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NOTE

This is an interim, partial report from the Contract identified on the face page, a Final Report from which will be available on a later date. For a related study see "Soviet Female Labor Participation: A Regional Cross-Section Analysis", distributed by the Council in May 1987, and subsequently published under the same title in Journal of Comparative Economics 13, 446-472 (1989).
The process by which adolescents are transformed into adults is complex in every society. Major life events such as completion of education, marriage, family formation, and entry into the labor force affect an individual’s life and also influence each other. These processes are interesting to investigate in the Soviet Union because the Soviet Union has one of the highest female labor force participation rates of any country in the world, and Estonia has even a higher female labor force participation rate than the European part of the Soviet Union generally.

This paper examines the relation among these major life events especially for women. Two data sets referring to young adults in the Soviet Union and one data set referring to young adults in the United States are examined.

All three data sets compared people who had completed general secondary school, and who were about age 30 at the time to which the survey data referred. The data came from an Estonian 1979 survey of ethnic Estonians, Soviet Interview Project (SIP) data referring to life while in the Soviet Union of Soviet emigres to the United States, and American white non-Hispanics from the National Longitudinal Survey of Youth (NLSY).

In almost every area the patterns in the Estonian data and the American data were the most extreme, with the SIP results being intermediate. The SIP results are interpreted as representative of the behavior of ethnic Russians in cities.

The major findings are:

*The average number of children was highest in the Estonian survey, next highest in SIP, and lowest in NLSY. Childlessness was also much more common in the American than the Soviet surveys.

*Full time work by women was most common in the Estonian survey (98%), next most common in SIP (79%), and least common in NLSY (53%).

*In the Estonian survey 85% of the women worked full time every year since completion of education, in SIP 31% worked every year since completion of education, and in NLSY only 21%.

*Although only a few of the Estonian women took time away from full time work, analysis showed that those women who took time off were discriminated against in promotion or in pay by administrators and supervisors. This suggests that programs to extend unpaid maternity leave in the Soviet Union may have the unintended effect of increasing job discrimination against women.

*In all three data sets, presence of a young child decreased the chance that a woman would work full time, and the more children a woman had borne, the more time she took away from paid work. However, the magnitude of the effects was very different in the three surveys. In the Estonian data, women with three or more children worked .2 years less than women with no children; in the SIP data, three or more children led to 1.6 years less full time work; in NLSY three or more children led to 3.1 years less full time work. Thus, although children had a statistically significant effect on women’s work in Estonia, the magnitude of that effect was very small.

*In SIP and in NLSY women with some higher education had significantly fewer children than women who were only secondary school graduates; in the Estonian survey, education of women had no effect on their fertility. In all three surveys, women with higher education had a higher wage rate than less educated women. This was true even though there was no relation between education and wage rate for Estonian men.
The process by which adolescents are transformed into adults is complex in every society. Major life events such as completion of education, marriage, family formation, and entry into the labor force affect an individual's life and also influence each other.

In this paper we examine the relation among these major life events, especially for women. Using two data sets referring to young adults in the Soviet Union and one data set referring to young adults in the United States, we examine the trajectory of these major life events, the extent to which education affects childbearing, and the way in which education and childbearing together affect the kind of work life that women choose.

**THE LIFE COURSE APPROACH**

Both Soviet and American scholars have increasingly adopted a life course approach to the study of these questions. The life course approach focuses on the timing and sequencing of events and the way in which prior events influence subsequent events.

As Duncan, Featherman, and Duncan (1972: 205) write:

"The notion of career contingencies used in this research is that of events occurring subsequent to the determination of family background, that may have a bearing upon the level of ultimate occupational achievement.... A man who undergoes a period of poor health, for example, may thereby be handicapped in his subsequent career."

By the late 1960s, Soviet scholars had seen the value of this approach (e.g., Shubkin, 1970; Osipov, 1977; Titma, 1982, 1985). About the same time, a life course approach became recognized as valuable in the United States (e.g., Elder, 1985; Sweet, 1977).

**TRENDS IN FERTILITY AND FEMALE LABOR FORCE PARTICIPATION IN THE SOVIET UNION AND THE UNITED STATES**

The Soviet Union has the highest female labor force participation rate of any country in the world. Low fertility in the urban and European part of the Soviet Union in combination with large Soviet losses in World War II led the Soviet government to encourage all able-bodied citizens to work for pay. Partly to increase the productivity of labor, the building of a high-quality
The female labor force participation rate is even higher in Estonia than it is in the Soviet Union as a whole. In addition, fertility in Estonia generally declined from the last part of the nineteenth century until the late 1960s. Throughout this period, Estonia had the lowest or close to the lowest fertility of any region that is now included in the Soviet Union (Goale, Anderson, and Harm, 1979). In the last several years fertility has increased somewhat in the European part of the Soviet Union, and since the late 1960s, fertility has increased among ethnic Estonians in Estonia. Recently fertility has also increased among non-Estonians in Estonia.

Even though female labor force participation in the European part of the Soviet Union in general and in Estonia in particular is very high, almost all individuals marry, and childless couples are rare. It will be interesting to see what effects there are in the future on female labor force participation if fertility continues to rise.

In Estonia specifically and throughout the European part of the Soviet Union to some extent, various pronatalist policies have been advocated in recent years. In Estonia one set of policies that has been implemented allows mothers to stay home with their children for a longer period than they have in the past. Since mid-1989, women are allowed to stay home after the birth of a child for as long as three years and be able to regain their former job. Although the effects of this policy are yet to be seen, the intent is clearly to encourage childbearing and to make the combination of childbearing and paid work easier for women in Estonia.

Although the female labor force participation rate in the United States is much lower than in the Soviet Union, it has been rising rapidly, especially since the mid-1960s. Increases in female labor force participation in recent years have been especially large among mothers of small children (Waite, 1981).

In the United States, it has increasingly been a topic of scientific and policy debate and discussion how fertility and female labor force participation will be related in the future (e.g., Westoff, 1978; Butz and Ward, 1979). This phenomenon is one motivation for the policy debate in the United States about whether there should be Federal support for care of preschool children.

Thus, although levels of female labor force participation and the extent to which fertility inhibits female labor force participation are very different in the United States, the European part of the Soviet Union generally, and in Estonia, the trends are in the direction of convergence. In this paper we examine whether the underlying processes determining fertility and determining the relation between fertility and female labor force participation are in any way similar in these various settings or whether they are totally different.

**DESCRIPTION OF SAMPLES**

We use data from the Estonia 1979 Survey, the Soviet Interview Project, and the National Longitudinal Survey of Youth. We have selected respondents from these surveys in order to make the samples as comparable as possible, especially in age, educational attainment, and ethnic diversity.
The Estonian 1979 Survey interviewed 1,464 residents of Estonia who were in their last year of general secondary school in 1966. The survey only included students who were attending schools in which the primary language of instruction was Estonian. Thus, although there may have been some ethnic Russians and members of other non-Estonian ethnic groups included in the study, the vast majority were ethnic Estonians. General secondary schools in Estonia are selective. In 1966, about one-half of the cohort would have been attending general secondary schools. A great deal has been written about this survey (e.g., Saar and Voormann, 1988; Titma, 1985; Titma and Kenkmann, 1982).

**SOVIET INTERVIEW PROJECT**

The Soviet Interview Project (SIP) was a survey of 2,793 former Soviet citizens who emigrated from the Soviet Union to the United States in the late 1970s and early 1980s. These emigrants were interviewed in the United States in 1983 and 1984. The purpose of the study was to understand daily life in the Soviet Union, not to study migrant adjustment in the United States.

For purposes of comparison with the Estonia 1979 survey, only those SIP respondents who were between age 28 and 33 at the end of their last normal period of life in the Soviet Union and who had completed general secondary school or specialized secondary school were included in this study. This resulted in 519 respondents of both sexes from SIP included in our study.

Ninety-three percent of the SIP respondents had Russian as their native language, and 81% came from cities with a population over 500,000. Forty-five percent came from the Russian Republic, and 86% came from the European part of the Soviet Union. Much has been written regarding how the data from the SIP respondents is generally representative of European-background Soviets in medium and large cities (see Anderson and Silver, 1987a, 1987b). We are interpreting the SIP results as similar to what would probably be found in a similar study of European-background Soviets and especially ethnic Russians in medium and large cities in the Soviet Union.

The SIP respondents were asked the month and year in which their lives in the Soviet Union changed substantially due to their decision to apply to emigrate. Most respondents had no trouble answering this question. Although a respondent could cite any date he or she wished, for most respondents it was when they applied for an exit visa. The analysis of the life history of the SIP respondents is restricted to their lives in the Soviet Union BEFORE they claim that their lives changed substantially as a result of their decision to emigrate. For most SIP respondents, the last year of "normal" life in the Soviet Union was 1979. Thus, the time referent for the SIP respondents is very similar to that for the respondents in the Estonia 1979 survey.

The SIP respondents are clearly different from current residents of the Soviet Union because they all left the Soviet Union. In addition, the majority of the SIP respondents are Jews. However, comparison of fertility, desired number of children, and other distributions from the SIP respondents and from results of Soviet research in cities in the European part of the Soviet Union and especially in Russia indicate that the SIP respondents are quite similar to European-background Soviets in medium and large cities in the areas that we are
examining in this paper (see Anderson, 1987; also see Sisenko, 1974; Kiseleva and Rilkova, 1974; Rimashevskaia and Karapetian, 1985; Shakhot'ko, 1975).

NATIONAL LONGITUDINAL STUDY OF YOUTH

The National Longitudinal Study of Youth (NLSY) interviewed 12,557 Americans who were between age 14 and 22 in 1979. These young people were reinterviewed every year. The most recent year for which these data are available is the 1987 interviews. In order to be comparable to the Estonian 1979 survey, we included only those respondents who were interviewed in 1987, who were at least age 20 in 1979, held a secondary school diploma in 1979, and were white non-Hispanics. This resulted in 1,287 respondents from NLSY being included in our study.

The patterns in the United States for non-whites and white Hispanics tend to be quite different than those for non-Hispanic whites. If this paper had not been confined to non-Hispanic whites, ethnic variables would have almost certainly played a important role in explaining the NLSY data. This would have greatly reduced the comparability with the Estonia 1979 survey and with SIP.

SUMMARY CHARACTERISTICS

Table 1 shows the distribution by education of the respondents in the three surveys by gender. Since the respondents we are studying from all three surveys had at least completed secondary school, we are restricting ourselves to a fairly well-educated portion of the cohort that each survey represents. For each survey for each gender, at least 45% of the respondents had at least some higher education. Overall, the educational distributions in the three surveys are very similar.

Table 2 shows the distribution of the number of children ever born by gender in each survey. The respondents differ substantially in their fertility behavior, with the highest fertility in the Estonia 1979 survey, the next highest in SIP, and the lowest in NLSY. Whereas less than 25% of the respondents of either sex in the Estonia 1979 survey or in SIP had no children by the date to which the survey referred, over half of the men in NLSY and almost 40% of the women in NLSY had no children by 1987.

Table 3 shows the distribution of the respondents in the three surveys by their age at the date to which the survey referred. There is not quite two years difference in average age between the respondents that we include from the Estonia 1979 survey and NLSY. We did not restrict the NLSY respondents to those who were age 30 in 1987, because this would have reduced the NLSY sample by more than 50%. We do not think that this fairly small difference in ages is the cause of the difference in fertility shown in Table 2.

DYNAMICS OF THE PROCESS OF SELF-DETERMINATION IN THE THREE SURVEYS

Completion of education, marriage, starting a family, and participating in the adult world of work are all part of the transition to adulthood or self-determination of the individual. Examination of differences in the trajectories of these experiences for each sex and across cultural settings can provide insight into how young adulthood is organized.
Figure 1 graphs the percentage of the cohort by gender in each survey who had experienced various life events by certain ages: becoming married, having a child, completing education, and beginning to work full time after completion of education. Figure 1 stops at age 28 because, as shown in Table 3, all of the respondents were at least age 28 at the date to which the survey data refer.

In all three surveys, women begin to marry in substantial numbers earlier than men. This difference in the age of marriage persists in the SIP and NLSY through age 28. However, in the Estonia 1979 survey, by age 28, the proportion of men who had married exceeded the proportion of women.

The differences in the timing of the beginning of childbearing among the surveys are more striking than the differences in marriage. In both the Estonia 1979 survey and SIP, the difference between the percentage of the cohort who had married by a given age and the percentage who had had a child by that age is rarely more than 10%. In NLSY, however, after age 22, the gap is 20% or more. It is clear that the differences in fertility shown in Figure 2 are substantially due to a longer lag between marriage and childbearing in NLSY than in the Estonia 1979 survey or in SIP.

In the Estonia 1979 survey and in SIP people seem to have married when they were ready to have children. In NLSY, immediate plans to have children seem much less important in the decision when to marry. In the United States generally, postponement of childbearing after marriage has become increasingly common (Baldwin and Nord, 1984), while in the Soviet Union, over the last forty years the interval between marriage and the birth of the first child has grown shorter (Volkov, 1971).

There are also differences among the surveys in the timing of completion of education. A larger proportion of each sex had completed their education by age 28 in the Estonian 1979 survey than in SIP or in NLSY. The difference is especially marked for men.

Table 1 showed that the educational attainment of the respondents in the Estonia 1979 survey and in SIP was quite similar. Thus, the difference in age at completion of education is not primarily due to a difference in final educational attainment between the surveys.

The difference probably results from the fact that there is much more competition for places in the day time division of higher educational institutions in the European part of the Soviet Union generally than there is in Estonia. While 39% of the SIP respondents who held a higher degree last studied in the evening or correspondence division of a higher educational institution, the vast majority of the Estonia 1979 respondents received their higher degrees through the day time division of a higher educational institution. It typically takes many more years to complete a degree in the evening or correspondence division of a higher educational institution.

Men in SIP did not tend to marry before they completed their education if they were able to complete their education by age 21 or 22. However, if they had not completed their education by that age, they tended to marry and complete their education whenever possible. The completion of education after marriage was even more common for women in SIP than for men in SIP.
For the Estonia 1979 survey and for SIP, for both men and women, the lines for completion of education and for the beginning of paid work are almost identical. This is because almost all Soviets begin to work full time for pay immediately upon completion of education. In NLSY, there is more of a gap between completion of education and beginning of full time paid work. Although there is some gap for men in NLSY, the gap for women in NLSY is very large. As we will see, many women in NLSY either never work full time for pay or else take many years away from full time paid work.

ANALYSIS OF DETERMINANTS OF THE NUMBER OF CHILDREN EVER BORN

In the West, one of the strongest negative influences on fertility has been the woman's education. There has been a variety of proposed explanations for this, including differences in tastes for work associated with education, and differences in the amount of income foregone due to childbearing by women with different levels of education.

In the Soviet Union, differences in fertility across regions are generally negatively related to female education, although studies within regions have produced mixed results. Soviet studies of the ideal number of children have found that differences in fertility levels across regions are generally related to differences in fertility desires across regions, rather than due primarily to differences in the ability or willingness to prevent childbearing (Belova, 1971, 1973, 1975).

Maternity benefits, especially paid maternity leave, and public provision of child care are much more available in the Soviet Union than in the United States. Although the exact provision of maternity benefits has changed over time and depends partially on the woman's occupation, for the Soviet cohort considered, most women would have had at least six months paid leave associated with a birth.

Thus, the direct economic disincentives for childbearing should be less for Soviets than for Americans. On the other hand, research in both the Soviet Union and the United States shows that the bulk of work associated with the home, including activities related to care of children, is done by the mother of the child. Thus, in both societies, more children will be associated with more time spent in unpaid work. In addition, since availability of goods is a more serious problem in the Soviet Union than in the United States, the additional amount of unpaid work associated with additional children may be greater in the Soviet Union than in the United States.

Table 4 shows the results of a multiple regression analysis of the number of children ever born for women in the three surveys. We considered educational attainment variables, marriage duration, and urban residence.

In the presentation of multiple regression results throughout this paper, we included those variables among the ones considered that were important for the analysis of each individual survey. We also included in the analysis of a given survey variables that were not important for that survey if: 1) they were important in another survey and 2) the inclusion of these statistically insignificant variables did not distort the interpretation of the analysis of the given survey.
Thus, in Table 4, an educational attainment variable is included in the analysis of the Estonia 1979 survey even though it is completely insignificant because educational variables were very important in the other two surveys, and inclusion of the educational variable in the analysis of the Estonia 1979 data did not substantially affect the results.

Table 4 shows that marital duration is important for all three groups. This is reasonable, since, in general, the number of years since marriage is very close to the number of years that a woman was at risk of having a child.

Table 4 also shows that urban residence is generally negatively related to fertility in all three settings. This effect is very significant in the Estonia 1979 survey and in SIP and is close to being statistically significant in NLSY.

The largest differences in Table 4 are in the role of educational attainment in fertility. In NLSY, educational attainment is extremely important. In addition, in NLSY, every increment in education beyond secondary school is related to lower fertility. In SIP, education is also significantly negatively related to fertility. However, in SIP, additions to education only mattered in terms of the distinction between those with some education beyond secondary school and those with no post-secondary education. Graduation from a higher educational institution, for example, made no additional difference in fertility for the women in the SIP survey beyond the effects of some higher education. In the Estonia 1979 survey, none of various educational attainment indicators tried made any significant difference in fertility.

Table 2 showed that the reason that education is not important in determination of fertility in Estonia is NOT any lack of variation in fertility in the Estonian survey. Recall that the average number of children ever born was higher in the Estonia 1979 survey than in the other two surveys. In addition, a substantial amount of the variability in fertility is explained in the regression for the Estonia 1979 survey shown in Table 4. The adjusted R2 is greater for the Estonia 1979 survey than for SIP and is only slightly lower than the adjusted R2 for NLSY.

The increase in fertility among ethnic Estonians in Estonia since the late 1960s was concentrated among those women with a higher education. Before that time, a woman's education was generally negatively related to her fertility. Thus, the lack of any relation between a woman's education and her fertility in the Estonia 1979 survey may be a temporary phenomenon. Analysis of data across a broader range of ages or for a later time could clarify this.

### FULL TIME AND PART TIME WORK IN THE UNITED STATES

Figure 1 showed that in the Estonia 1979 survey and in SIP, for both men and women there was virtually no gap between completion of education and beginning of paid work. Although there was some gap for men in NLSY, there was a large gap for women in NLSY.

In the Soviet Union, there is extremely little part time work, especially in public sector jobs. Thus, almost all Soviets work full time.

The situation in the United States is very different. Figure 2 graphs the distribution of female NLSY respondents by educational attainment according to whether they worked full time (35 hours a week or more), worked part time,
or did not work for pay at all in 1987. The operational definition used for part time work was if a woman worked less than 35 hours a week on average but obtained $200 or more in wages or salary in 1987.

Figure 2 shows that a very substantial portion of women worked part time. It also shows a strong relation between educational attainment and the extent of labor force participation.

The analysis of the causes of part time work is an important topic. Also, it is possible that a substantial amount of part time work will develop in the Soviet Union in the future. This especially might occur in areas, such as Estonia, that are currently very short of labor. However, since virtually all work for the Soviet respondents is full time, and even in the late 1980s there is virtually no part time work in the Soviet Union, the rest of the analysis of female labor force participation and income will concentrate on women who work full time.

THE RELATION OF A WOMAN'S WORK HISTORY TO HER FERTILITY

Table 5 shows the relation of three measures of female labor force participation to fertility in the three surveys. The table shows the proportion of women who worked full time in the last year, the average number of years women worked full time since completion of their education, and the proportion of women who worked full time every year since the completion of their education. Each of these indicators is shown for all women we are studying in each survey and also according to the number of children they have borne.

In the Estonia 1979 survey, virtually all women worked full time in 1979 regardless of how many children they had. Although there is some decrease in the proportion working full time with higher fertility, the decrease from those women with no children to those women with three or more children is only 5%.

In SIP, there is a stronger negative relation between working full time in the last year and fertility than in the Estonia 1979 survey. In addition, in SIP the decrease in the proportion working full time from those with no children to those with three or more children is 38%. The drop-off is substantial between one and two children and is greater between two and three children.

The relation between fertility and full time work for women is the strongest in NLSY. Large declines are seen with each additional child, and the difference in full time work between those with no children and those with three or more children is 49%.

In the Estonia 1979 survey there is some increase in the average number of years that a woman did not work for pay with an increasing number of children, but the difference in the average number of years not working for pay since the completion of education between women with no children and women with three or more children is only 3.8 years. Thus, each additional child only resulted in an average removal from paid work of less than two months. Estonian women who remained home on paid maternity leave and then returned to work would have not reported any time not working for pay. However, these results suggest that extremely few women in the Estonia 1979 survey remained home past their paid maternity leave.
In NLSY, even women with no children did not work for pay full time on average almost two years since the completion of their education. In addition, every additional child resulted in an average removal from paid work of more than 21 months.

The SIP, the effect of children on temporary withdrawal from the labor force in intermediate between that in the Estonia 1979 survey and in NLSY. Two or more children resulted in women not working for pay for two years on average. In addition, withdrawing from paid work for at least a year occurred for one-third of the SIP women. In their willingness to leave paid work, the SIP women were more similar to women in NLSY than to women in the Estonia 1979 survey.

In the Estonia 1979 survey, there is some effect of fertility on whether a woman worked full time for pay EVERY year since she completed her education. Every additional child increased the chance that she would leave paid work for at least one year by 8%. In NLSY, only 35% of the women who had no children worked full time for pay every year since they completed their education. Each additional child increased the chance that a woman would not work full time for pay for at least one year by 11%.

Thus, regardless of the indicator of labor force participation used, the order of female labor force participation and the relation between female labor force participation is the same: the Estonia 1979 survey shows the highest level of female labor force participation and the least sensitivity of female labor force participation to fertility, next comes SIP, and next comes NLSY.

In NLSY to a much greater extent than in the other two surveys women seem to have made a choice either to work full time for several years, that is to have a career, or to have two, three, or more children. In the Estonia 1979 survey and in SIP, most women combined having one or more often two children with working full time every year or almost every year.

In the next section we will examine whether similar factors lead to differences among the women in each survey in labor force participation, despite the large aggregate differences in female labor force participation among the surveys.

MULTIPLE REGRESSION ANALYSIS OF FULL TIME PAID WORK BY WOMEN

Table 6 shows the results of a multiple regression analysis of whether a woman worked full time for pay in the last year about which she was asked. The variables considered are urban residence, fertility (in terms of the number of children she has borne), and the age of her youngest child.

It is likely that the higher the wage a woman could obtain the more likely that woman would work for pay. Since in the United States it is often argued that there is selectivity into paid work of women according to the wage they could obtain, a woman's education is often used as a proxy for her wage rate. Preliminary analysis showed that when variables such as those in Table 6 are taken into account, educational attainment does not make any significant difference in whether a woman worked full time for pay in any of the three surveys.

It is possible that the actual wage that a woman has obtained, such as in her first full time job after completing education, would influence whether she
worked full time in a given year, even if there were no significant effect of her education. However, such an analysis would necessarily be restricted to women who had worked for pay full time in at least one year since they completed their education. We take this approach in later analysis of the continuity of a woman’s work career. However, in this analysis of who worked full time in a given year, we include all women whether or not they ever worked for pay full time and thus do not include in the analysis the actual wage rate of the woman at any given time.

In Table 6, urban residence does not have a statistically significant effect in any of the surveys, even though it was important in determination of fertility in the Estonia 1979 survey and in SIP.

The total number of children that a woman has borne has a significant negative effect on full time paid work in a given year in both NLSY and in SIP. In NLSY, although having one child does not by itself depress a woman’s likelihood of working for pay full time, having two children does decrease her likelihood to work full time and having three or more children depresses that likelihood even more.

In SIP, having one or two children does not by itself depress the chance a woman will work for pay, but having three or more children does decrease the likelihood of paid work, although not to as great an extent as in NLSY.

In the Estonia 1979 survey, the dummy variable for three or more children is negative, but it is far from statistically significant. Thus, there is no evidence for the Estonia 1979 survey that the number of children a woman has influences her likelihood of paid work in a given year.

The age of the youngest child, however, has a statistically significant effect on the chance a woman will work for pay full time in all three surveys. In NLSY, if the youngest child is less than six years of age, the likelihood that a woman will work full time is depressed by 12%. If that youngest child is less than three years of age, the mother’s likelihood of paid work is depressed by an additional 13%. Thus, the lack of significance of a woman having only one child in the NLSY data should be interpreted as meaning that having only one child does not depress a woman’s likelihood to work full time for pay in a given year if that child is age six or older.

In SIP, if the youngest child is less than age three, the mother is 20% less likely to work for pay in a given year. However, there is no depressing effect on full time work if the youngest child is age three, four, or five.

In the Estonia 1979 survey, a woman’s likelihood of paid work is decreased if her youngest child is age one or two. There was no significant effect on a woman’s likelihood to work for pay if the presence of children less than one year of age was considered. When the SIP data were analyzed to determine the effect of a child age one or two, the effect was not as strong as when all children under age three were considered.

It is possible that the difference in the effect of the age of the youngest child arises from a technical difference in the surveys. In the Estonia 1979 survey, women were asked about their work in that year. Many women with a child under one year of age would have been on paid maternity leave at the time of the survey. If a woman was on paid maternity leave, she would properly answer that she was working for pay. SIP respondents were asked about their
lives some years in the past. If a woman interviewed in SIP had taken paid maternity leave followed by unpaid leave, she would have known this at the time she was interviewed and would have reported not working for pay if she took an unpaid leave or did not work for pay for six months or more.

It is interesting that in two of the three surveys fertility variables mattered in determination of the chance that a woman worked for pay full time, and in all three surveys, the age of the youngest child influenced a woman's tendency to work for pay. In addition, the significance of the F statistic for the equations as a whole shows that a significant explanation of the dependent variable is being given in each of the three surveys.

It would be difficult to imagine a situation in which the number of children and the age of the youngest child had absolutely no effect on a woman's tendency to work for pay. However, the adequacy or completeness of the explanation provided by the multiple regression differs greatly in the three situations. The R^2 and the adjusted R^2 for SIP are somewhat greater than for the Estonia 1979 survey. However, the R^2 for NLSY is three times as great as for the Estonia 1979 survey. Thus, although a statistically significant explanation of paid work by women in the Estonia 1979 survey has been obtained, it does not necessarily explain a very important or large part of women's paid work in Estonia in 1979, primarily because 98% of the women in the Estonia 1979 survey were working full time for pay in 1979.

In the Estonia 1979 survey, 95% of those women with three or more children worked full time in 1979. However, only 10% of the women in that survey had three or more children. Decisions about a woman's fertility and her labor force participation are not made independently. In order for a larger proportion of Estonian women to have three or more children, it may be necessary for a social and economic situation to develop which makes it less necessary or required for women to work for pay virtually all the time.

### MULTIPLE REGRESSION ANALYSIS OF THE NUMBER OF YEARS A WOMAN DID NOT WORK FULL TIME FOR PAY

Another way to examine female labor force participation is to examine job experience, or conversely, how many years a woman did not work full time. This is investigated in Table 7. Educational attainment, urban residence, and fertility are investigated as possible influences. In addition, women with higher wage rates would be expected to take less time away from paid work than women with lower wage rates. Thus, the woman's income in her first full time job after completion of education is also included as an independent variable. This analysis is restricted to women who worked full time for pay in at least one year after completion of education.

In NLSY, education was very important. The higher a woman's education, the less time she was likely to take away from full time paid work. This is true even when her income in her first job is taken into account. This suggests that in NLSY, women with more education tended to work full time both because they had a high wage rate and because they were more oriented toward paid work than were women with less education.

In the Estonia 1979 survey and in SIP, education was not significant once a woman's income in her first job was taken into account. This is consistent with the argument that women in the Soviet Union worked primarily to receive
income rather than due to the inherent gratification from the work. If the demands of daily life, such as acquisition of goods, were easier to deal with or if some aspects of work were modified, then there might appear a positive relation between a woman’s education and her tendency to work for pay, even after her wage rate was taken into account.

In all three surveys, the more children a woman has had, the more years she is likely to have taken away from paid work. In NLSY, there are effects of every child, with one child leading to a little over half a year away from paid work and three or more children leading to more than three years away from paid work. Note that the actual effects of fertility on female labor force participation in NLSY are much greater than this, since women with several children were likely to have never worked full time for pay. In the Estonia 1979 survey and in SIP, there is no significant effect of having one child, but having two or more children leads to a work disruption of a little over two months, in the Estonia survey and of more than one year in the SIP survey.

As in the analysis of full time work in the last year, Table 7 provides a statistically significant explanation of the number of years not working full time in all of the surveys. However, over ten times as much of the variation in NLSY is explained as in the Estonian 1979 survey.

MULTIPLE REGRESSION ANALYSIS OF WHETHER A WOMAN WORKED FULL TIME EVERY YEAR SINCE COMPLETION OF EDUCATION

A third way to study women’s labor force participation is to investigate what determines whether a woman has had no career interruptions. In Table 8 we examine the determinants of a woman working full time for pay every year since she completed her education. We consider the same factors as in Table 7.

In the analysis of the Estonia 1979 survey and NLSY, we obtained a statistically significant explanation, as indicated by the significance of the F statistics of the equation as a whole. For SIP, no statistically significant explanation was obtained. This suggests that idiosyncratic factors may have been important in whether a women EVER left the labor force. Although the equation as a whole for the Estonia 1979 survey was statistically significant, the R2 is very low.

As in the analysis of the number of years a woman did not work for pay, education is very significant in NLSY and is insignificant in the Estonia 1979 survey. Also, in both surveys, the more children a woman had, the less likely she was to have had an uninterrupted career, although the magnitude of this effect is greater in NLSY than in the Estonia 1979 survey.

In NLSY, income in first job is very significant. Women who had high wage rates at the beginning of their careers were much more likely to never take time away from full time paid work than other women. In the Estonia 1979 survey, the coefficient for income in first job is positive, and it is almost statistically significant at the .05 level.

In NLSY, women who resided in urban places at age 14 were significantly less likely to have uninterrupted careers than other women, while in the Estonia 1979 survey, women who resided in urban places, were significantly more likely than other women to have uninterrupted careers. The reason for the effect of urban residence at age 14 in NLSY is not clear.
In the Estonia 1979 survey, there are two possible explanations of the effect of urban residence. First, one reason for interruption of paid work might be if the burdens of unpaid work at home became too great to handle in addition to paid work. These burdens increase with the number of children and include time spent acquiring food and other goods. Unpaid home tasks are easier to accomplish in urban than in rural places due to a greater availability of goods and due to closer proximity to stores and other services. A second possible reason is that in rural areas social relationships with friends and neighbors tend to be stronger than in urban areas. For a woman in an urban area, her workmates may be the major people with whom she interacts socially outside of her immediate family. Thus work may play a greater social role for urban than rural women and may contribute to an urban woman being more reluctant to interrupt paid work or to end or interrupt her relationships with her co-workers.

THE RELATION OF EDUCATION AND INCOME

Figure 3 shows the relation between educational attainment and income for each sex in each survey. The values are shown only for those who worked full time. In every survey, men with a given educational attainment on average earned more than women with the same level of education.

The strongest relation between education and income is in NLSY, with a positive relation for each sex, although the relation is stronger for women than for men. In the Estonia 1979 survey, there is no relation between income and education for men, but there is a positive relation for women, with substantial benefits for women of higher education. In SIP, there is a stronger relation between education and income than in the Estonia 1979 survey, but it is much weaker than in NLSY.2

MULTIPLE REGRESSION ANALYSIS OF INCOME IN LAST YEAR

Table 9 shows the results of a multiple regression analysis of the determinants of income in the last year, among women who worked for pay full time in that year. The dependent variable is the natural logarithm of the income in that year, in order to reduce the influence of the fairly small number of women who reported very high incomes.

In all three surveys, women with higher education tended to earn more money, even after income in first job was taken into account. In NLSY, women whose youngest child was under age six earned less than otherwise similar women, although no similar effect was found in the Estonia 1979 survey. Recall that the analysis in Table 6 showed that women in NLSY with a child under age six were much less likely to work full time in a given year than otherwise similar women. This suggests that in NLSY, women with a preschool age child who worked full time weighed factors associated with a job such as proximity to their home more heavily than the maximal wage they could obtain.

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2 Note in Table 1 that a small percentage of respondents in the Estonia 1979 survey and in SIP had vocational courses after graduation from secondary school.
Recall from Table 6 that in NLSY the number of children that a woman had influenced her likelihood to work full time in 1987 regardless of the age of her youngest child. It is interesting that if a woman’s youngest child was age six or older the number of children she has does not appear to influence her wage rate if she works for pay full time.

In all three surveys, some aspects of the woman’s work history also influenced her income. In NLSY and SIP, the most important aspect of her work history was the number of years she had worked full time since completing her education, that is her years of job experience. This aspect of the career was not significant in the Estonia 1979 survey. However, whether a woman had an uninterrupted career was significant in the Estonia 1979 survey.

Recall from Table 5 that 15% of the women in the Estonia 1979 survey did not work for pay in at least one year after completion of education. It may be that these 15% of the Estonian women either were not as committed or productive workers as the other 85% of the Estonian women or that this 15% were perceived by superiors as not being as committed or productive as other workers. This could have led to fewer promotions or other changes in the jobs of these women which resulted in the women who had experienced career interruptions having a lower wage rate than otherwise similar women.

That a woman’s income in the Estonia 1979 survey was negatively affected by whether or not she had ever had any substantial interruption but not directly by her years of work experience suggests that these women with unpaid work interruptions are labelled negatively by supervisors. If this is true, then it seems possible that women in Estonia who take one or two years of unpaid leave under current Estonian law may actually suffer in their career mobility and income when they return to work, even though this is not supposed to happen.

CONCLUSIONS AND OBSERVATIONS

With some important exceptions, the processes that lead to fertility and the relation of fertility and other factors to female labor force participation are similar in the three surveys. Thus, although levels of female labor force participation and the bivariate relation between fertility and female labor force participation are very different in the three surveys, the underlying relations are similar. This suggests that if trends in these areas continue to converge in the three settings, there is not likely to be a major shift in what kinds of factors lead women to have children or to work for pay.

The largest difference in the nature of the relations found in the three surveys is in the role of education. In almost every area, differences in educational attainment of women were extremely important in NLSY, weaker but still significant in SIP, and extremely weak or insignificant in the Estonia 1979 survey. Only in the determination of income was educational attainment significant in the Estonia 1979 survey, when other factors were taken into account.

This does not mean that more educated women in the Estonia 1979 survey were not more satisfied in their jobs than less educated women. However, in a situation in which almost all women work for pay virtually every year, differences in work satisfaction or work commitment may not be manifested in differences in the number of years working. There may need to be some pressing reason for a woman not to work for pay in a particular year. This may be
related to children, including if a particular child had been sick a great deal or had some other problem. If female labor force participation in Estonia became less universal, then a positive relation with education or some indicator of job satisfaction might appear.

It is difficult to make definitive statements about the underlying relation between education and female labor force participation in Estonia, since, as noted above, the relation between education and fertility was changing fairly rapidly during the time these women were having their children. Currently, as noted, policies regarding maternity leave and women’s work are also changing rapidly. Only future research which studies later periods and other cohorts will be able to disentangle the relation between education and female labor force participation in Estonia.

We examined the data from the Soviet Interview Project because we did not have access to another survey comparable to the Estonia 1979 survey for any part of the Soviet Union other than Estonia. Comparisons of the Estonia 1979 results and the SIP results suggest some interesting differences in the responsiveness of fertility to education and their role in female labor force participation in Estonia and elsewhere in the European part of the Soviet Union. Direct comparison with surveys from elsewhere in the Soviet Union, however, would enable these conclusions to be made on a firmer basis.

There will need to be substantially more change in female labor force participation in the United States before the behavior of educated white American women looks very similar to that of educated Estonian women or educated European Soviet women. However, regardless of the problems that Soviet women encounter in combining fertility and labor force participation, the results from the Estonia 1979 survey and from SIP show that under certain circumstances it is possible for women to combine fertility above replacement level with a very high rate of labor force participation.
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Figure 1. The Percentage of Members of a Cohort Who Had Experienced Various Life Events by a Given Age
ESTONIA MALES

Percentage

Age

15 16 17 18 19 20 21 22 23 24 25 26 27 28

Marriage

Child

Educ

Work
Figure 2. Distribution by Work Status of White Women Age 26–30 in 1987, According to Educational Attainment, from NLSY.
Figure 3. Average Income in Last Year for Full Time Workers, by Sex, According to Educational Attainment