequently, to understand the significance of an individual's material situation on her reproductive behavior intentional as well as situational insights are needed, i.e. insights about how income and wealth influence fertility intentions and how they shape opportunities and constraints to set intentions into action.

This paper concentrates on the intentional aspect. It addresses the relationship between households' economic situations on Bulgarian females' and males' fertility intentions and their significance for concurring or conflicting intentions among couples. The household situation is considered, as it represents

the economic unit on which individual household members make their decisions. As there are different concepts of measuring a household's economic situation by its income, expenditures, or possession of durable goods, the empirical analyses use information about monetary income and transfers as well as about the household's expenditures for food.

FIGURE 1

After this short introduction, the subsequent theoretical section discusses the two central dimensions of the paper: fertility intentions and the relationship between income or wealth and fertility as. Section 3 describes the sample and the variables considered in the analyses. It thereby draws special attention to the pros and cons of income-related and consumption-related measurements of households' economic situations. Section 4 presents the descriptive and multivariate results and section 5 gives a short conclusion.

2. Theoretical Background

Fertility intentions

Levels of fertility are not a random quantity. They are an expression of women's and men's demand for children, i.e. the number of children they purposefully desire to have during their reproductive period or lifetime. Therefore, the desired number of children is an important indicator for future levels of fertility and fertility transitions as well as—in comparison with observed levels of fertility—for unwanted fertility and unmet needs for contraception (Bongaarts 2001, 1990). On the individual level however, desired family size is only a weak predictor for reproductive outcomes (Quesnel-Vallée and Morgan 2003). Individuals have to face unexpected impediments or facilitators to set their desires into action and they have to adjust their fertility plans to their individual life courses (Bongaarts 2001, Morgan 2003). Unwanted pregnancies, child mortality, an undesired gender composition of children already born, the period of entry into parenthood, involuntary infertility due to sterility or partnership problems, or competing preferences that raise or lower the costs of having a particular number of children cause mismatches between desired and observed fertility. Fertility desires and intentions are therefore one factor among a variety of socio-economic and cultural predictors that cause reproductive outcomes (Schoen et al. 1999).

Psychological models of behavior help to understand the difference between desired fertility and fertility outcomes more accurately. These models perceive fertility desires as one step within a pathway from childbearing motivations to reproductive behavior (Miller 1994, 1986, Miller and Pasta 1996). Fertility desires rest on related motivations. They are an expression of internal factors of an individual like her fertility-related attitudes, beliefs, and motivations. However, to set these desires into action, people have to develop concrete plans and have to make decisions, which finally cumulate in childbearing intentions. In doing this, they have to consider their personal situation and the desires and attitudes of significant others in their personal environment. Once intentions are formulated, they have to be transferred to instrumental activities to reach the desired goal. These activities depend again on various factors like the

individual's fertility history, life cycle situation, or socioeconomic circumstances. Consequently, individuals are often constrained in executing their fertility motivations in a direct way. They have to adjust their intentions and instrumental activities to the realities they are embedded in.

This implies as well that observed levels of fertility are outcomes of parity specific decisions (Miller and Pasta 1995, Lee 1980, Namboodiri 1972). Proceptive instrumental activities can only be directed to the currently intended child. Unexpectedly changing socioeconomic circumstances and personal situations as well as intended or unintended fertility outcomes cause new or adjusted orientations or fertility plans. The desired number of children formulated at the beginning of the reproductive period is a strong landmark, but individuals have to decide whether and how to reach this landmark child by child (Udry 1983).

Moreover, reproductive intentions and instrumental activities are outcomes of mutual influences and negotiation processes among partners. Although daily interactions, the sharing of life experiences, and similar personal characteristics increase the probability of mutual agreement among partners (Thomson 1990: 131), concurring fertility intentions commonly occur. Couples may solve this situation by different strategies (Voas 2003, Thomson and Hoem 1998, Thomson 1997, Miller and Pasta 1996, Davidson and Beach 1981). The more powerful partner in the relationship decides on the reproductive behavior of the couple. This powerful position may rest on culturally defined gender inequality, which mostly prefers men, or on the opinion that childbearing and childrearing belongs to women's sphere of influence. Partners can also reduce the latent conflict and uncertainty by orienting themselves on culturally defined ideal family sizes or commonly preferred periods of childbearing during the life course. However, in the case that the fertility desires of one partner need a change in the proceptive or contraceptive activities of the couple, disagreement may hinder this behavioral adjustment.

Observed levels of fertility are the result of a complex process of individual and mutual decision-making as well as of socioeconomic circumstances and individual situations that constrain proceptive or contraceptive activities. Consequently, a coherent understanding of fertility requires the consideration of intentional as well as situational aspects of reproductive behavior, i.e. the determinants of reproductive intentions, as the outcomes of individual decision-making, as well as the constraints of instrumental fertility-related activities.

Income and fertility

Following Easterlin's and Crimmins' model of supply and demand for children (1985: chapter 2), observed levels of fertility rest on natural fertility and children's survival chances (supply for children), the subjective and objective costs for fertility control, and the demand for children, which reflects individuals' subjective tastes, their material situation, and the expected costs and benefits of children. Demand for children is therefore an expression of a broad variety of objective and subjective factors from subjective perceptions of utilities, tastes, social norms, or the value of children up to monetary income, prices, and consumption patterns.

In the case that contraceptives are available free or at low costs, individual material situations matter primarily for the demand for children. According to the theory of the 'New Home Economics' (Becker 1960, 1981), household members buy goods on the market and invest their time to produce commodities they consume afterwards. These commodities are for example health, companionship, or children. The kind and amount of produced commodities rest on the household members' preference structures, i.e. their evaluation of the utilities that different commodities bring to the household, as well as on the shadow prices for producing these commodities and on the household's budget restrictions. Holding the first two factors constant, higher or increasing household budgets enable household members to produce more commodities. Consequently, a positive causal relationship between household income or wealth and the number of children born in a household exists.

However, this positive income effect might be interfered and reduced by different processes. Parents receive utility from the number of their children as well as from their quality (Becker 1960, Becker and Lewis 1973). This utility rests either on current or expected transfers from children to their parents or—in the case of altruistically motivated parents—on observing children's social and economic success (Becker and Barro 1988, Cox 1987). In principle, wealthier parents have the opportunity to increase their utility relative to the utility of parents with less material resources by investing more in the quantity and quality of their children. However, there is a tradeoff between children's quantity and quality. Costs for every additional child depend on the intended quality of the child and costs for an increase in the quality of children depend on the number of children already born. As the household's income elasticity according to the quality of children is higher than for their quantity, wealthier households tend to spend more material resources on the quality of their offspring as on their quantity (Becker 1981, Willis 1987). Moreover, the utility parents expect to receive from their children depends significantly on children's level of human capital, as this determines their expected lifetime income. Children's level of human capital depend furthermore directly and indirectly on their parent's human capital. Consequently, parents with higher human capital and therefore higher income profit more from their children's level of human capital as parents with lower human capital and therefore lower income. Thus, they have an incentive to have a smaller number of children (Morand 1999).

Rearing and educating children needs time parents cannot spend in the labor force and they therefore have to face opportunity costs due to forgone income. In societies where women have the duty to care for the children, they especially have to face these costs. As similar levels of education are a strong determinant of partnership formation and marriage, women in high-income households have to face high opportunity costs due to their high levels of human capital. Because of these gender specific opportunity costs, a household's current or future income may consist of components with positive and negative effects on fertility (Heckman and Walker 1990). Furthermore, due to women's higher investments in their human capital they stay longer in the educational system and in the labor market. Thus, higher educated women tend to postpone the birth of a first child and they therefore tend to have a shorter reproductive period. Moreover, these women need longer to find a suitable partner (Caucutt et al. 2002).

Finally, income and wealth may also have an impact on the supply of children. Women from wealthier households tend to have higher fecundity and child survival rates because they have better access to the health system as well as to prenatal and postnatal care (O'Malley Borg 1989:302). These women are also able to utilize the health system more effectively and have more knowledge to use contraceptives in an appropriate and successful way.

As these considerations show, the relationship between a household's wealth and fertility is indeterminate (Docquier 2004, Lundholm and Ohlsson 2002) and it is very much disturbed by aspects that are related to fertility as well as to a household's material situation (Freedman and Thornton 1982). There are complex patterns of dependencies between a household's income level, the human capital of the household members, the intended investments in children, and the direct and indirect costs of having children. Consequently, empirical research reports positive, negative as well as u-shaped relationships between income and fertility. As up to now no detailed insights on these dependencies for Bulgaria exist, the empirical analyses explore the relationship between income and fertility and do not test a specific hypothesis according to a positive, negative, or non-linear association.

3. Data and Variables

Data

The subsequent analyses use data from the Bulgarian panel survey "The Impact of Social Capital and Coping Strategies on Reproductive and Marital Behavior". The study is carried out under the responsibility of the Max Planck Institute for Demographic Research and the Bulgarian Academy of Sciences. The first wave took place in summer 2002 and the second wave will be realized in autumn 2005. The purpose of the study is to provide data for a better understanding of changes in demographic behavior in Bulgaria. It stresses therefore on the events of leaving the parental home, marriage, and fertility, but it also takes a strong emphasis on explanatory factors, like the economic situation of the household, individual and household based coping strategies, individual employment situations, embeddedness in supportive and communicative networks, or the change of values and norms in Bulgarian society.

The survey's population is limited to age cohorts in which the events under consideration normally take place in Bulgaria. Thus, female respondents are between 18 and 34, independently whether they are married, cohabiting, or single. Male respondents are in the same age range if they are unmarried and do not live together with a partner. In the case of married or cohabiting males, the age range goes from 18 to 66. This is because in each case of a married or cohabiting female respondent, the corresponding spouse or partner was automatically interviewed. The sample was realized in collaboration with the Bulgarian National Statistical Office. 10,009 individuals could be successfully interviewed, 5,765 married or cohabiting people and 4,244 single, divorced, or widowed persons.

For the subsequent analyses, this sample is restricted by four criteria. First, the ethnic groups of the Turks and Roma make a substantive part of the Bulgarian population and consequently Turkish resp. Roma respondents represent 9.7% and 7.1% of the sample. Explorative analyses showed that the fertility

behavior and its determinants differ significantly between the respondents of Turkish, Roma, and Bulgarian ethnicity. As these differences can only insufficiently be covered by control variables in multivariate analyses, only 8,093 respondents of Bulgarian ethnicity enter the analyses. Second, the population under investigation is limited to 2,961 female and 2,804 male respondents that live together with a partner, either in cohabitation or in marriage. Although out of wedlock childbearing is significantly increasing in Bulgaria, most parents live together—at least at the beginning—in a marital or non-marital union. By forming a partnership and living together, new households are founded or the income structure of existing ones may change significantly due to this new member. Therefore, the consideration of single respondents is not meaningful, as their income situation probably does not reflect the material situations of their households when they decide to have a child or not. Moreover, in the case of young single respondents, income measurements probably reflect primarily the economic background of their parents. Third, individuals form their personal fertility related intentions also under consideration of the characteristics and the personal situation of their partners. Consequently, the sample has to be additionally limited to all cases in which information of both partners are available. This applies to 4,048 respondents, who shape 1,730 marriages and 298 cohabitations. Finally, all respondents are not taken into consideration that know for sure to be infertile or that rejected to answer this question (female respondents: 89 infertile persons and 41 rejections; male respondents: 33 infertile respondents and 37 rejections) and that are pregnant or whose partner is pregnant (100 female and male respondents). Therefore, the following analyses rest for female respondents on 1,799 cases and the analyses for male respondents cover 1,858 individuals.

Fertility intentions as the dependent variables

The questionnaire addresses intentions related to the tempo and the quantum of fertility. Respondents were asked first, whether they intend to have a first or another child within the next two years. Possible answers were "definitely yes", "probably yes", probably not" and "definitely not". A period of two years was chosen to receive information about realistic fertility intentions. If respondents replied, probably not or definitely not to have a first or another child within the next two years, then they were asked whether they intend to have ever a first or a second child. The respondents could differentiate their answers in the same way as in the question before. The ordinaly-scaled variable about the tempo related intention enters the analyses without transformations. For the variable about the quantum related fertility intentions, all respondents that probably or definitely want to have a child within the next two years are coded as respondents that also definitely ever want to have the respective child. To cover the combinations of fertility related intentions among partners, the fertility intentions of both were dichotomized and combined. Therefore, the two new variables give information whether "both partners do not intend", "only the male partner intends", "only the female partner intends", or "both partner intend" to have ever a first or another child or to have this child within the next two years.

Income and its measurement

There are different approaches to measure a household's material situation and wealth within a survey: monetary transfers and payments, expenditures and consumption patterns, and the possession of consumer durable goods and housing quality. The collection of information about *monetary transfers and payments* that household members receive during a particular period is a quite natural way of measurement. However, this approach has to face a couple of shortcomings. Information about a household's current income does only partly give insights in the resources available to its members (Meyer and Sullivan 2003, Blundell and Preston 1998). Income may vary weekly, monthly, by working activities that lead to irregular payments, like seasonal work or self-employment, or by layoffs or changes in the structure of the household, which do not alter or challenge its economic status. The household may also use additionally savings or borrowed money. Questions about income give therefore only short-term information and questions about yearly incomes have to face the fact that many people do not know this value or cannot remember it exactly. This holds also for households that have various sources of earnings and therefore the economic situations of these households might be underreported. Questions about income are also often denied and answers are biased due to social desirability by the respondents thereby overdrawing low incomes and underreporting high ones (Klocke 2000).

Monetary income can only be used in consumption markets, but consumption can also be produced and distributed at other places like in households, systems of barter, or by means of gifts, public goods, transfer payments, and free services (Ringen 1988). This is especially relevant for Bulgaria. Non-monetary aspects like free or subsidized housing, childcare facilities, health services, or the supply of power or hot water made a substantive part of a household's income during socialism. Although most of these non-monetary transfers disappeared during the transition period, payments in kind, informal help relationships and family agriculture, i.e. activities that rest on non-monetary exchange, are still common for many Bulgarian households (Botcheva and Feldman 2004, Balabanova and McKee 2002, Moon et al. 2002). These activities reduce the costs of living and also provide some non-monetary income that might be of special importance for low-income households.

Information on *expenditures and consumption* promise to give a more reliable and long-term picture as it overcomes the short-term character of income measures (McGregor and Borooah 1992). Households try to smooth out consumption in cases of significant temporary income variations. Moreover, monetary income may be only one source of material resources, beside for example savings or loans. Therefore, budget studies that collect information about a household's consumption expenditures over a longer period are meaningful instruments to receive information about a household's economic situation and status. However, these studies are also not without problems (Bollen et al. 2002: 82-83). Budget studies are studies of their own, because they require high amounts of time and costs and can therefore hardly be integrated in general social or demographic surveys. In poor countries, many households cannot smooth out their consumption by using savings or borrowing. Consequently, consumption fluctuates in the same way as income does. Moreover, if a household substantially consumes products from a family

farm, homemade goods, or products and services acquired through barter, the amount of money spent for consumption gives only an incomplete impression of the household's well being. Both aspects apply to many Bulgarian households.

Therefore, studies like the Demographic and Health Survey (DHS) or the World fertility Service (WFS) measure households' economic status and well-being by means of indicators like the *ownership of consumer durable goods* and *housing quality*. Questions on ownership address whether the household possesses goods like a refrigerator, stove, air conditioner, video equipment, bicycle, car etc. Housing quality is captured for example by questions about the presence of piped water, a flushing toilet, electricity, or the number of rooms. Methodological studies show, that these proxies work satisfactorily to explain the impact of a household's economic status on fertility in Ghana and Peru (Bollen et al. 2002).

Of course, this approach also has its limitations. Measuring the possession of consumer durable goods assumes that all households have a similar preference structure. However, people may do not posses particular goods because they cannot afford them, but because they want to spend their money for other purposes (Klocke 2000). This is especially apparent within the context of fertility. The expenditures for children have to compete with expenditures for other consumption goods or commodities (Thornton 1979) and household members have to decide about the amounts of money that they want to spend for children or for other goods. Thus, goods that define a minimum standard of living in a particular country, like the possession of a stove, refrigerator, or bicycle are useful to measure a household's standard of living, but this cannot immediately be assumed in the case of TV sets or video equipments. Moreover, households need time to accumulate a particular number of consumer durables. If a household's wealth does not completely rest on gifts or inheritance, household members have to generate income through work during some period and the macroeconomic circumstances have to be sufficiently stable to avoid a significant devaluation of the accumulated resources.

On the background of these considerations, the subsequent empirical analyses use two kinds of income measures. The household's average monetary income during the last three months and the share of income the household has to spend for food. The household's monetary income is considered as it covers the actual earnings situation of a household. Respondents were asked about the household's average income within the last three months before the date of the interview, including all kinds of earnings. A period of three months was addressed to smooth out some monthly fluctuations. Answers could be given on an ordinal scale including the categories "up to 100 Leva", "101 to 200 Leva", "201 to 300 Leva", "301 to 400 Leva", "401 to 600 Leva", "601 to 800 Leva", "801 to 1,000 Leva", and "1,001 or more Leva".[1] To cover effects of economies of scale of larger households or households with many children, a variable about the weighted income per household member (equivalence income) is constructed. The centers of the

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[1] In 2002, the exchange rate between Leva and US Dollar was around 2:1.

intervals of the household income variable are computed[2] and divided by the weighted household size, which is coded according to the modified OECD scale (Dennis and Guio 2004): the first adult is weighted by a factor of 1.0, every additional household member that is 14 years or older receives a weight of 0.5, and every household member below 14 years is weighted by a factor of 0.3.

The survey does not address any questions about consumer durables. Most of the respondents are at the beginning of their employment career and due to high rates of inflation in the 1990s, most of them were not able to accumulate wealth from income before 1998. Therefore, questions about consumer durables would give more information about short-term consumption patterns as about the general material situation of the household. The analyses consider the fraction of income the household has to spend for food as a general aspect of household's expenditures. Respondents could reply according to the categories "up to 10 percent", "about one third", "about a half", "about two thirds", and "almost all". The question rests on Engel's law, which states that the amount of income a household has to spend on food is inversely related to its income level (Houthakker 1957). It is therefore a simple measure of the household's economic situation from the expenditure side. Looking at households' expenditures for food also covers their abilities to smooth consumption. Budget data form 1994 show that Bulgarian households are able to protect their level of food consumption from income fluctuations by adjusting their non-food expenditures or by borrowing money (Skoufias 2004).

Control variables

The subsequent multivariate analyses also consider several characteristics of the respondent and his/her spouse or partner. Respondent's age, her degree of religiosity, educational level, number of siblings, and employment situation enter the models. In the case of analyses according to the intention to have a first child within the next two years, also respondents' intentions to start education within this period is taken into account. As the analyses are always carried out under the individual perspective of the female or male respondent, only characteristics of the spouse or partner are used that can be assumed to be known by the respondent. These are partner's or spouse's age, his or her educational degree and employment situation. Family agriculture on subsistence level, which helps to reduce the costs of a household's basic needs, is still a common phenomenon in Bulgaria. Therefore, the analyses also control for the fact whether the household is engaged in this activity or not.

4. Empirical Results

The subsequent multivariate analyses explore the impact of households' income and consumption situations on individual and coupled fertility intentions. These analyses are carried out for different subgroups defined by parity and respondents' gender. The separation by parity follows the logic of observed levels of fertility as outcomes of sequential decision-making. The separation by female and male respondents takes

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[2] The value of a household income category of "1,001 Leva or more" was set on 1,200 Leva

place to explore gender-specific effects in order to understand the determinants of concurring or agreeing fertility intentions among couples or partners. However, before these estimates are presented, the subsequent paragraphs discuss the distributions of respondents' fertility intentions, households' incomes, and expenditures for food.

Fertility intentions

Tables 1 and 2 list female and male respondents' fertility intentions separated by their parity.[3] Table 1 shows high intentions for females and males to have a first child in general. 93.4% of all childless female respondents and 93.2% of all childless male respondents probably or definitely ever want to have a first child. These high shares also reflect social norms, as it is a common expectation that married couples should have at least one child. The intentions to have a second child are more heterogeneously distributed. The majority of respondents with one child intends to have a second one, but there is also a meaningful number of female and male respondents (19.4% respectively 15.9%) that definitely does not want to have a second child. This group increases significantly if the respondents have two or more children. Here, only a minority of female and male respondents reports about positive intentions. Nevertheless, females' and males' plans to have a third child differ significantly. Female respondents intend more often as male respondents to end reproduction (75.5% vs. 63.7%). Male respondents are less certain about this intention or intend more often as women to have a third child definitely (8.2% vs. 3.4%).

TABLE 1 AND TABLE 2

Most of the female and male respondents that intend to have a first child ever want to have this within the next two years (see table 2). With increasing parity however, women intend more often as men to postpone birth definitely, especially in the case of the timing of a third child.

The patterns of similar and different fertility intentions between the groups of female and male respondents are reproduced on the level of partnerships by agreeing or opposite intentions between spouses or partners (see figure 2). There is a moderate agreement on the intention to have ever a first child and fairly coinciding intentions to have a second or a third one.[4] If both partners intend to have a first child, their plans to have this child within the next two years overlap substantially, but with increasing parity the degree of agreement declines as well.

FIGURE 2

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[3] This includes the respondent's own children as well as adopted, foster, stepchildren, or children that have died.
[4] See Landis and Koch (1977: 165) for an interpretation of different levels of Kappa.

Household's income and food consumption

All households considered in the analyses received on average during the last three months before the interview 417 Leva per month and the median income amounts to 350 Leva (see table 3). The mean income is higher as the average monthly income of 336 Leva for all Bulgarian households in 2002 (National Statistical Institute 2005). However, due to the young age cohorts of the respondents and the limitation on participants with Bulgarian ethnicity, their households are less confronted with unemployment, low wages, transfer payments, or low pensions. Transferred to the weighted per capita income, in 50 percent of all households each household member earned up to 167 Leva. The average equivalence income amounts to 202 Leva per month.

Respondents reported about high shares of income they have to spend for food. 53.6% told that their households have to use about two thirds or almost all of their earnings for buying food. This share is unexpectedly high and it seems to be to some extend overestimated in comparison to official statistics. On average, food and non-alcoholic beverage made 42.5% of a household's expenditures in 2002 (National Statistical Institute 2005). However, as this statistic is not related to income, its lower level could also be caused by the fact that households finance their expenditures by savings, lent money, or barter, which is not covered by income measurements. 27.0% of the households are engaged in family agriculture. However, these activities do not significantly reduce households' burdens for buying food as no bivariate association between these two variables can be found (Cramer's V = 0.050, sign = 0.390).

TABLE 3

Multivariate Analyses

Due to skewed distributions of fertility intentions or small numbers of cases (see tables 1 and 2), multivariate analyses can only be carried out for respondents' intentions to have ever a second or a third child and for the intended timing of the birth of the first or the second child. Table 4 reports the effects of equivalence income together with the various covariates included. Table 5 documents influences of the household's expenditures for food. These analyses use the same sets of covariates as the models in table 5. However, for a better presentation of the results, only the effects of expenditures for food and household's engagement in family agriculture are listed. As the dependent variables are measured on an ordinal scale, estimates rest on ordinal logistic regressions.

Household's level of equivalence income matters in many cases for male's and female's fertility intentions (see table 4). As the significant positive effects show, male's general intentions to have a second or a third child are especially sensitive to the monetary streams to their households. This is not the case for female respondents. On the other hand, women's fertility intentions tend to be more sensitive to their household's economic situations according to the timing of the birth of a child. On the one hand, higher levels of equivalence income support female and male intentions to postpone the birth of a first child. Additional analyses, which introduce the level of equivalence income in the form of dummies rep-

resenting quintiles, demonstrate that households belonging to the highest 10 per cent quintile primarily cause this effect. Most of these couples live together in households of their own, i.e. they do not share the household with one of the partner's parents or other relatives, and they receive exceptionally high incomes. This economically successful group wants to have a first child in general, but intends to postpone its birth to a later period. On the other hand, women's tempo-related intentions to have a second child depend on a significant income effect. The better the economic situation of the household the more they are intending to have this child within the next two years.

TABLE 4

Table 4 also identifies education and employment as sources of opportunity costs for women. The plan to start education within the next two years is a significant reason to postpone the birth of a first child. According to the timing of a second child, women that are working or on education are relative to unemployed women less intending to have this child within the next two years . The highly significant effect of non-working women is caused by the fact that most of these women are on parental leave and obviously do not intend to have a second child soon. Finally, working women with two children intend significantly more often to end their reproductive period as unemployed women. This intention is also present in husbands' considerations as the significant negative effect of wife's working status shows.

If the economic situation of the household is represent by the household's expenditures for food, a different pattern of influence emerge (see table 5). According to men's intention ever to have a second child, the results are consistent with the effects of equivalence income in table 5. The more the household of a male respondent has to spend its income for buying food, the less the respondent indents to have a second child. This holds especially for males from poor households that have to spend almost of the income for food. However, women's intentions tend to be influenced in an opposite direction. Female respondents from households that have to spend high shares of their income for buying food tend to have a second child more often as women from households that have to spend only one third of their incomes at most. According to the intention to have a third child, the share of food expenditures does not have any impact on males' fertility intentions. This holds also for the intended timing of first or second births.

TABLE 5

To identify the determinants of agreeing and disagreeing fertility intentions among couples, multinomial logistic regressions are performed. Therefore, the results in table 6 and table 7 document effects on the probability of disagreeing and agreeing intentions relative to the probability that both partners agree on

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their intentions not to have a second child or not to have this child within the next two years.[5] The strong positive influence of households' equivalence incomes on men's general intention to have a second child does not cause a concurring situation between spouse's or partner's intentions (see table 6). An increase in the average income per weighted household member significantly intensifies the intention of both partners to have a second child. However, this is not the case for the intentions to have a second child within the next two years. Here an increasing income supports the situation that the husband or male partner intends to have this child relatively soon, but not the wife or female partner.

The educational level of the husband or partner as well as of the couple is especially influential on couple's agreeing intentions to have a second child in general. Higher educational levels promise higher job security and higher incomes over the lifetime and are therefore, beside the actual income situation, an additional supportive force to have a second child.

TABLE 6

However, if the economic situation of the household is represented by its food expenditures, a constellation of disagreeing intentions is supported. The more a household has to spend its income for food, the less likely the situation appears that only husbands or male partners intend to have a second child or intend to have this child within the next two years. This holds especially for male respondents from poor households. However, if the household has to spend around two thirds of its income for food, the situation appears that the wife or female partner intends to have a child within the next two years, but not the husband or male partner.

TABLE 7

5. Conclusion

The purpose of the empirical analyses was to explore the relationship between the economic situations of households and the fertility intentions of female and male household members in Bulgaria. The results document clear gender-specific influences. The general fertility intentions of married or cohabiting Bulgarian men are especially sensitive to the monetary streams to their households. This does not apply to females. However, income is not irrelevant for them, because it plays a significant role in determining their intended time of birth, i.e. whether a first or a second child should be born within the next two years. Despite these opposing results, increasing incomes lead among couples to coinciding intentions to have ever a second child. This result is supported by the general observation in Bulgaria that the decision to have a second child or not depends very much on the economic situation of the couple or the household.

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[5] Due to small number of cases in the cells of the dependent variable, analyses can only be performed for intentions that are related to the second child.

However, according to the intended timing of the second child, increasing incomes lead to disagreement, i.e. men intend to have this child within the next two years, but women intend to postpone its birth.

One general counterargument against these results is that a household's monthly income gives only insufficient information about its general economic situation. Therefore, the share of income that a household has to spend for food was used as an alternative measurement. On the one hand, the coefficients of these variables are mostly insignificant. On the other hand, they confirm men's sensitivity according to their general intentions to have a second child and opposing intentions among couples about the timing of the birth of a second child. Due to these results, the question arises which of these two measurements gives meaningful information about the impact of a household's economic situation on fertility intentions. According to the theoretical argumentation, fertility is an expression of long-term expectations related to income and wealth. Therefore, the expenditure measurement has to be used leading to the conclusion that increasing levels of wealth influence on the one hand men's general intentions to have a second child and cause on the other hand disagreements among couples whether and when to have this child. Although expenditures promise to give more reliable information, one has to wonder whether this information is present when individuals from their fertility intentions. The share of income spent for food is a quite abstract quantity, but current streams of income might be a much more visible expression of a household's economic situation, even if it is a short-term one. Following this argumentation, the amount of income would give reliable information leading to the conclusion that the economic situation of a household influences men's general intentions to have a child as well as women's plans about the timing of an intended child. The current analyses cannot give a concluding answer to this problem. Additional investigations are needed, especially analyses about the influences of these two different measurements on reproductive outcomes.

Consequently, also no general concluding answer about the relationship between wealth and fertility intentions in Bulgaria can be given. Most of the analyses document positive associations, i.e. increasing levels of household wealth promote fertility and the birth of a child within the next two years. However, improving economic situations may also lead to disagreement among couples about the timing of a second child. Moreover, childless respondents from wealthy households intend to postpone the birth of a first child. The latter result is of special interest as it raises the question whether this group of respondents is a kind of prototype for future fertility behavior that is characterized by late entries in the reproductive period and an overall small number of children.

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Table 1:

Female and male respondent's intention to have a first or another child ever, separated by respondent's parity

Intention to have ever a/another child	Parity										Total	
	0		1		2		3		≥4			
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Definitely not	3.6	4.4	19.4	15.9	75.5	63.7	85.3	69.2	100.0	58.3	36.5	31.4
	(7)	(9)	(187)	(151)	(403)	(365)	(29)	(27)	(5)	(7)	(631)	(559)
Probably not	3.1	2.4	17.7	18.8	18.0	25.3	5.9	23.1		41.7	15.8	19.3
	(6)	(5)	(170)	(179)	(96)	(145)	(2)	(9)		(5)	(274)	(343)
Probably yes	6.2	8.7	18.9	18.7	3.2	2.8	2.9	7.7			12.3	12.1
	(12)	(18)	(182)	(178)	(17)	(16)	(1)	(3)			(212)	(215)
Definitely yes	87.2	84.5	44.0	46.6	3.4	8.2	5.9				35.4	37.3
	(170)	(174)	(423)	(443)	(18)	(47)	(2)				(613)	(664)
Total	100.1	100.0	100.0	100.0	100.1	100.0	100.0	100.0	100.0	100.0	100.0	100.1
N	195	206	962	951	534	573	34	39	5	12	1,730	1,781
χ^2 (df=3)	1.287		4.510		23.467***		7.217*		--		13.393***	

Levels of significance: * ≤ 0.1; ** ≤ 0.05; *** ≤ 0.01.

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Table 2:

Female and male respondent's intention to have a first or another child within the next two years, separated by respondent's parity

Intention to have a/another child within the next two years	Parity								Total	
	0		1		2		3			
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Definitely not	13.0 (24)	9.8 (19)	16.5 (102)	11.9 (75)	34.1 (15)	16.4 (11)		33.3 (1)	16.6 (141)	11.8 (106)
Probably not	14.6 (27)	18.0 (35)	27.2 (168)	28.0 (177)	29.6 (13)	28.4 (19)	33.3 (1)	66.67 (2)	24.6 (209)	26.0 (233)
Probably yes	34.1 (63)	36.6 (71)	39.9 (246)	45.5 (288)	22.7 (10)	43.3 (29)	33.3 (1)		37.7 (320)	43.3 (388)
Definitely yes	38.4 (71)	35.6 (69)	16.4 (101)	14.7 (93)	13.6 (6)	11.9 (8)	33.3 (1)		21.1 (179)	19.0 (175)
Total	100.1	100.0	100.0	100.1	100.0	100.0	99.9	100.0	100.0	100.1
N	185	194	617	633	44	67	3	3	849	897
χ^2 (df = 3)	1.907		7.783*		6.809*		--		11.715***	

Levels of significance: * $\leq$ 0.1; ** $\leq$ 0.05; *** $\leq$ 0.01.

Table 3:
Households' economic situations

a) Total household income and equivalence income

	Total household income	Equivalence income
Mean	417	202
Standard deviation	316.90	163.21
$p_{0.25}$	250	111
$P_{0.50}$	350	167
$P_{0.75}$	500	250
$P_{0.90}$	700	341
N	1,540	

b) Share of income spend for food

Up to 10 per cent	1.6
	(26)
About one third	17.8
	(298)
About a half	27.2
	(456)
About two thirds	40.3
	(676)
Almost all	13.3
	(223)
Total	100.2
N	1,679

Table 4:
Determinants of male and female fertility intentions: respondent's characteristics, partner's characteristics, and household income

| | First child | | | | Second child | | Third child | |
| | Timing | | General intention | | Timing | | General intention | |
	Female	Male	Female	Male	Female	Male	Female	Male
Characteristics respondent								
Age:								
18 to 20	−0.651		0.258		−0.944*		0.711	
	(0.730)		(0.403)		(0.494)		(0.468)	
21 to 25	−0.315	0.728	0.413*	0.928***	−0.703**	−0.462		0.674**
	(0.531)	(0.717)	(0.229)	(0.220)	(0.276)	(0.292)		(0.332)
26 to 30	0.369		0.388**		−0.471**		−0.126	
	(0.501)		(0.177)		(0.233)		(0.285)	
31 to 35/34	--	0.007	--	0.569***	--	−0.280	--	0.342
		(0.732)		(0.196)		(0.279)		(0.236)
Number of siblings	--	--	0.097	0.268***	--	--	−0.138	0.037
			(0.088)	(0.098)			(0.141)	(0.111)
Religiosity	0.569*	0.234	0.363***	0.203	−0.148	0.134	0.230	0.149
	(0.304)	(0.303)	(0.135)	(0.136)	(0.167)	(0.162)	(0.241)	(0.195)
Tertiary education	−0.027	0.259	0.252	0.359*	0.073	−0.163	0.404	0.076
	(0.368)	(0.411)	(0.169)	(0.206)	(0.204)	(0.230)	(0.296)	(0.289)
Intends to start education	−0.707*	0.144	--	--	--	--	--	--
	(0.413)	(0.524)						
Occupational status:								
Working	0.052	0.288	−0.041	−0.045	−0.539**	−0.160	−0.693*	−0.337
	(0.425)	(0.456)	(0.213)	(0.216)	(0.270)	(0.276)	(0.380)	(0.332)
On education	−0.416	--	0.078	--	−0.885*	--	--	--
	(0.644)		(0.454)		(0.482)			
Not working	--	--	0.243	--	−0.813***	--	0.040	--
			(0.223)		(0.274)		(0.393)	
Characteristics spouse/partner								
Age:								
18 to 20		−0.237		0.630***		−0.428		−0.243
		(0.669)		(0.231)		(0.278)		(0.408)
21 to 25	0.025	0.028	0.960***		−0.151		−0.356	
	(0.649)	(0.513)	(0.222)		(0.281)		(0.424)	
26 to 30		0.407		0.453**		−0.407*		0.008
		(0.493)		(0.182)		(0.229)		(0.226)
31 to 35/34	−0.676	--	0.489**	--	0.087	--	0.008	--
	(0.675)		(0.193)		(0.271)		(0.282)	
Tertiary education	0.279	0.105	0.442**	0.496***	−0.194	0.229	0.437	0.176
	(0.409)	(0.350)	(0.195)	(0.173)	(0.226)	(0.201)	(0.337)	(0.258)
Occupational status:								
Working	0.279	0.001	−0.072	−0.057	−0.497*	0.221	−0.245	−0.416**
	(0.409)	(0.352)	(0.225)	(0.151)	(0.275)	(0.177)	(0.391)	(0.207)
Characteristics household								
Equivalence income	−0.612**	−0.513**	0.169	0.409***	0.259*	0.183	0.373	0.484***
	(0.275)	(0.261)	(0.124)	(0.126)	(0.146)	(0.148)	(0.231)	(0.183)
Family agriculture	0.500	0.537	−0.025	0.046	0.103	0.149	0.050	−0.035
	(0.357)	(0.342)	(0.156)	(0.156)	(0.189)	(0.189)	(0.251)	(0.209)
Cut points:								
1	−3.456	−2.632	0.299	0.936	−2.544	−2.160	1.751	1.737
	(1.018)	(1.019)	(0.401)	(0.379)	(0.526)	(0.493)	(0.632)	(0.495)
2	−2.393	−1.297	1.195	2.027	−1.150	−0.490	3.573	3.317
	(0.993)	(0.992)	(0.404)	(0.383)	(0.515)	(0.484)	(0.666)	(0.515)
3	−0.838	0.409	2.096	2.873	0.805	1.718	4.519	3.640
	(0.973)	(0.986)	(0.409)	(0.390)	(0.513)	(0.490)	(0.716)	(0.521)
LL	−200.402	−207.081	−997.797	−961.937	−691.001	−652.946	−288.031	−430.155
χ2	19.76	13.46	75.51	92.26	37.97	23.58	26.22	19.96
df	14	13	15	12	14	11	13	12
N	166	169	803	789	537	532	426	465

Levels of significance: * ≤ 0.1; ** ≤ 0.05; *** ≤ 0.01.

Table 5:
Determinants of male and female fertility intentions: Households' expenditures for food

| | First child | | | | Second child | | Third child | |
| | Timing | | General intention | | Timing | | General intention | |
	Female	Male	Female	Male	Female	Male	Female	Male
Expenditures for food:								
About a half	0.172	0.064	0.241	−0.177	0.269	0.081	−0.337	0.042
	(0.398)	(0.388)	(0.200)	(0.208)	(0.243)	(0.245)	(0.371)	(0.317)
About two thirds	0.090	0.196	0.338*	−0.341*	0.320	−0.102	−0.418	0.039
	(0.421)	(0.427)	(0.187)	(0.192)	(0.233)	(0.225)	(0.355)	(0.305)
Almost all	−0.638	−0.440	0.338	−0.692***	−0.103	−0.316	−0.180	−0.043
	(0.626)	(0.593)	(0.257)	(0.249)	(0.304)	(0.316)	(0.436)	(0.367)
Family agriculture	0.704*	0.714**	−0.007	0.014	0.112	0.167	−0.007	−0.105
	(0.369)	(0.356)	(0.160)	(0.160)	(0.194)	(0.195)	(0.255)	(0.210)
N	156	159	772	758	514	506	417	456

Levels of significance: * ≤ 0.1; ** ≤ 0.05; *** ≤ 0.01.

Table 6:
Determinants of coinciding or conflicting intentions to have ever a second child and the timing of its birth:
spouse's characteristics and household's equivalence income
(multinomial logit)

	Intention to have ever a second child			Intention to have a second child within the next two years		
	Only wife intends	Only husband intends	Both intend	Only wife intends	Only husband intends	Both intend
Wife's age:						
18 to 20	0.896	−0.720	0.336	−1.644	−0.937	−1.485*
	(0.796)	(0.948)	(0.573)	(1.131)	(1.034)	(0.777)
21 to 25	1.279**	0.462	1.283***	−0.744	0.017	−0.900**
	(0.537)	(0.508)	(0.362)	(0.707)	(0.587)	(0.451)
26 to 30	0.393	−0.183	0.585**	0.107	0.279	−0.615
	(0.423)	(0.364)	(0.242)	(0.621)	(0.509)	(0.383)
Husband's age:						
18 to 30	0.746	1.686***	1.773***	0.498	−0.298	−0.372
	(0.512)	(0.505)	(0.316)	(0.744)	(0.534)	(0.439)
31 to 35	0.582	1.193***	0.861***	0.675	−0.309	0.226
	(0.440)	(0.422)	(0.261)	(0.755)	(0.549)	(0.440)
Number of wife's siblings	−0.201	0.083	0.202	--	--	--
	(0.221)	(0.181)	(0.123)			
Number of husband's siblings	−0.209	0.322*	0.313**	--	--	--
	(0.258)	(0.186)	(0.144)			
Religiousness:						
Both	0.764*	0.650*	0.633***	0.187	0.077	0.035
	(0.405)	(0.367)	(0.244)	(0.454)	(0.375)	(0.305)
Wife only	0.555	0.302	0.315	0.224	0.304	0.034
	(0.420)	(0.395)	(0.256)	(0.491)	(0.399)	(0.337)
Husband only	0.694	0.441	0.015	−0.348	−0.751	−0.293
	(0.523)	(0.499)	(0.354)	(0.696)	(0.612)	(0.461)
Tertiary education						
Both	−1.238	−0.182	0.851***	−0.812	−0.182	−0.263
	(0.780)	(0.497)	(0.296)	(0.565)	(0.440)	(0.370)
Wife only	−0.507	0.240	0.429	−1.433**	0.479	0.266
	(0.496)	(0.385)	(0.264)	(0.683)	(1.129)	(0.351)
Husband only	1.733*	1.876*	2.185***	−1.163	−0.842	−0.294
	(0.963)	(0.960)	(0.786)	(1.115)	(0.743)	(0.551)
Work:						
Both	0.504	−0.437	−0.059	−1.203	−0.093	−0.203
	(0.685)	(0.638)	(0.463)	(0.824)	(0.844)	(0.648)
Wife only	0.199	−0.436	0.121	0.450	0.479	0.571
	(0.868)	(0.805)	(0.563)	(1.019)	(1.129)	(0.868)
Husband only	0.483	−0.524	0.222	−0.753	−0.198	−0.538
	(0.621)	(0.601)	(0.432)	(0.755)	(0.807)	(0.610)
Household characteristics:						
Equivalence income	−0.231	0.350	0.433**	0.100	0.595**	0.257
	(0.294)	(0.270)	(0.185)	(0.318)	(0.270)	(0.228)
Family agriculture	0.350	0.256	0.136	0.517	0.600*	0.105
	(0.343)	(0.343)	(0.237)	(0.422)	(0.355)	(0.313)
Constant	−1.932**	−3.460***	−3.138***	−0.504	−1.806	0.892
	(0.933)	(0.919)	(0.643)	(1.255)	(1.124)	(0.861)
LL		−722.082			−519.496	
χ^2		183.41			74.92	
df		54			48	
N		742			442	

Levels of significance: * ≤ 0.1; ** ≤ 0.05; *** ≤ 0.01.
Reference category of the dependent variable: both do not intend.

Table 7:

Determinants of coinciding or conflicting intentions to have ever a second child and the timing of its birth:
households' expenditures for food
(multinomial logit)

	Intention to have ever a second child			Intention to have a second child within the next two years		
	Only wife intends	Only hus-band intends	Both intend	Only wife intends	Only hus-band intends	Both intend
Expenditures for food:						
About a half	0.255	–0.404	0.048	0.629	–0.619	0.072
	(0.509)	(0.419)	(0.296)	(0.739)	(0.432)	(0.371)
About two thirds	0.210	–0.490	–0.087	1.387**	–0.168	0.168
	(0.473)	(0.380)	(0.274)	(0.693)	(0.407)	(0.364)
Almost all	0.674	–1.775**	–0.266	0.710	–2.414***	–0.418
	(0.573)	(0.718)	(0.379)	(0.803)	(0.826)	(0.455)
Family agriculture	0.366	0.194	0.124	0.615	0.533	0.108
	(0.353)	(0.351)	(0.240)	(0.445)	(0.368)	(0.323)
N	714			422		

Levels of significance: * ≤ 0.1; ** ≤ 0.05; *** ≤ 0.01.
Reference category of the dependent variable: both do not intend.

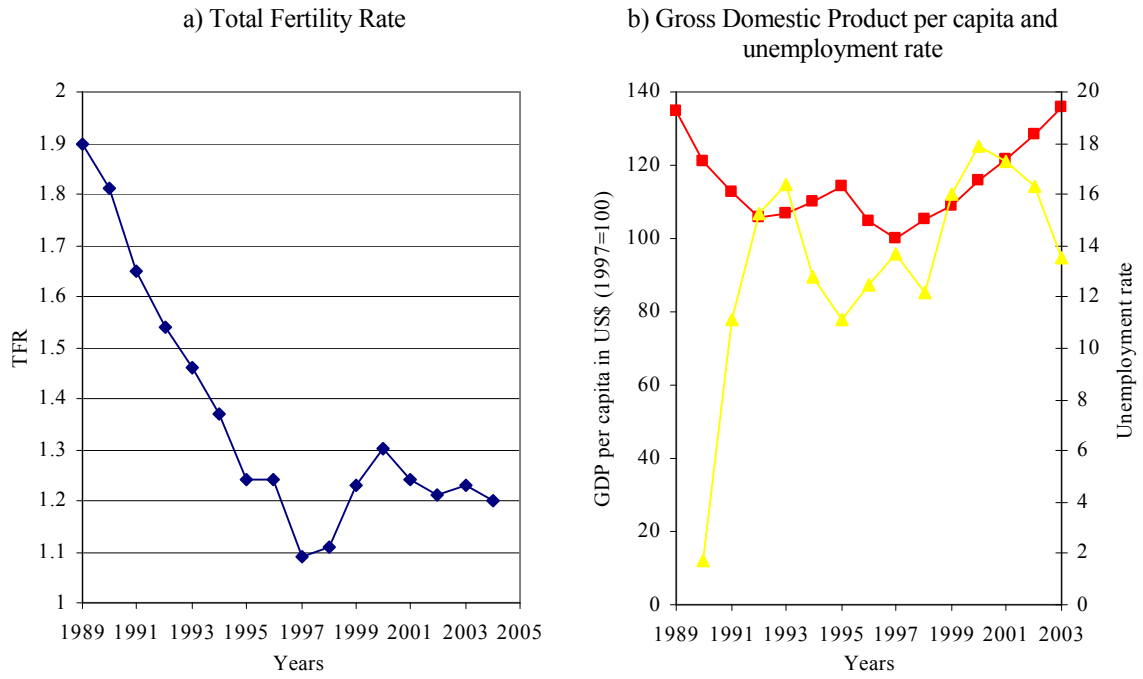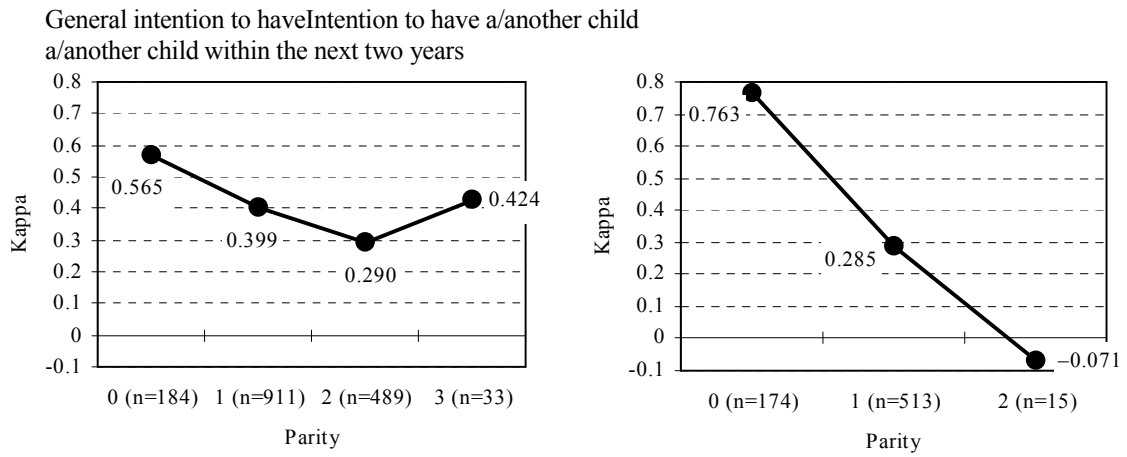Figure 1:
Demographic and Economic Developments in Bulgaria

a) Total Fertility Rate

b) Gross Domestic Product per capita and
unemployment rate

Figure 2:
Degree of agreement among spouse's or partner's fertility intentions,
separated by wife's or female partner's parity

General intention to haveIntention to have a/another child
a/another child within the next two years

Note: Except Kappa for intended timing of the third child (parity two), all other values of kappa differ significantly on the 1% level from random agreement.