ECONOMIC CRISIS AND ETHNIC DIFFERENCES IN DESIRED FERTILITY: RUSSIAN AND TARTAR PREFERENCES IN THE LATE 1990S.

ABSTRACT

This paper investigates the "economic crisis argument" explanation of desired fertility trends in Russian following the economic crisis of the late 1990s. Using two waves of the Russian Longitudinal Monitoring Survey, this research evaluates social demographic and economic variables impact on the desire of women to have a/another child using structural equation modeling. This analysis accesses desired fertility change in a natural pre-test/post-test scenario; where the 1996 data are reflective of desired fertility before the crisis and 1998 data are reflective of desired fertility during the crisis. The findings of this study confirm previous research which concluded that while aggregate level fertility rates may wax and wane with economic changes, individual level desired fertility has a tenuous if not non-existent relationship with economic uncertainty in the Russian Federation. In addition, there do not seem to be pronounced ethnic differentials in regard to economic uncertainty and desired fertility as expected.

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INTRODUCTION

The Russian financial crisis of the late 1990s first gained its foothold in the aftermath of the 1997 Asian market collapse and was in full force by August 1998. For the majority of Russians, the economic impact was disastrous with sharp declines in household incomes, rising unemployment and increasing poverty rates. As the crisis peak in early 1999, real incomes were at their lowest level since January 1992 (Lokshin and Yemtsov 2001). At the same time, total fertility rates (TFR) which had already dropped precipitously in the years following the transition to a market economy in the early 1990s continued to decline through this period. Falling from a high of 2.2 in 1987(Khakova and Andreev 2000) in 1999, the Russian Federations TFR was 1.17 (Roshchina and Boykov 2005).

The association economic crisis and fertility decline has been well documented at the aggregate level in studies of several parts of the world (Galloway 1998; Palloni and Tienda 1991). However, considerable disagreement exists regarding the mechanisms by which social, economic, and political transformation is linked to recent trends in fertility in Russia.

Some argue that emphasis should be placed on economic uncertainty (Ranjan 1999) The "economic crisis argument" reasons that rising economic and labor-market uncertainty, coupled with disruption of social support systems which had provided for paid maternity leave may induce couples to either postpone having children (which leads to low level fertility temporarily) or to reduce their desired number of children (leading to permanently lower levels of fertility) (Russia see: Kohler and Kohler 2002; Central and Eastern Europe see: Adler 1997; Chase 1996; Witte and Wagner 1995).

Yet others propose that Russia is experiencing an accelerated second demographic transition (defined in Lesthaeghe and Neels 2001) similar to those of Western Europe. These changes are not the result of any crisis, but are reflective of a movement toward more individualistic behavior. Moreover, that the experienced reduction in fertility is a returning to the "natural" levels which would have been achieved without the fertility programs of the 1980s (Zakharov and Ivanova 1996; Zakharov 1999).

Aggregate level studies provide insightful trend information, but they do very little to explain how individual fertility decisions are made; nor do they provide information about the desired fertility of individuals. Some studies (Kharkova and Andreev 2000; Kohler and Kohler 2002) have tried to reconcile macro-level trends with micro-level analysis for the early years of transition (before 1996). These studies have shown that despite macro-level trends, at the individual level there is no negative association between labor market crisis and fertility. In fact, Kohler and Kohler (2002) found that for some groups there is appositive association, with women who are themselves affected by labor market crises having a higher probability of having more children than those less affected by the transition related economic crisis. As a result, desired fertility was not impacted, but rather the timing of births was postponed. If the economy continued to improve that the Russian fertility level would recovery, mimicking the experience of other Central and Eastern European countries.

The Russian economy did not "level out" as predicted, and the total fertility rate in the country continued to decline throughout the second economic crisis. It is reasonable to argue the initial economic crisis caused by the transition to a market

economy did not negatively impact fertility desire at an individual level; because there was hope that conditions would improve and delayed child bearing would be possible. Arguably, a second economic crisis would lead individuals to not only postpone births, but also to reconsider their desired fertility levels.

In this paper I investigate the "economic crisis argument" explanation for the fertility trends in Russia following the second economic crisis of 1997-1998. This research evaluates social and demographic (age, education, marital status, ethnicity) and economic (employment, unpaid wages, and (in)ability to provide for basic needs) factors' impact on actual desire of the family to have a (another) child/ren.

I assess differential desired fertility between the Tatar and Russian ethnic groups. Recent studies have show that throughout the transition period ethnic minorities have experienced higher fertility levels than the ethnically Russian population. These studies (Anderson 2002; Kharkova & Andreev 2000; Roshchina and Boykov 2005), conducted at the aggregate level tell us very little about ethnic differences in the desired level of fertility, nor do they account for individual response to economic crisis. I have chosen to look at the Tatar ethnic group for several reasons. First, it is the largest ethnic group in the Russian Federation and accounts for approximately 3.8% of the population. Second, it is a traditionally Muslim group and should reflect fertility trends seen in this group in other areas of the world. Third, it is a group with clearly defined legal existence and possesses its own territory (Tatarstan), but is also widespread through out the Russian Federation.

The analyses are based on the individual-level data of the second wave of the Russian Longitudinal Monitoring Survey (RLMS), round 7 (1996) and round 8 (1998).

The use of these data provides for the opportunity to access desired fertility change in a natural pre-test/post-test scenario; where the 1996 data are reflective of desired fertility before the crisis and 1998 data are reflective of desired fertility during the crisis.

LITERATURE REVIEW

From 1990-1998 the total fertility rate dropped in the Russian Federation by almost 35%. The 1990s has led many observers to the conclusion that this widespread decline in fertility is inherently connected to the political and economic transformation that began in1989. Becker and Hemley (1998) found that during the early years of the transition (before 1995), Russian women were marrying less often than during the Soviet Period, when married women were less likely to have a first child, and when having a first child they were far less likely to have a second child. In addition, during the period 1987 – 1995, fertility declined by 33 percent for women 20 – 24 years, by 56 percent for those 30 – 34 years, and 62 percent for those 35 – 39. Considering the traditionally low age of marriage and first child birth in Russia, which have only slightly increased during the post-transition period (Kohler, Billari, and Ortega 2002), it is easy to see that the primary drop in fertility has occurred among higher parity births.

Unlike other countries experiencing lowest-low FTR (defined by Kohler, Billari and Ortega (2002) as 1.3 or lower), where declining fertility is often associated with an increasing mean age at birth, within the Russian Federation there was no substantial increase in the mean age at first birth among Russian women. This lack of postponement (tempo effect) casts doubt on explanations which indicate that there convergence between Russian fertility behavior and "western patterns" (i.e.- second

demographic transition) (Kohler and Kohler 2002). The Russian Federation differed

from other European countries in the adjusted TFR rate, which reflects the quantum of

fertility (the TFR that would have been observed if there had been no tempo effect), in

that the Russian fertility decline is characterized by a substantially larger relevance of

quantum effects and a lesser relevance of postponement effects (tempo effect) (Kohler

and Kohler 2002).

MICRO-LEVEL STUDIES

There are only a limited number of studies analyzing the link between fertility and

the Russian economic transition. Kohler and Kohler (2002) used data from the 1994-

1996 rounds of the Russian Longitudinal monitoring survey to assess the interrelation

between fertility behavior and labor market problems. There research combined

individual-level data with community labor market conditions, and assessed the extent

these labor market conditions influenced fertility behavior and desires. Using Becker

(1981) as the basis for their analysis, the analyzed the basic economic approach to

fertility decisions. The main assumption of this approach is that the decision to have

children is an implicit cost benefit analysis. Parents receive utility from having children,

and that the decision to have children is associated with trade-offs in time, money, and

psychosocial terms. Moreover, there are real long term investments of emotional and

time associated with having children. The time requirements for raising children is

disproportionately carried by women, and female labor force participation is inherently

connect to fertility decisions.

Logistic regression to estimate the probability of birth, using individual

characteristics and indicators of economic and labor market uncertainty for both women

and their male partners (spouse or cohabitator). They found that at the individual level, there is no negative association between labor market uncertainty and fertility. They therefore reject the argument that current fertility behavior is merely a result of economic crisis. Additionally, they find that fertility intentions are unrelated to individual-level employment or unpaid wages. Their analysis did find however, that fertility intentions were positively correlated with the prevalence of unpaid wages in the community. Only concern about obtaining daily necessities was strongly associated with fertility desires. They suggest that the conformity between the findings for fertility desires and fertility behavior reflects a quantum effect on fertility rather than merely a tempo effect of delayed fertility timing (Kohler and Kohler 2002).

Kharkova and Andreev (2000) use data from the 1994 microcensus (~5 percent of the Russian population) to test two hypotheses for the cause of fertility decline in the post-transition period. First, that fertility decrease is the population's response to the socio-economic crisis occurring in the country. Second, that the fertility decrease is a continuation of the long-term trend, and that the economic crisis merely accelerated the process. Using analysis of relative frequency tables; they found that education level had no effect on the frequency of first births, and for frequency of second and third births that women with higher education was lower than the mean level. Women with incomplete secondary education were significantly higher than the mean level. They did not find any significant differentiation of desired number of children by family's economic conditions. Therefore, they concluded that the 1994 microcensus materials did not reveal an economic origin to fertility differentiation, especially concerning the birth of a

second or third child. Moreover, that the decision to have a child during 1993 had no connection with the woman's desired number of children.

While these studies have not found a relationship between individual economic uncertainty and fertility behavior (either actual or desired), this may be due to the timing of the data analyzed. While Russia was undergoing their transition to a market economy, many other Central and Eastern European countries were also undergoing this process. In the early 1990s, the economic conditions in most of these countries were slowly improving. In contrast, the economic and political situation in Russia remained unstable with substantial declines in the GDP and rises in unemployment (Philipov and Kohler 2001). From the 1996 RLMS data, we see that 67 percent of Russian women replied that they believed that either nothing would change or that their life would be better within the next 12 months (calculated from responses to question 61 of the 1996 individual-level data). This implies that the majority of Russians believed that their lives would improve, and may have been planning to postpone childbearing (tempo effect). However, by 1998 only 45.2% of the women replied that they believed that either nothing would change in their life or that life would be better in the next 12 months.

Hypothesis I: Due to the sharp increase in economic uncertainty, the desired fertility rates will decrease from 1996 to 1998, across socioeconomic characteristics.

FERTILITY AND RACIAL GROUP DIFFERENCES: TATAR ETHNICITY

Across cultural context, ethnic and/or racial differences have been linked to differential fertility desires and outcomes. The minority-group status hypothesis suggests that socially disadvantaged ethnic, religious, or other minorities adjust their

reproductive behavior to maximize their security or social mobility (Agadajanian1999; Goodkind 1995; McDaniel 1996).

One of the major cultural legacies of the Former Soviet Union is the acknowledgement of over 100 "nationalities" by the Russian Federation. In a sense the term nationality more readily corresponds to "ethnicity," because it is not linked to either race or state of residence (Shanin 1989). Those who identify as Tatar nationality in the Russian Census and other national surveys are Russian citizens who identify as a ethnically Tatar. Kaplan and Brady (2004) found that there is little net change in ethnic self-identification among this population. The Tatar's Muslim religious and cultural heritage provides them with a strong safeguard against Russification. This has resulted in statistically higher levels of fertility within the Tatar population as compared to their Russian counterparts. Previous research on higher Muslim fertility across a range of settings (Dharmalingam and Morgan 2004; Knodel et al. 1999; Morgan et al. 2002) implies a strong argument for Muslim pro-natalism and resultantly high birth rates and desired fertility within these populations.

Hypothesis II: Due to ethnic differences, economic insecurity will have a smaller impact on ethnic Tatars as compared to their Ethnically Russian counterparts.

DATA AND METHODS:

The following analyses use individual-level panel data collected in the 1996 (round 7) and 1998 (round 8) *Russian Longitudinal Monitoring Survey*, and includes 1883 women between the ages of 15 – 49 years. The original matched panel included 3994 women, but this number was reduced substantially by dropping women who reported being infertile, women for whom there was no ethnicity data, and women who were non-

respondents in three or more of the economic uncertainty measurement variables. The choice to delete individuals with two or more incomplete field was made in order to utilize the Maximum likelihood (FIML) estimation with incomplete data function of AMOS. Individual level data was collected primarily to assess the health consequences of the health consequences of economic transition, and includes detailed information on individuals working lives. The very detailed women's health information facilitates analysis of the economic determinants of fertility, has been linked employment information for the individual.

The primary dependent variable for this analysis is a constructed variable: Desired Fertility. This variable was constructed by adding variables for the number of daughters living, number of sons living, and number of additional children wanted. While it would be inappropriate to construct this variable in this manner in other cultural circumstance due to high levels of unintended pregnancy and corresponding lower "desired fertility;" the Russian Federation's extremely low birth rate and relatively high abortion rate lead me to conclude this is an appropriate measure. Socio-demographic independent variables include the continuous variable for age and constructed multinomial variables multinomial variables for ethnicity and education. Multinomial variable were created for marital status (married 1, divorced 2, never married 3, other 4) and education (high school diploma 1, higher education degree 2, no diploma 3). The latent variable of economic insecurity was measured using the variables employment (CURWK), unpaid wages (PJOWED), and inability to provide for basic needs (AGETNE). Dummy variables for ethnicity: RUSSIAN and TATAR were created, and

will be used to test ethnic differences between models. Using previous research in this area as a guide, quadratic and interaction variables were not considered.

This research uses AMOS, to model the relationship between social demographic variables social demographic variables and the indicator values of economic uncertainty and desired fertility as the dependent variable. Two models have been estimated, for Russian and Tatar. The model provided for each is the "best fit" model after numerous iterations. Absence of a line which connects variables implies that there is a lack of direct effect.

I have hypothesized that the independent variables will have both direct effects on desired fertility and indirect effect through the latent variable economic uncertainty. In order to test this, I have allowed for direct effects of the independent variables on the dependent variable apart from indirect effects via economic uncertainty. Maximum likelihood estimation is used to estimate the model.

RESULTS AND DISCUSSION

Despite overwhelming economic disincentives to childbearing in the aftermath of the late-1990s economic crisis, the fertility desires of Russian women do not seem to be impacted. Analysis of cross-tabular data of the change in desired fertility between 1996 and 1998 and ethnicity (see Table 1) shows that only 9.9% of women changed their desired fertility during this period. This may be due in part to a large number of the respondents having already achieved their desired fertility before 1996, and therefore would not have wanted additional children in 1998 (see Table 2 and 3). This finding would be in line with previous studies which have noted that Russian women tend to

have children earlier than their counterparts in other developed countries (Kohler and

Kohler 2002), but is outside of the scope of this paper.

Table 1: Cross Tabulation of Change in Desired Fertility and Ethnicity

DESIRED FERTILITY CHANGE * ETHNICITY Crosstabulation

Count

| | | ETHNICITY | | | |
		Other	Russian	Tatar	Total
DESIRED FERTILITY CHANGE	-8	0	1	0	1
	-4	0	2	0	2
	-3	1	1	0	2
	-2	6	24	0	30
	-1	24	124	4	152
	0	208	1196	41	1445
	1	14	153	5	172
	2	18	51	2	71
	3	0	5	0	5
	4	0	1	0	1
	5	0	2	0	2
Total		271	1560	52	1883

Table 2: Cross Tabulation of Desired Fertility (1998) with Current Number of Living Children (1998)

DESIRED FERTILITY 1998 * CURRENT NUMBER LIVING CHILDREN Crosstabulation

Count

| | | CURRENT NUMBER LIVING CHILDREN | | | | | | | | | | |
		0	1	2	3	4	5	6	7	8	9	Total
DESIRED FERTILITY 1998	0	200	0	0	0	0	0	0	0	0	0	200
	1	77	456	0	0	0	0	0	0	0	0	533
	2	80	160	663	0	0	0	0	0	0	0	903
	3	7	13	32	150	0	0	0	0	0	0	202
	4	0	0	2	3	19	0	0	0	0	0	24
	5	0	0	1	0	0	12	0	0	0	0	13
	6	0	0	0	0	0	0	3	0	0	0	3
	7	0	0	0	0	0	0	0	1	0	0	1
	8	0	0	0	0	0	0	0	0	2	0	2
	9	0	0	0	0	0	0	0	0	0	2	2
Total		364	629	698	153	19	12	3	1	2	2	1883

Table 2: Cross Tabulation of Desired Fertility (1998) with Current Number of Living Children (1998)

DESIRED FERTILITY 1998 * CURRENT NUMBER OF CHILDREN Crosstabulation

Count

		CURRENT NUMBER OF CHILDREN										Total
		0	1	2	3	4	5	6	7	8	9	
DESIRED FERTILITY 1998	0	191	6	3	0	0	0	0	0	0	0	200
	1	119	407	6	0	0	0	0	0	0	1	533
	2	129	168	604	2	0	0	0	0	0	0	903
	3	13	12	40	134	3	0	0	0	0	0	202
	4	1	0	3	1	18	1	0	0	0	0	24
	5	2	0	0	0	2	9	0	0	0	0	13
	6	0	0	0	0	0	0	3	0	0	0	3
	7	0	0	0	0	0	0	0	1	0	0	1
	8	0	0	0	0	0	0	0	1	1	0	2
	9	0	0	0	0	0	0	0	0	0	2	2
Total		455	593	656	137	23	10	3	2	1	3	1883

Figure 1. Best Structural equation model of Desired Fertility of Russians as functions of manifest variables of age, sex and ethnicity and latent variables associated with economic insecurity, estimated using FIML to correct for non-response (assuming MAR). The diagram shows standardized coefficients. Unstandardized coefficients and t-values are given in Table 4.

N=1883
Fit indexes:
$\chi^2_{(37)}= 236.440; p = .000$
CFI=.988,
NFI=.986,
RMSEA = .054
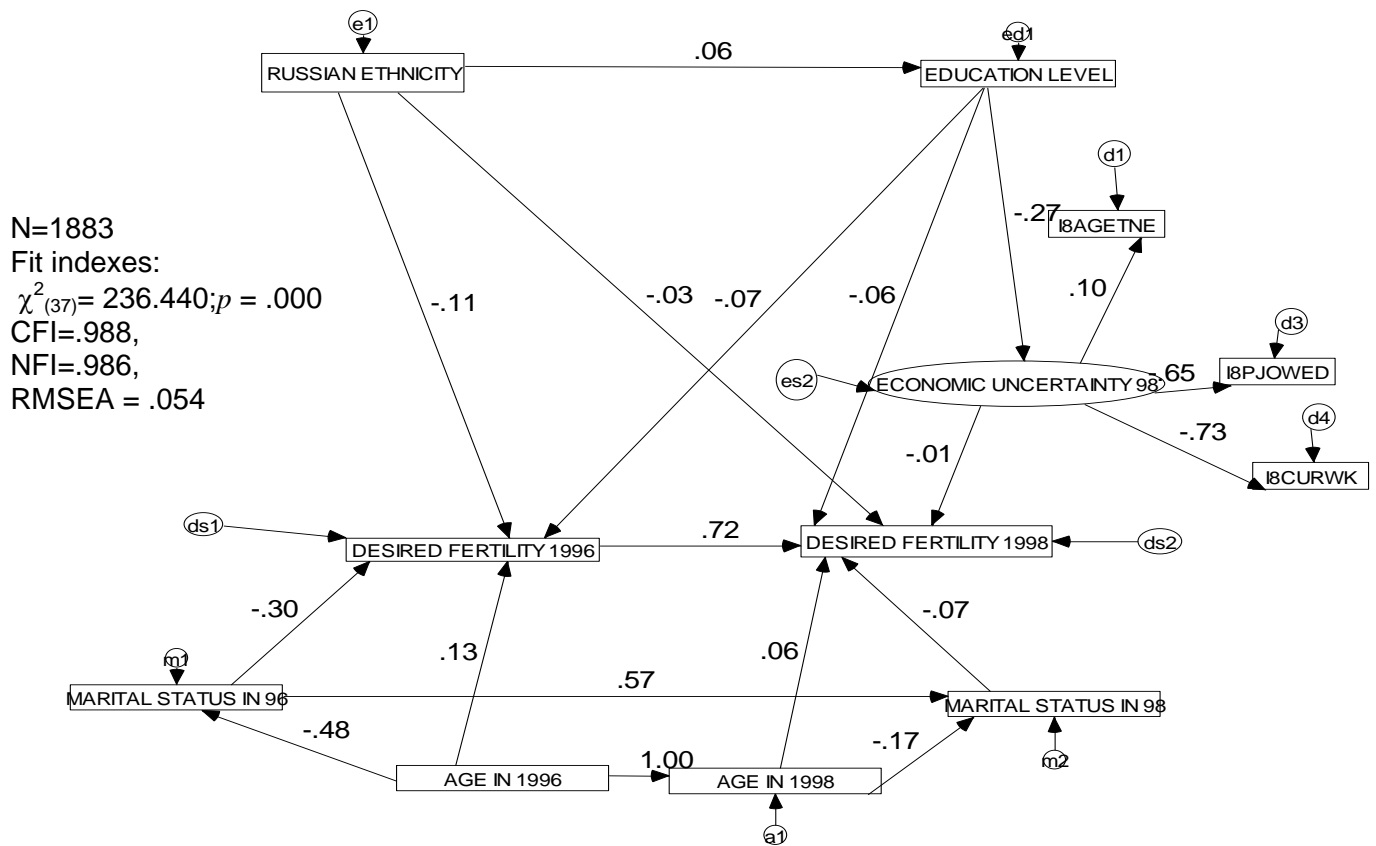
Figure 2. Best Structural equation model of Desired Fertility of Tartars as functions of manifest variables of age, sex and ethnicity and latent variables associated with economic insecurity, estimated using FIML to correct for non-response (assuming MAR). The diagram shows standardized coefficients. Unstandardized coefficients and *t*-values are given in Table 6.

N=1883
Fit indexes:
$\chi^2_{(37)}= 220.170; p = .000$
CFI=.989,
NFI=.987,
RMSEA = .051
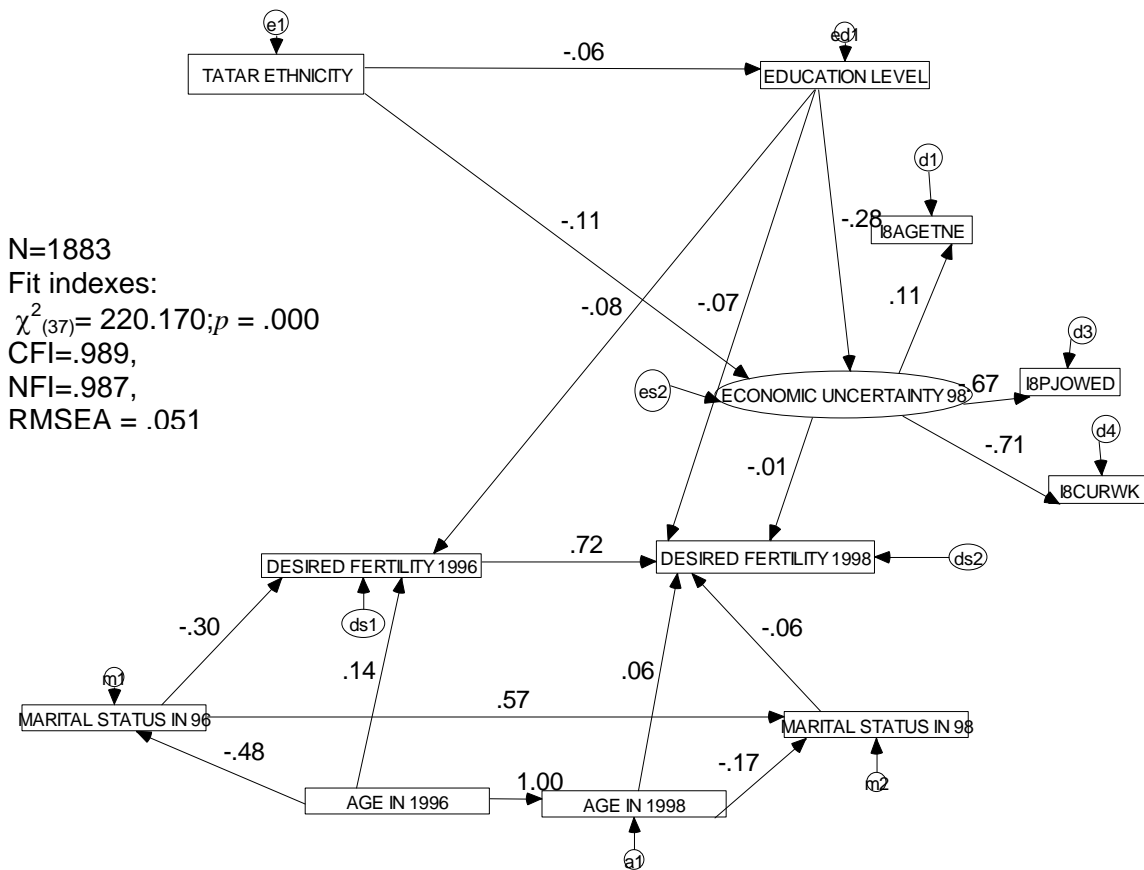
Analysis of the best-fit models both the Russian and Tartar versions of the

structural equation model (figure 1 & 2) including the latent variable for economic

uncertainty give further evidence against the relationship between economic uncertainty

and desired fertility in the Russian Federation. Consequently, we must reject the

hypothesis that economic uncertainty is a determining factor of desired fertility. First,

looking at the $X^2_{(36)}= 236.440$ for the Russian model and $X^2_{(37)}= 220.170$ for the Tatar

model, we must acknowledge that the probability of getting a X^2 statistic as large as the

X^2 obtained from the current set of data is 0. There is some argument against using

hypothesis testing of this nature for modeling fitting (Bollen and Long 1993). However,

CFI and NFI scores close to one for both models indicate a good fit, and RMSEA of

around .05 indicates a close fit of the model in relation to degrees of freedom. Additional

analysis of the data is possible.

Table 4: Unstandardized Regression Coefficients with Standard Error and t-values for Desired Fertility in 1998 for Russian Population

	Estimate	S.E.	t-value	P
I8DESFER <--- ECONOMIC UNCERTAINTY 98	**-.116**	**.203**	**-.573**	**.567**
I8DESFER <--- I8AGE	.006	.002	3.452	***
I8DESFER <--- EDUCAT	-.097	.024	-4.051	***
I8DESFER <--- I8MARST	-.076	.019	-3.982	***
I8DESFER <--- I7DESFER	.666	.015	45.739	***

Table 5: Unstandardized Regression Coefficients with Standard Error and t-values for Desired Fertility in 1998 for Tatar Population

	Estimate	S.E.	t-value	P
I8DESFER <--- ECONOMIC UNCERTAINTY 98	**-.137**	**.202**	**-.677**	**.498**
I8DESFER <--- I8AGE	.006	.002	3.483	***
I8DESFER <--- EDUCAT	-.101	.024	-4.199	***
I8DESFER <--- I8MARST	-.074	.019	-3.870	***
I8DESFER <--- I7DESFER	.670	.014	46.324	***

Corresponding to previous research findings, the results of this analysis show

that age, education, marital status, and previous desired fertility (1996) are all significant

predictors of desired fertility in 1998 (see tables 4 and 5). As with other studies,

economic uncertainty was not found to be significant for either ethnic model. The

parameter estimates for the models are surprisingly similar considering past research

which linked minority status with higher desired fertility. However, when considering the

standardized total effects of ethnicity, we see that the total effect of Tatar ethnicity on

desired fertility is slightly positive (.009) while Russian ethnicity has a negative total

effect (-.122) (see tables 6 and 7).

Table 6: Standardized Total Effects (Combined direct and Indirect Effects) of each column variable on each row variable for Russian model

	RUSSIAN	I7AGE	EDUCAT	I8AGE	I7MARST	I8MARST	I7DESFER	ECONOMIC UNCERTAIN TY 98
EDUCAT	.058	.000	.000	.000	.000	.000	.000	.000
I8AGE	.000	.999	.000	.000	.000	.000	.000	.000
I7MARST	.000	-.478	.000	.000	.000	.000	.000	.000
I8MARST	.000	-.444	.000	-.170	.573	.000	.000	.000
I7DESFER	-.118	.277	-.069	.000	-.299	.000	.000	.000
ECONOMIC UNCERTAI NTY 98	-.016	.000	-.272	.000	.000	.000	.000	.000
I8PJOWED	.010	.000	.178	.000	.000	.000	.000	-.654
I8CURWK	.011	.000	.197	.000	.000	.000	.000	-.726
I8DESFER	**-.122**	**.286**	**-.110**	**.069**	**-.253**	**-.066**	**.718**	**-.011**
I8AGETNE	-.002	.000	-.028	.000	.000	.000	.000	.104

Table 7: Standardized Total Effects (Combined direct and Indirect Effects) of each column variable on each row variable for Tatar model

	TATAR	I7AGE	EDUCAT	I8AGE	I7MARST	I8MARST	I7DESFER	ECONOMIC UNCERTAI NTY 98
EDUCAT	-.064	.000	.000	.000	.000	.000	.000	.000
I8AGE	.000	.999	.000	.000	.000	.000	.000	.000
I7MARST	.000	-.478	.000	.000	.000	.000	.000	.000
I8MARST	.000	-.444	.000	-.170	.573	.000	.000	.000
I7DESFER	.005	.281	-.076	.000	-.300	.000	.000	.000
ECONOMIC UNCERTAI NTY 98	-.093	.000	-.278	.000	.000	.000	.000	.000
I8PJOWED	.062	.000	.187	.000	.000	.000	.000	-.670
I8CURWK	.066	.000	.197	.000	.000	.000	.000	-.709
I8DESFER	**.009**	**.290**	**-.117**	**.069**	**-.254**	**-.064**	**.722**	**-.013**
I8AGETNE	-.010	.000	-.029	.000	.000	.000	.000	.105

CONCLUSIONS

In this paper I investigated the "economic crisis argument" explanation for the

fertility trends in Russia following the second economic crisis of 1997-1998. This

research evaluated social and demographic (age, education, marital status, ethnicity)

and economic (employment, unpaid wages, and (in)ability to provide for basic needs) through latent factors factor analysis on the of actual desire of the family to have a (another) child/ren. The use of these data provides for the opportunity to access desired fertility change in a natural pre-test/post-test scenario; where the 1996 data are reflective of desired fertility before the crisis and 1998 data are reflective of desired fertility during the crisis.

The findings of this study confirm previous research which concluded that while aggregate level fertility rates may wax and wane with economic changes, individual level desired fertility has a tenuous if not non-existent relationship with economic uncertainty in the Russian Federation. In addition, there do not seem to be pronounced ethnic differentials in regard to economic uncertainty and desired fertility as expected.

Works Cited:

Adler, M.A. (1997) "Social Change and Declines in Marriage and Fertility in Eastern Germany." *Journal of Marriage and Family.* 59(1): 37 – 49.

Agadajanian, Victor. (1999) "Post-Soviet Demographic Paradoxes: Ethnic Difference in Marriage and Fertility in Kazakhstan." *Sociological Forum.* 14(3)"

Anderson, Barbara. (2002). "Russia Faces Depopulation? Dynamics of Population Decline." *Population and Environment.* 23(5): 437-464.

Avdeev, Alexandre, & Alain Monnier. (1995) "A Survey of Modern Russian Fertility" *Population: An English Selection.* 7: 1 – 38.

Becker, Charles & David Hemley. (1998) "Demographic Change in the Form Soviet Union during the Transition Period." *World Development.* 26(11): 1957 – 75.

Bollen, K.A. & Long, J.S. [Eds.] (1993). *Testing structural equation models*. Newbury Park, CA: Sage.

Chase, R.S. (1996) "Baby Boom or Bust? Changing Fertility in Post-Communist Czech Republic and Slovakia" *Economic Growth Center Discussion Paper No. 769.*

Dharmalingham, A. and S. Philip Morgan. (2005) "Pervasive Muslim-Hindu Fertility Difference in India". *Demography.* 41(3):529-545.

Galloway, Patrick. (1988) "Basic Patterns of Annual Variations in Fertility, Nuptiality, Mortality, and Prices in Pre-Industrial Europe." *Population Studies.* 42:275-302.

Goodkind, Daniel M. (1995) "The Significance of Demographic Triviality: Minority Status and Zodiacal Fertility Timing among Chinese Malaysians." *Population Studies.* 49:45-55.

Khakova, Tatiana L. and Evgueny M. Andreev.(2000) "Did the Economic Crisis Cause the Fertility Decline in Russia: Evidence from the 1994 Microcensus. 16:211-233.

Knodel, J., R.S. Gray, P. Sriwatcharin, and S. Peracca. (1999). "Religion and Reproduction: Muslims in Buddhist Thailand." *Population Studies* 53:149–64.

Kohler, Hans-Peter; Francesco C. Billari, & Jose Antoio Ortega. (2002). "The Emergence of Lowest-Low Fertility in Europe during the 1990s." *Population and Development Review.* 28(4): 641 –80.

Kohler, Hans-Peter & Iliana Kohler. (2002). "Fertility Decline in Russia in the Early and Mid-1990s: The Role of Economic Uncertainty and Labor Market Crises." *European Journal of Population.* 18: 233 – 62.

Lesthaeghe, R. and K. Neels . (2001). "From the First to the Second Demographic Transition: An Interpretation of the Spatial Continuity of Demographic Innovation in France, Belgium and Switzerland." *European Journal of Population.* 18: 325-360.

Lokshin, Michael M. and Ruslan Yemtsov. (2001). *Household Strategies for Coping with Poverty and Social Exclusion in Post-Crisis Russia, Volume 1.* The World Bank Policy and Research Group: Policy Research Working Paper; no. WPS. 2556.

McDaniel, Antonio. (1996) "Fertility and Racial Stratification." *Population and Development Review.* 22(Supplement):134-150.

Morgan, S.P., S. Stash, H. Smith, and K.O. Mason. 2002. "Muslim and Non-Muslim Differences in Female Autonomy and Fertility: Evidence from Four Asian Countries." *Population and Development Review* 28:515–38.

Palloni, Alberto and Marta Tienda. (1991)"Demographic Responses to Economic Recessions in Latin America since 1900." *Sociological Inquiry.* 62: 246-270.

Philipov, Dimiter and Hans-Peter Kohler. (2001) "Tempo Effects in the Fertility Decline in Eastern Europe: Evidence from Bulgaria, the Czech Republic, Hungary, Poland, and Russia." *European Journal of Population.* 17:37-60.

Ranjan, P., (1998). "Fertility Behaviour under Income Uncertainty', *European Journal of Population.* 15: 25–43.

Roshchina, Yana and Andrey Boykov. (2005) *Fertility Determinants in Modern Russia.* Economic Education and Research Consortium: Russia and CIS: No. 05/04.

Shanin, Teodor. (1989) "Ethnicity in the Soviet Union: Analytical Perceptions and Political Strategies." *Comparative Studies in Society and History.* 31(3): 409-424.

Zakharov, S. and Ivanova, E., 1996. 'Fertility decline and recent changes in Russia: on the threshold of the second demographic transition', in DaVanzo (ed., with the assistance of G. Farnsworth), *Russia's Demographic "Crisis".* RAND Conference Proceedings.

Zakharov, S.V. (1999). "Fertility Trends in Russia and the European New Independent States: Crisis or Turning Point?" in Population Division, UN (ed). *Population Bulletin, Special Issue Nos. 40/41 on "Below Replacement Fertility."* United Nations, New York: 292 – 317.

Witte, J.C., & Wagner, G.G. (1995). "Declining fertility in East Germany after unification: A demographic response to socioeconomic change." *Population and Development Review*. 21(2), 387-397.