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WOMEN'S LABOR FORCE PARTICIPATION DURING AND AFTER COMMUNISM: A STUDY OF THE CZECH REPUBLIC AND SLOVAKIA

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WOMEN'S LABOR FORCE PARTICIPATION DURING AND AFTER COMMUNISM: A CASE STUDY OF THE CZECH REPUBLIC AND SLOVAKIA

ABSTRACT

This research uses four micro-data sets to examine differences in married women's labor force participation between Communist and post-Communist Czech Republic and Slovakia. Descriptive statistics show that participation has dropped in both regions following the regime change, particularly for young women. To explain this phenomenon, one hypothesis is that own and spouse wage elasticities of participation are the same during and after Communism and the behavior change results from different offered wages. An alternative hypothesis is that wage elasticities changed. We expect higher elasticities in the regime which offers a broader set of options to families making time allocation decisions. Rejecting the hypothesis that elasticities are unchanged, the analysis uses probits stratified by age to examine own and spouse earnings effects on participation. While own earnings effects rose after Communism in Slovakia, they dropped in the Czech Republic, suggesting that constraints on married women's participation decisions have increased there. Although earnings affect participation less after Communism, children have an increased effect, particularly for young women in the Czech Republic.

I. INTRODUCTION

Over the last six years in former Communist countries, economic, political and social institutions have changed dramatically. Under Communist regimes, central planners imple-mented social policies purported to deliver equity between workers and provide all citizens with work (Bauerová, 1987). To promote a social standard of two workers per household (Paukert, 1991), they subsidized child care, kept real wages low by focusing on investment rather than consumption, and proclaimed "social parasite" laws which required all eligible adults to work. Following the collapse of these regimes, all costs -- including those of child care -- are flexible and deregulated, official ceilings and floors on wages have been removed, and laws no longer require that people hold jobs. Labor market outcomes are likely to shift as a result of these changes.

Under Communist regimes a high percentage of women participated in the labor market. Table I presents for several countries the percentage of all women over age 15 who were

economically active. In 1980 the three countries under Communist regimes -- Czechoslovakia, Hungary and Poland -- have particularly high rates of women's labor force participation with respect to market economies: Czechoslovakia had the highest (60.8 percent) and Poland the second highest (58.7 percent).

After Communism proportionately fewer women work. In all three post-Communist countries in Table I, a smaller percentage of women worked in 1990 than in 1980. In Poland, the woman's labor force participation rate dropped by 4.5 percentage points to 54.2 percent; in Hungary, it dropped 3.9 percent points to 46.3 percent; and in Czechoslovakia, it dropped 0.3 percent points even though the Communist regime had collapsed only one year before in 1989. The decline in women's participation rates in these countries is particularly notable given the general trend of increasing rates in market economies. In every other country reported in Table I, the change in participation between 1980 and 1990 is positive.

To examine these changes in labor supply, this study will start with a neo-classical approach. From this perspective, one hypothesis is that participation drops post-Communism primarily because the market offers women and their husbands new wage opportunities, and fewer women participate given these opportunities. Regardless of whether they make their decisions under Communist or post-Communist institutions, families respond to husbands and wives earnings offers in the same way, so that wage elasticities of labor supply are unchanged. According to this hypothesis, new wage offers induce women to leave the labor force.

However, previous research on changes in earnings structures post-Communism casts doubt upon this hypothesis. Focusing on the Czech Republic and Slovakia, Chase(1995) shows that young women, particularly those who are well-educated, receive relatively higher wage offers following regime change. Therefore, if labor supply elasticities remained unchanged and wage offers alone drive participation changes, one would expect a higher percentage of young women in

the labor force after Communism. But as illustrated by the age breakdown of participation rates in Figures I and II, young women are leaving the labor force. In fact, their departure accounts for much of the total observed drop.

If one maintains a focus on wages as the primary determinant of labor supply behavior but rejects the hypothesis of unchanged elasticities across regime, elasticities must necessarily have changed between the Communist regime and post-Communism. But how would one expect wage elasticities to differ across regime?

Elasticities reflect the degree to which a person alters behavior as a result of different prices. Revisiting the Le Chatelier principle, the broader the set of available options, the more extensive the behavior change to different prices, and the larger the elasticity. Thus, the direction and magnitude of differences in elasticity across regime gives some indication of whether the set of options which people face has become broader or more narrow. This research will consider changes in own and spouse wage elasticities across regimes not only to investigate the causes of reduced women's labor force participation, but also to offer some insight into how the collapse of Communism affects people's abilities to respond to changed wage offers.

According to conventional wisdom, Communist regimes limited the set of options available to people, thereby limiting their responses to prices. After Communism, as market forces are allowed to operate, people have greater flexibility to maximize utility. Therefore, if elasticities measure the degree to which people can alter their behavior when prices change, we expect larger wage elasticities of labor supply post-Communism than during Communism.

However, new institutions do not uniformly offer people greater flexibility. The end of Communism generated dramatic and complicated changes in incentives that will have differential effects on different groups in society. Thus, as they make decisions about labor force participation, families may or may not face a broader set of options post-Communism; they may or may not be

able to respond more to price changes; and they may or may not exhibit greater wage elasticities of labor supply. For example, after Communism in both the Czech Republic and Slovakia young women deciding whether or not to participate in the labor force have a broader set of possible wage offers available to them. This is particularly true for well-educated young women. This change post-Communism should increase the set of options these women face, *ceteris paribus*. On the other hand, while Communist regimes subsidized child care, after Communism the state and employers are much less likely to. Confronting increased child care costs, women with children may have less leeway to respond to increased wage offers.

Using micro-data from the Communist-era Czechoslovakia and post-Communist Czech Republic and Slovakia, this research will investigate the determinants of women's labor force participation both before and after the regime change. It will consider alternative hypotheses about the causes of the drop, focusing on the effects on participation of a wife's own wage offers and those of her husband. To discern whether women have a broader set of options post-Communism, it will focus particularly on changes in own and spouse wage elasticities, maintaining the perspective that the broader the set of options, the higher wage elasticities of labor supply. Section II presents a framework to consider changes in participation, labor supply elasticities and income and substitution effects across regime change. Section III includes information about the data and the empirical approach used. Section IV presents the results of the analysis. Section V summarizes this research.

II. FRAMEWORK

To model women's labor participation decisions in both the Communist and post-Communist periods, this paper adopts a static labor supply approach. Following Killingsworth and Heckman (1986), the family is the decision-making unit. A family of m members has a single

utility function U with the usual properties consisting of the non-market time L_i of each member i and the consumption of an aggregate consumer good C.

[1] $$U(L_1,\ldots,L_m,C)$$

The family faces a budget constraint dictating that the amount of C it can consume at price P must not exceed the family's non-labor income R plus the sum of all members' labor income:

[2] $$PC \le R + \sum_i W_i H_i$$

where W_i is the wage of the ith member and H_i is the number of hours member i works. Each member i is further constrained by the number of hours T available in a given week, so that

[2a] $$H_i + L_i = T \quad \forall i$$

Maximizing [1] subject to the budget constraints [2] and [2a], the following first-order conditions result:

[3] $$\begin{aligned} &PC = R + \textstyle\sum_i W_i H_i \\ &U_i - mW_i \ge 0 \\ &\text{with } H_i = 0 \text{ if } U_i - mW_i > 0 \\ &U_C - mP = 0 \end{aligned}$$

where U_i is the marginal family utility of individual i's non-market time, U_C is the marginal family utility of the aggregate consumer good, and μ is the shadow value of family income.

In this framework, the second equation in [3] allows us to consider married women's decisions whether or not to work. Not only does it specify a decision rule for optimal hours of non-work time the family will sell in the form of work hours, it also establishes the condition for participation; namely, that family member i should work no hours if the marginal family utility of an hour of non-market time exceeds the value to the family of i's wage. This establishes a

reservation wage $\underline{W_i} = \left.\frac{U_i}{m}\right|_{H=0}$ contingent on the joint family decision about other member's time allocation and family consumption. At this reservation wage i is indifferent between working her first hour and not working. If the wage the market offers a woman is greater than $\underline{W_i}$, then she will participate in the labor force; if it is less, she will not.

Although discussing reservation wages provides insight into who works and who does not, to consider the sensitivity of labor supply to earnings changes, we solve the first order conditions [3] simultaneously for all family members to establish labor supply functions:

$$H_i = H(W_1, \ldots, W_m, P, R)$$

then totally differentiate these functions to obtain Slutzky equations:

$$\frac{\P H_i}{\P W_j} = S_{ij} + H_j \frac{\P H_i}{\P R}$$

These decompose person i's labor supply response to person j's wage changes into income effects (the second right hand side term) and substitution effects. The matrix S is based on the bordered Hessian of the family utility function.

Investigating married women's labor force participation when husbands are present, the relevant Slutzky equations are:

[4a,b]
$$\frac{\P P_w}{\P W_w} = S_{ww}$$
$$\frac{\P P_w}{\P W_h} = S_{wh} + H_h \frac{\P H_{hi}}{\P R}$$

where the own-wage effect on participation is purely a substitution effect because the woman works no hours, while the spouse-wage effect consists of both substitution and income effects.

This framework presents in stylized form the factors determining women's labor participation during and after Communism. Levels of women's labor force participation during and after Communism are likely to result from changed reservation wages. Communist regimes maintained policies and institutions that kept women's reservation wages low. Purportedly, through control over prices and wages that firms could offer, social planners maintained an effective ceiling on individuals real wages. As a result, the shadow value of family income m remained high, which lowered the reservation wage of all family members. Only rarely were the market wages of one member sufficiently high to allow a spouse not to participate and specialize in home production. Further, Communist regimes offered child care at very low monetary cost, reducing the opportunity cost of working, the marginal family utility of a woman's non-labor time U_i, and the women's reservation wage. Finally, through social parasite laws that forbade eligible workers from not participating in the labor market, Communist regimes constrained certain people to work, though anecdotal evidence suggests that these laws were rarely enforced for women.

After Communism these social policies no longer exist. Eliminating implicit wage ceilings, some family members can earn wages sufficiently high to compensate for the lost wages of a non-participating member. This lowers the shadow value of family income, raises the reservation wage, and allows more families to have one member leave the labor market and specialize in home production. If the costs of child care increase as governments and firms decrease their subsidies, the reservation wage of women with young children increases with the increased family utility of non-labor time. Finally, if social parasite laws are abolished, there is no special cost associated with not working. Each of these changes helps to explain why, in general, reservation wages are higher and women's participation rates are lower after Communism.

While the above discussion explains in general terms the stylized fact of lower participation, it provides little basis for an empirical investigation of how individuals make labor supply decisions. To approach this issue, this research begins from a neoclassical approach, focusing on the role of offered wages in those decisions. It considers two hypotheses. One possible explanation is that own- and spouse-wage elasticities remain constant across regime change: fewer married women participate in the labor force because of new wages offered after Communism. Beyond the institutional changes affecting reservation wages discussed above, this explanation appears unlikely considering equations [4a,b]. While family utility functions might not have changed across regime, the vector of wages and prices which forms the border of the Hessian matrix would have. As S changes, own- and spouse- wage elasticities shift. Spouse wage effects would also shift because new income effects would result from changes in the husband's labor supply H_h.

An alternative, and more likely, explanation is that own- and spouse-earnings elasticities change along with new offered earnings patterns. As presented in Section I above, we can revisit the Le Chatelier principle to interpret changing earnings elasticities: the broader is the set of options one faces, the more they will be able to respond to a price change, and the larger will be their elasticity. Considering women's labor force participation, the more leeway families have to choose whether women participate, the larger will be the earnings elasticities of participation.

While the conventional wisdom suggests that market forces' increased role following Communism uniformly increases people's flexibility to respond to price changes, it seems likely that some people would have more leeway and others could have less. As a result, wage elasticities of participation may or may not increase across regime change. Considering the institutional changes mentioned above, an increase in earnings dispersion would result in greater flexibility to those women whose husbands were constrained by wage ceilings and now earn

significantly higher wages. On the other hand, it would result in diminished flexibility for those whose husbands were supported by wage floors, for families whose male members have suffered wage reductions will need two incomes. Further, increases in child care costs will limit the options that women with children face and decrease wage elasticities. We cannot establish with surety whether or not wage elasticities will increase or decrease after Communism, and whether or not the set of options has broadened or narrowed. The empirical analysis presented here will help to resolve this question.

III. DATA AND ESTIMATION STRATEGY

This research uses micro-data from the following four times and countries: the 1984 Czech Republic, 1984 Slovak Republic, 1993 Czech Republic and 1993 Slovakia. For the Communist period, the 1984 Social Stratification Survey provides the data. Reporting information for both republics of the Czecho-Slovak Socialist Republic, the 1984 data records information about 18,000 households. Each household provided responses regarding their income and benefits. This information was verified through a separate employer questionnaire.

Although the Communist and post-Communist survey projects investigate similar issues, because the previous regime designed the 1984 survey and collected the data, the focus of the questions and probable accuracy of responses differ between 1984 and 1993. The post-Communist data for both the Czech Republic and Slovakia result from a multi-country comparative research project entitled "Social Stratification in Eastern Europe 1993". In May 1993 the project collected information from 5600 households in the Czech Republic and 4900 in Slovakia. Based on a sample frame from a recently conducted micro-census, the sample selection procedure specified that respondents be randomly chosen from within the household (not necessarily the household head) and be between 20 and 69 years of age.

Table II presents descriptive statistics for married women of variables used in this research. The primary participation variable, "Non-zero Income?", records one if the respondent reported positive earnings and zero otherwise. Consonant with the ILO data from Table I, these data show that labor force participation dropped between 1984 and 1993: 73 percent of married women worked in the Communist era Czech Republic compared to 62 percent after Communism. In Slovakia, 67 percent of respondents worked in 1984 compared to 63 percent in 1993.

Figures I and II present more disaggregated information about the age distribution of labor market participation among married couples. The data show three separate age groups with regard to women's participation. Though the boundaries are not distinct, it appears appropriate to divide the sample into women under age 35, women age 35 to 50, and women over 50. In general, younger women have lower participation rates, a phenomenon presumably related to child care responsibilities. Women in the middle age group are most likely to participate in the labor force, a fact related to their high earning potential and reduced likelihood that they must care for young children. As they have the opportunity to retire or their earnings potential decreases, older women tend to drop out of the labor force. These rough age groups hold for women both during and after Communism. Therefore, much of the analysis will stratify the sample of married women into these three age groups.

Beyond illustrating the need to stratify the sample by age, Figures I and II also show dramatic changes in married women's participation rates across regime change. In both the Czech Republic and Slovakia, young women's participation dropped dramatically post-Communism. In the Czech Republic the data suggest that after Communism women retire earlier than during Communism. By contrast, in Slovakia women appear to be waiting longer to leave the labor force.

As stated above, this study counts those women with non-zero earnings as participating in the labor force and all others as non-participants. This simple definition is necessary for

comparisons across regimes, particularly given potential differences in how the surveys defined participation in the two time periods. While allowing comparisons, the resulting participation variable "Non-zero Earnings" does not provide much information about the activities which women pursued in each period. Tables III a and b present more detailed information about married women's activities, reported in each of the four data bases and disaggregated into young, middle and older women. Each of the surveys asked people whether or not they were "Working?", on "Maternity Leave?", going to "School?", "Retired?", or engaged in "Housework?". Only the 1993 surveys asked whether they were "Unemployed?". Because many married women responded yes to more than one of the activities, these activities dummies do not partition the sample. The "Working?" or "Unemployed?" dummies are thus inappropriate participation measures.

In each data-base a large percentage of women under age 35 reported they were on maternity leave, *e.g.* in 1984, 21 percent of young married women did in the Czech Republic, and 13 percent did in Slovakia. Importantly, the percentage of young women on maternity leave increased to 37 percent in the Czech Republic and 30 percent in Slovakia. Much of the drop in measured participation for young women post-Communism can be explained by this increased number of women on maternity leave. Not surprisingly, a large percentage of women over age 50 are retired, *e.g.*, in both 1984 and 1993 approximately 64 percent in the Czech Republic and 54 percent in Slovakia. A fairly constant percentage of married women (approximately 4 percent) said their primary activity was housework, regardless of age, country or regime. Very few were in school, as expected from a sample over age 20. In 1984, the data included no information on unemployment; in 1993 recorded unemployment for married women was very low in the Czech Republic (in the range of 1 percent), while it was substantially higher in Slovakia, particularly for young women. These differences in unemployment agree with other work on unemployment in

these countries, notably Svejnar/Terrell(1994), though as that research illustrates, there is important variation in unemployment across districts even in the Czech Republic.

One explanation of changed participation was that relaxation of wage ceilings allowed couples to specialize in home or market production. As examined more closely in Chase(1995), Table II provides evidence of increased earnings dispersion. From the reported standard deviations, we can calculate that in 1984 the log variance of earnings for the Czech region is 0.09; by 1993 it had increased to 0.15. In Slovakia, the log variance of earnings rose from 0.09 to 0.13. As outlined below, this study will impute earnings offered to all respondents and their spouses. Following Chase(1995), earnings estimates are based on experience, education dummies and regional dummies.

While the 1993 data included some measures of wealth including the value of the family's bond holdings, vehicle and movable assets, there are no comparable measures for 1984. Therefore, this research proxies wealth for all four data bases by the dividing the total number of people in the household by the number of rooms in the household, reported in Table II as the "People per room". While one could argue that housing may be correlated with the jobs people held and therefore with earnings, particularly during Communism, the lack of adequate alternative measures of wealth or unearned income necessitates using that housing related variable.

Although families make fertility and participation decisions simultaneously, the argument presented above suggests that changes in subsidies for child care costs might have important effects on women's reservation wages and probability of participation. Table II also describes the mean number of young children for all four data bases. Those children who are over age three in May 1993 were conceived before the collapse of Communism. Therefore, the fertility decision to have these children is relatively unrelated to participation decisions in 1993, when labor market incentives differ markedly. The number of very young children declines sharply between 1984 and

1993, which supports recent demographic studies suggesting fertility drops in the turbulent times following a regime change such as post-Communism.

Using this data, the estimation strategy proceeds as follows. As presented in section II, this analysis of labor supply focuses on wages offered to the person deciding to enter the market. While hourly wages are the most appropriate measure, hours worked data are unavailable or of questionable quality in these data. As a result, this study uses monthly earnings in place of wages. Because earnings are only observed for workers, it is necessary to impute all respondents' earnings using as coefficients the result of a regression including all workers. However, the set of workers is not randomly selected. It consists of individuals for whom the reservation wage is relatively low, so earnings imputed from workers' alone will be biased. To correct for this bias, this study uses a full maximum likelihood approach. To impute earnings for all respondents and their spouses, we need to estimate coefficients δ^W and δ^H for (log) labor market earnings of men and women, respectively:

[5] $$\ln W^*_i = d' X_i + w_i$$

Because we only observe W* for those choosing to work, ordinary least squares estimates ofδ will be biased by non-random sample selection. When imputing earnings, therefore, we represent the participation decision by an index function P_i, with determinants Z_i:

[6] $$P_i = gZ_i + m_i$$
$$s.t. \quad P_i = 1 \; if \; W^*_i - \underline{W_i} > 0$$
$$P_i = 0 \; if \; W^*_i - \underline{W_i} \leq 0$$

Equations [5] and [6] are estimated simultaneously using maximum likelihood techniques.

To identify this imputed earnings model, this analysis uses exclusion restrictions between the X variables determining earnings and the Z variables determining participation. The wealth level determines participation by raising the reservation wage. It does not, however, determine

market earnings. As mentioned above, a proxy for wealth is how many people share the available rooms in the respondent's home. This identifies the earnings/participation equation and is included in Z though not in X.

Using this full maximum likelihood approach to selection for both men and women, we obtain consistent estimates of δ. These estimates of the determinants of W^*_i are then used to impute earnings for both married women respondents $\hat{W}_w$ and for their respective husbands $\hat{W}_h$. Earnings are imputed first for all married woman respondents and then using separate full maximum likelihood estimates for samples of young, middle and older married women respondents.

With imputed earnings for all respondents and spouses, the study estimates the labor supply effects of varying (potential) earnings through a series of participation probits. To test whether elasticities are the same across time and region, the first specification aggregates all respondents from all four data bases. First, all the own-earnings and spouse-earnings coefficients on participation are constrained to be equal in 1984 and 1993 for both the Czech Republic and Slovakia. Then, to test whether these coefficients differ in the four data sets, interaction terms are added that allow different own- and spouse- earnings effects first across the two time periods, then across the two countries. Chi-squared tests determine the joint significance of adding the interaction terms. Then, having established that earnings coefficients differ in the four sets of data, the analysis proceeds with separate probits, breaking the data again into 1984 and 1993 and Czech Republic and Slovakia and stratifying the data by age group. To test how much of the change in participation is due to new wage offers and how much is due to new elasticities, probabilities of participation are predicted combining the 1993 earnings with the 1984 elasticities and the 1984

earnings with the 1993 elasticities. Finally, to test for the changing association between children and participation, children are added to the participation probits.

IV. ANALYSIS

As outlined above, this analysis first estimates selection corrected monthly earnings. Tables IV a and b present the results of that estimation for the Czech Republic and Slovakia, respectively. Although not reported in the tables, these estimates include regional dummy variables in both the earnings and work determinants equations. Separate estimates of earnings were also calculated for young, middle and older married women. For simplicity of presentation, however, Tables IV a and b only include the estimates for all married women For the entire sample, the reported estimates show interesting changes in the determinants of earnings between the Communist and post-Communist periods, described more fully in Chase(1995). The most notable finding is that returns to education increased for both men and women in both the Czech Republic and Slovakia. Different types of education were associated with different degrees of increase: for example, with respect to the excluded category of completed primary education, the return to having secondary academic education increased from 15 percent to 32 percent for married women in the Czech Republic. The return to several types of education also increased in Slovakia, though in general the magnitude of the increase is smaller.

The second half of Tables IV a and b refer to the determinants of participation in the joint earnings-participation model. Focusing on the identifying variable “People per room” among the eight reported models, it is only significant for women in the Czech Republic in 1993. In that case, it has the expected positive coefficient: as the number of people per room increases, the wealth of the family decreases and the probability of participation increases. Also, the estimates of rho are not significantly different than zero, even for the group with the lowest participation rate, women in

1993 Czech Republic. The fact that the identifying variable is only significant in one of the eight reported cases and that rho is not significant in any of them suggests either that the identifying variable is inadequate, or that selection effects do not significantly bias the earnings estimates. Given the high participation rates for both men and women, the latter explanation is most likely.

The study then uses these maximum likelihood estimates of men's and women's earnings coefficients to impute all respondents' and husbands' earnings. Further, though not presented, each of the age stratified earnings equations provide separate estimates of imputed earnings for young, middle and older women. These imputed earnings are used for the participation probits that constitute the rest of the analysis.

While there is obviously a difference in participation rates between 1984 and 1993 and between the Czech Republic and Slovakia, the first hypothesis is that the own- and spouse-earnings effects on participation remain unchanged across regime. Table V aggregates all four data sets and estimates a model that first constrains earnings effects to be the same across countries and regimes (Specification A), then in turn allows differences between regimes (Specification B), then allows the regime change to have differential effects on each of the two countries (Specification C).

Although Specification A constrains own- and spouse-earnings effects to be equal, it does allow participation levels to vary. As expected, the negative and significant coefficient on the 1993 dummy affirms that married women's participation is in general less likely after Communism in both the Czech Republic and Slovakia. While the coefficients on wife and husband earnings effects are constrained to be the same across regimes and countries, their sign and significance provide information about basic features of these earnings effects, features that will reappear in the stratified sample probits that follow. The positive and significant coefficient on the wife's earnings (0.74) is consistent with expectations about own-earnings substitution effects of participation. Higher offered earnings make a woman more likely to participate in the labor force. As earnings

increase, non-market time becomes more expensive, and the family substitutes away from the now more expensive good. Somewhat surprising, however, is the positive and significant coefficient of husband's earnings on a married woman's participation: as the husband's earnings increases, the wife is more likely to participate in the labor force. These uncompensated cross-wage estimates do not correct for the income effects of husband's earnings on wives' participation, which would augment the compensated effects assuming leisure is a normal good. Thus, these positive coefficients suggest that leisure times of spouses are gross complements.

Specification B includes interaction terms between earnings variables and post-Communist observations. Testing for the joint significance of the three added variables, the chi-squared statistic of 295.3 is highly significant. By this evidence, we can reject the null hypothesis that the own- and spouse- earnings effects on participation are the same in 1984 and 1993. Therefore, it is appropriate to separate the 1984 from the 1993 data. Further, each of the coefficients on the 1993 interaction terms are individually significant. For example, the negative and significant coefficient on the 1993*Wife's Earnings interaction variable (-0.91) indicates that the own-earnings substitution effect on participation dropped following Communism. Maintaining the interpretation that a drop in elasticity corresponds to people having fewer options to respond to a price change, this evidence suggests that after Communism, married women face fewer options as they make their participation decisions. The negative and significant coefficient on the 1993*Husband's earnings coefficient indicates that the leisure times of spouses are not as complementary as under Communism. The positive and significant coefficient on the 1993*Slovak dummy suggests the change in participation levels between 1984 and 1993 is less dramatic in Slovakia than in the Czech Republic.

While it allowed wife's earnings, husband's earnings and participation levels to differ between 1984 and 1993, specification B constrained these variables to have the same effect in the

Czech Republic and Slovakia. Specification C relaxes this constraint, including interaction terms for Slovak respondents and for Slovak respondents in 1993. The chi-squared statistic for the joint significance of the four additional variables (81.8) is significant, so the Czech Republic and Slovakia have different coefficients. Neither of the two-way interaction terms with the Slovak dummy is significant, suggesting little difference between the two countries in the basic effects of wife and husband earnings on participation. However, the three-way interaction terms are each significant. The 1993*Slovak*Wife's Earnings is positive and significant: in Slovakia the own-earnings substitution effects drop less after Communism than they do in the Czech Republic. The 1993*Slovak*Husband's Earnings is negative and significant, indicating that the leisure times of spouses may become less complementary following Communism in Slovakia than in the Czech Republic.

From Table V it appears appropriate to stratify the data into four data bases, one for the Czech Republic in 1984, one for the Czech Republic in 1993, one for the Slovak Republic in 1984, and one for Slovakia in 1993. Table VIa presents probit estimates for the two Czech data bases and Table VIb for the two databases concerning Slovakia. Further, to make coefficients more easily interpretable, all of the reported coefficients are of the marginal effect of a variable change on the probability of participation, where the marginals are evaluated at the mean probability the model predicts.

While nearly all of the analysis in this study uses earnings imputed from the joint-maximum likelihood earnings-participation model, Tables IV a and b provided little evidence that earnings estimates were biased by selection effects. For comparison, Tables VI a and b present estimates of wife earnings and husband earnings effects on participation using both the maximum likelihood selection corrected imputed earnings (labeled "MLE") and the ordinary least squares

imputed earnings (labeled "OLS"). The coefficients resulting from each of these estimates are nearly equivalent, which one would expect given little evidence of selection bias.

Tables VI a and b provide further information regarding general trends from Table V. In three of the four cases, *i.e.*, the 1984 Czech data and both sets of Slovak data, the wife's earnings effects are positive and significant. This implies positive substitution effects: as women's earnings increase, families substitute away from now-more-costly non-market time. The notable exception is the Czech Republic in 1993 where the wife's coefficient is insignificant: an increase in earnings has no effect on the probability of participation. It appears that after Communism in the Czech Republic, women making participation decisions face a narrower set of options than under Communism. By contrast, in Slovakia, the wife's earnings coefficient rose from 0.49 in 1984 to 0.63 in 1993, suggesting that Slovak married women have a broader set of options following Communism.

In all four cases presented in Tables VI a and b, the coefficient on the husband's earnings is positive and significant. While it is necessary to correct for the income effect included in this uncompensated cross-wage effect, assuming leisure is a normal good, the compensated coefficients would be even larger in magnitude. This evidence indicates that husbands' and wives' non-labor times are complements. In the Czech Republic the magnitude of the spouse-earnings effect is effectively the same in 1984 (0.97) and 1993 (0.98): there has been little change in the relative value families place on husbands' non-labor time; in Slovakia, the coefficient drops precipitously from 1.21 in 1984 to 0.26 in 1993, indicating that husbands and wives are beginning to substitute their non-labor time, assuming income effects are equal in the two time periods.

This analysis of women's labor force participation focuses on wife and husband earnings as conditioning variables because those variables could be meaningfully compared between 1984 and 1993. However, many studies of labor supply include proxies of non-labor income in an

attempt to measure income effects. While wealth proxies are typically included, the Communist-era survey contained no appropriate wealth measures. However, the 1993 data included questions about the value of the family's bond, vehicle, and movable assets holdings. Though not reported in these tables, probits including wealth as a conditioning variable indicate that, for both the Czech Republic and Slovakia, bond and vehicle values generally had no significant effect on participation, regardless of age group. In several sub-sets of the data, movable assets were significant, though the sign on the coefficients is perverse: if the value of movable assets were an appropriate measure of non-labor income R, then the positive coefficients suggest that non-labor time is an inferior good, for people are more likely to participate as these assets increase. On the other hand, the value of movable assets could measure the family's indebtedness rather than their wealth, depending on how the assets were purchased.

Figures I and II offered graphical evidence that the patterns of labor force participation differ according to age. Therefore, it is reasonable to stratify the samples into young, middle and older married women. Using the same specification as Table VI, Tables VII a and b present the results of probits run on separate samples for the Czech Republic and Slovakia, respectively. The conditioning variables, Wife's Earnings and Husbands Earnings, are predicted using MLE estimates, where separate estimates were obtained for each of the three age groups.

In all but the 1993 Czech data set, the own-earnings elasticity of participation is high for young women, then drops for those women between the ages of 35 and 50, then increases again for women over age 50. While one could interpret this pattern as evidence that middle aged women have more constraints on them than older or younger women, that ignores that each marginal effect is measured at a different point of the cumulative normal probability distribution. For example, in 1984 Slovakia marginal effects for young women are evaluated at 0.78 probability, for middle women at 0.86, and for older women at 0.29. It is not surprising, therefore, that the marginal

effects are larger for young and older women than for middle aged group, for most of that middle group is already participating. For middle aged women, a given change in earnings has a reduced marginal effect.

For young and middle-aged women in the Czech Republic, it is particularly notable that wife's and husband's earnings together have little or no ability to explain participation: the chi-squared statistics for these probits are insignificant. Nonetheless, participation dropped for these women, from 0.81 in 1984 to 0.61 in 1993 for the young sample, and from 0.93 to 0.90 for the middle aged sample. Apparently, factors other than offered earnings account for the drop. Given anecdotal evidence or decreasing child care subsidies, it is possible that increasing child care costs partially explain it. By contrast, in 1993 Slovakia earnings continue to affect participation decisions for women under age 50: the chi-squared statistics (12.5 and 8.3) are significant at the 5 percent level. For young Slovak women, own-earnings effects on participation decreased from 0.66 to 0.42 between 1984 and 1993. While this drop is not nearly as large as in the Czech Republic, it also suggests that young women have fewer options than they did under Communism as they make their participation decisions. Privatization proceeded much less quickly in Slovakia than in the Czech Republic. If privatized firms provide fewer benefits for their workes, such as child care, this could explain why the set of options decreased less for young Slovak women than for young Czech women.

Although no clear patterns emerge about how husband's earnings have different effects depending on age, regime and country, most of the significant coefficients are positive, which suggests, as stated earlier, that non-labor time of husbands and wives are complements. The one exception is post-Communist Slovakia, where the husband's earnings effect for older women is -0.27.

Table V provided evidence that own- and spouse-earnings elasticities differed both across countries and regimes. However, it is interesting to know how much of the change in participation we can attribute to changes in earnings patterns and how much results from changed elasticities. Tables VIII a and b allow one to answer the question, "if elasticities stayed the same between 1984 and 1993 but earnings changed, how much would participation change?" For each cross-tab the vertical axis represents the predicted participation of each married woman in the sample based on the probits from Tables VI a and b. The horizontal axis shows the predicted participation that would have occurred if the elasticities from the alternative time period had been multiplied with the within-sample earnings.

In the 1993 Czech Republic data, 1515 married women or 77.3 percent of the sample were predicted to be participating. However, if the own and husband earnings elasticities that operated in 1984 were operating in 1993, 1956 or 99.9 percent of married women would have participated. Rather than explaining part of the drop in participation through a change earnings, if elasticities remained the same, the change in wife and husband earnings led to a much higher participation rate in 1993 than in 1984. The Slovakia data show a similar phenomenon, though to a lesser degree: participation would have increased to 93.6 from 79.7 had the own- and spouse-earnings effects been operating in 1993 with the own and spouse earnings that existed in 1993.

The neo-classical analysis to this point focuses on wives' and husbands' earnings as determinants of participation. However, these changes explain only a small part of the observed drop in married women's participation. That this change is concentrated in young married women suggests that, with the change in regime, families are reevaluating time allocation decisions in the face of new costs associated with child care. Because families make fertility decisions concurrently with labor force participation decisions, however, we cannot simply include the number of children as exogenous variables on the right hand side of these probits. Nonetheless,

children conceived before the regime change will have some exogenous effect on participation after regime change, for the collapse of Communism and the accompanying changes in labor markets are unlikely to have been foreseen before 1989. Children over age 3 in 1993 are somewhat less affected by the endogeneity of joint participation-fertility decisions. Because these household composition variables are endogenous, their inclusion will make the coefficients on the other conditioning variables inconsistent. Still, focusing on the coefficients on these children variables alone, we can get some measure of the degree to which the presence of children is associated with participation across regime change. Tables IX a and b present simple probits, stratified by age, which include children by age as conditioning variables.

For young and middle aged women, most of the coefficients on the children variables are negative and significant, regardless of regime or country. For example, an extra child between the ages of 3 to 5 decreases the probability that a young woman will participate by 0.063 from 0.80 in Communist-era Slovakia, and by 0.05 from 0.84 in Communist-era Czech Republic. The marginal effect of having children increases across regime change: in the 1993 data, the coefficients on the presence of children are more negative than in the 1984 data. Young children in the household have a larger deterrent effect on married women's participation after Communism than during.

V. SUMMARY

This paper considers the causes of the drop in women's labor force participation between Communist and post-Communist Czech Republic and Slovakia. One could expect that own and spouse earnings elasticities would remain the same regardless of regime change and the drop in participation results from new earnings opportunities for husbands and wives after Communism. An alternative hypothesis is that earnings elasticities changed along with earnings opportunities. According to the Le Chatelier principle, elasticities should be higher when families have a more

extensive set of options from which they make their labor supply decisions. The institutional changes resulting from the end of Communism have ambiguous effects on the flexibility that women have when making participation decisions. This empirical work is designed to cast light on whether married women have a broader set of options after Communism than during.

To estimate own and spouse earnings effects on participation, however, it is important to use consistent estimates of earnings all wives and husbands would receive in the market. The research imputes earnings of all wives and husbands using a full maximum likelihood approach to correct for selection effects. From this approach, selection effects appear not to bias earnings coefficients, an unsurprising result given the high initial participation rates.

To examine the hypothesis that wife and husband earnings effects on participation are unchanged between the Communist period and post-Communism, all respondent observations are pooled and the coefficients for both time periods and countries are constrained to be equal. Chi-squared tests indicate that post-Communist interaction terms are jointly significant, which provides evidence that own and spouse earnings effects changed between 1984 and 1993. Similarly, by adding Slovak interaction terms, one sees that changes in earnings effects are smaller in Slovakia than in the Czech Republic, which may result from Slovakia's transition to market forces moving more slowly than the Czech Republic's. From these participation probits, it appears appropriate to separate the samples and examine changes across regimes and countries in own-earnings and spouse-earnings effects on participation.

Stratifying each of the four samples by age allows one to examine the different changes in own and spouse earnings effects for young, middle and older married women. Somewhat surprisingly, own earnings effects on participation decrease in the Czech Republic after Communism, particularly for young women. This suggests that the set of options married women face has narrowed after Communism there, not broadened as one might expect with the

introduction of market forces. By contrast, in Slovakia own-earnings elasticities did not decrease dramatically for young women after Communism and increased for middle aged married women.

One possible explanation for married women facing a diminished ability to respond to price changes after Communism is that the cost of caring for children increased. Where child care was heavily subsidized during Communism, those subsidies have since been removed, which limits the labor supply options of those women with young children. To support this explanation, the marginal association between participation and young children being present in the household increased between 1984 and 1993. In the face of increased child care costs, one would expect a family making joint participation/fertility decisions to decrease their fertility. The decrease in the number of children under age 3 in 1993 provides confirmation of the expected decline in fertility post-Communism.

The end of Communism in the Czech Republic and Slovakia offered many people new flexibility to respond to the opportunities which market forces offered. However, this analysis has shown that some families had fewer options in some realms, such as women's labor force participation. This diminished leeway may result from the higher costs associated with child care, costs which may effect both participation and fertility decisions. As a next step this research will try to account explicitly for changing costs of child care, jointly modeling participation and fertility decisions post-Communism. From this analysis, perhaps we will be able to develop a more nuanced picture of micro-economic changes in labor supply that result from transition in the Czech Republic and Slovakia.

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FIGURE I

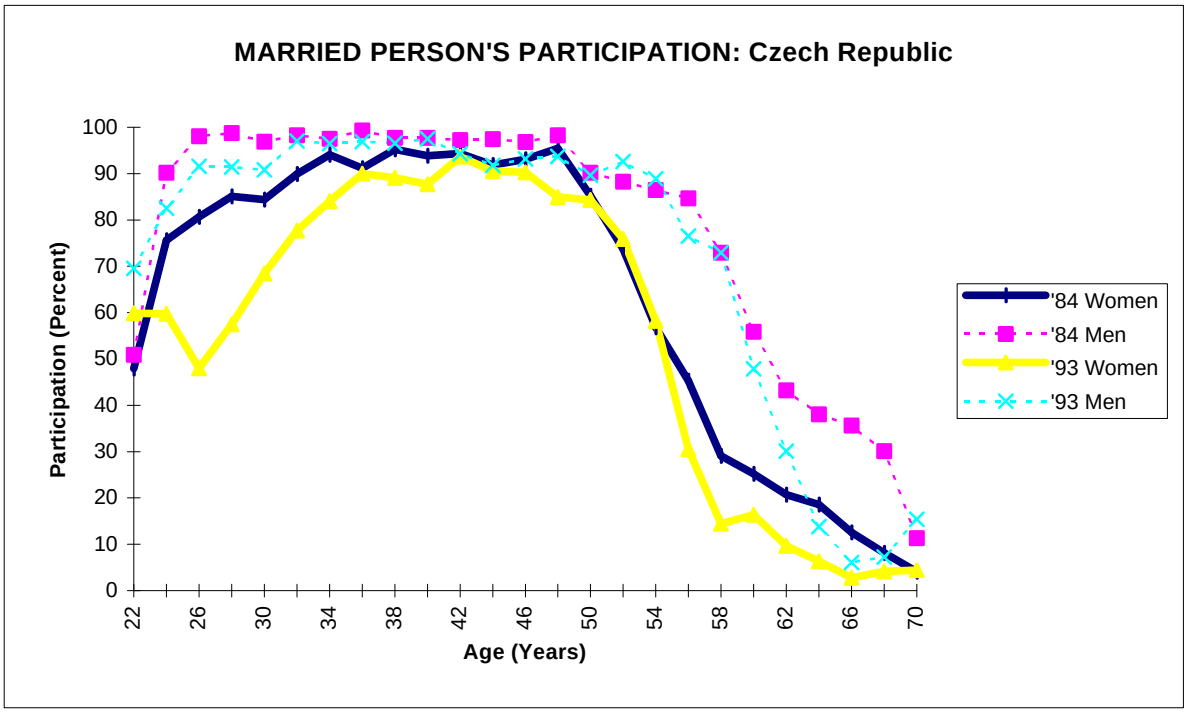

FIGURE II

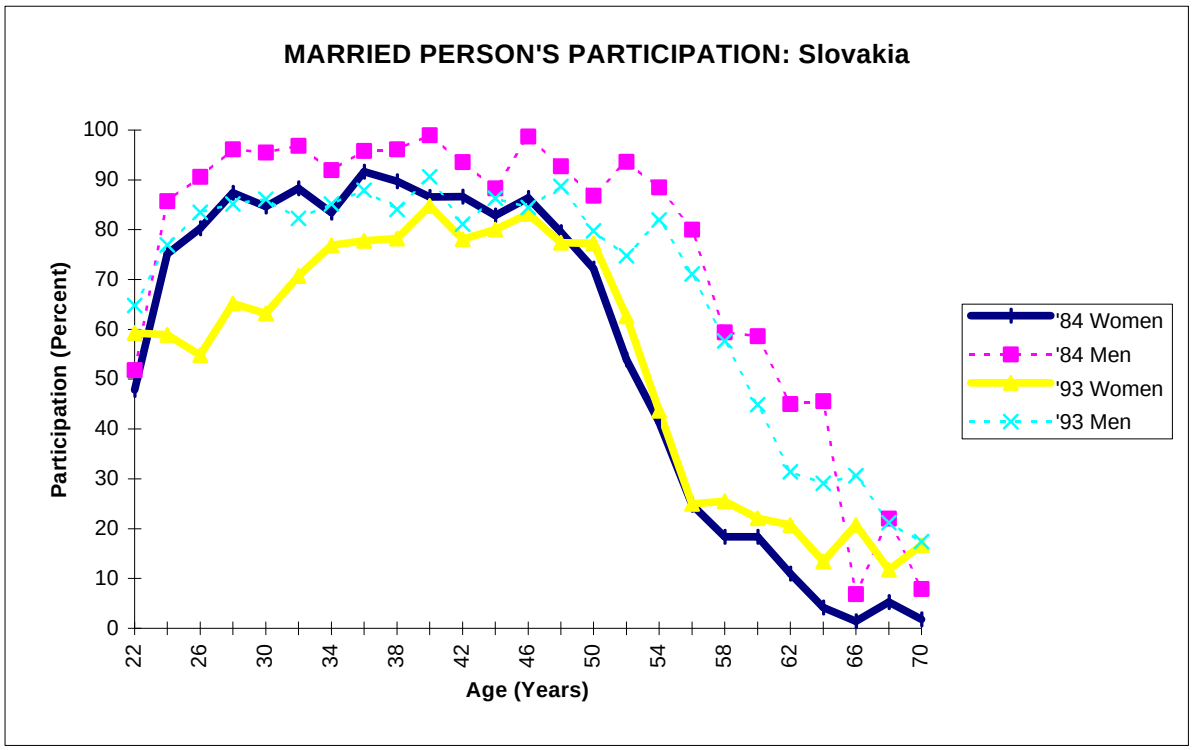

TABLE I
WOMEN'S LABOR FORCE PARTICIPATION
ACROSS COUNTRIES
(Changes between 1980 and 1990)

Country	1980	1990	Change
Austria	42.4%	43.5%	1.1%
Czechoslovakia	60.8%	60.5%	-0.3%
Denmark	57.5%	62.0%	4.5%
Finland	51.8%	56.0%	4.2%
France	43.1%	46.7%	3.6%
Greece	24.7%	35.3%	10.6%
Hungary	50.2%	46.3%	-3.9%
Ireland	24.7%	32.0%	7.3%
Italy	33.2%	35.8%	2.6%
Norway	52.8%	54.7%	1.9%
Poland	58.7%	54.2%	-4.5%
Spain	22.4%	34.2%	11.8%
Sweden	52.7%	60.8%	8.1%
United Kingdom	44.5%	51.7%	7.2%
(United States)	49.9%	56.1%	6.2%

Percentage of women over the age of 15 who reported themselves economically active.
Source: ILO

TABLE II
DESCRIPTIVE STATISTICS

(Standard Deviations in Parentheses)

	CZECH REPUBLIC		SLOVAKIA	
	1984	**1993**	**1984**	**1993**
WIFE'S CHARACTERISTICS				
Non-Zero Income?	0.73	0.62	0.67	0.63
Log Income (month)	7.56	8.04	7.56	7.95
	(.30)	(.40)	(.30)	(.36)
Experience (potential years)	25.14	25.84	24.42	24.10
	(14.10)	(13.37)	(14.71)	(12.36)
Complete Primary?	0.37	0.23	0.48	0.30
Vocational?	0.25	0.31	0.17	0.25
Incomplete Secondary?	0.11	0.071	0.058	0.045
Technical Secondary?	0.17	0.23	0.18	0.23
Academic Secondary?	0.041	0.045	0.047	0.055
Incomplete Tertiary?	0.009	0.028	0.007	0.034
Tertiary?	0.047	0.074	0.059	0.059
Post-Graduate?	0.002	0.014	0.002	0.019
HUSBAND'S CHARACTERISTICS				
Experience (potential years)	28.32	28.89	27.63	27.20
	(14.44)	(13.99)	(15.30)	(13.37)
Complete Primary?	0.20	0.092	0.29	0.13
Vocational?	0.16	0.46	0.16	0.41
Incomplete Secondary?	0.49	0.031	0.35	0.031
Technical Secondary?	0.005	0.20	0.012	0.17
Academic Secondary?	0.029	0.028	0.025	0.020
Incomplete Tertiary?	0.007	-.-	0.007	-.-
Tertiary?	0.094	0.13	0.10	0.12
Post-Graduate	0.005	0.016	0.004	0.016
FAMILY CHARACTERISTICS				
People per room	1.26	1.81	1.19	1.18
	(.61)	(1.08)	(.62)	(.69)
Children under 2	0.15	0.04	0.21	0.05
Children age 3 to 5	0.17	0.12	0.21	0.15
Children age 6 to 9	0.32	0.16	0.36	0.22
Bond holdings	-.-	4.55	-.-	5.68
Vehicle value	-.-	43.74	-.-	36.69
Movable assets value	-.-	159.86	-.-	247.51
Prague?	0.11	0.23	-.-	-.-
Central Bohemia?	0.10	0.10	-.-	-.-
South Bohemia?	0.063	0.065	-.-	-.-
West Bohemia?	0.089	0.064	-.-	-.-
North Bohemia?	0.12	0.10	-.-	-.-
East Bohemia?	0.12	0.093	-.-	-.-
South Moravia?	0.20	0.17	-.-	-.-
North Moravia?	0.19	0.17	-.-	-.-
Bratislava?	-.-	-.-	0.11	0.075
Western Slovakia?	-.-	-.-	0.32	0.36
Central Slovakia?	-.-	-.-	0.29	0.31
Eastern Slovakia?	-.-	-.-	0.29	0.25
Number of observations	4313	1959	2171	1725

TABLE IIIa
MARRIED WOMEN'S ACTIVITIES BY AGE
Czech Republic

	1984				1993			
	All	<35	35-50	>50	All	<35	35-50	>50
Non-Zero Income?	0.73	0.81	0.93	0.38	0.62	0.61	0.90	0.29
Working?	0.76	0.91	0.94	0.44	0.60	0.56	0.88	0.30
Unemployed?	-.-	-.-	-.-	-.-	0.01	0.01	0.01	0.01
Maternity Leave?	0.07	0.21	0.01	-.-	0.11	0.37	0.03	0.004
School?	0.002	0.002	0.003	-.-	0.003	0.004	0.003	-.-
Retired?	0.23	-.-	0.04	0.64	0.24	-.-	0.03	0.65
Housework?	0.04	0.06	0.03	0.03	0.03	0.05	0.03	0.03
N	4308	1511	1543	1254	1920	514	785	621

TABLE IIIb
MARRIED WOMEN'S ACTIVITIES BY AGE
Slovakia

	1984				1993			
	All	<35	35-50	>50	All	<35	35-50	>50
Non-Zero Income?	0.67	0.78	0.86	0.29	0.63	0.62	0.80	0.34
Working?	0.72	0.89	0.91	0.35	0.62	0.56	0.81	0.38
Unemployed?	-.-	-.-	-.-	-.-	0.04	0.07	0.05	0.01
Maternity Leave?	0.05	0.13	0.01	-.-	0.10	0.30	0.03	0.01
School?	0.003	0.007	0.001	-.-	0.001	0.004	-.-	-.-
Retired?	0.19	-.-	0.03	0.54	0.17	-.-	0.03	0.54
Housework?	0.04	0.06	0.03	0.03	0.03	0.03	0.03	0.02
N	2169	851	725	593	1691	491	764	436

TABLE IVa
SELECTION CORRECTED DETERMINANTS OF (LOG) EARNINGS
Czech Republic
(Absolute Values of Asymptotic T-Statistics in Parentheses)

	WOMEN		MEN	
WAGE DETERMINANTS	**1984**	**1993**	**1984**	**1993**
Experience	0.036	0.013	0.030	0.015
	(12.74)	(1.53)	(17.36)	(2.21)
Experience Squared	-0.060	-0.019	-0.065	-0.039
	(9.39)	(.98)	(18.16)	(2.37)
Vocational?	0.026	0.11	0.066	0.10
	(1.97)	(3.54)	(4.69)	(2.33)
Incomplete Secondary?	0.054	0.13	0.078	0.023
	(3.09)	(2.64)	(3.94)	(.36)
Technical Secondary?	0.16	0.28	0.12	0.21
	(11.22)	(8.50)	(7.20)	(4.63)
Academic Secondary?	0.15	0.32	0.068	0.12
	(5.97)	(5.64)	(2.25)	(1.48)
Incomplete Tertiary?	0.27	0.31	0.17	0.28
	(5.89)	(5.02)	(4.79)	(4.30)
Tertiary?	0.39	0.47	0.19	0.46
	(16.54)	(10.10)	(10.04)	(9.59)
Post-Graduate?	0.53	0.54	0.35	0.44
	(5.94)	(6.41)	(6.73)	(6.01)
Constant	7.10	7.79	7.69	8.29
	(180.64)	(72.08)	(282.75)	(96.93)
WORK DETERMINANTS				
Experience	0.17	0.26	0.052	0.17
	(21.62)	(20.17)	(4.92)	(10.54)
Experience Squared	-0.39	-0.59	-0.20	-0.43
	(25.82)	(21.73)	(12.61)	(14.89)
Vocational?	0.21	0.16	0.19	0.092
	(3.23)	(1.56)	(2.34)	(.60)
Incomplete Secondary?	0.48	0.26	0.23	0.17
	(5.33)	(1.61)	(1.93)	(.78)
Technical Secondary?	0.41	0.35	0.29	0.49
	(5.25)	(3.18)	(2.60)	(2.72)
Academic Secondary?	0.20	0.21	-0.13	0.27
	(1.57)	(1.21)	(.70)	(.73)
Incomplete Tertiary?	0.24	0.52	-0.36	0.11
	(.90)	(2.12)	(1.73)	(.44)
Tertiary?	0.75	0.56	-0.11	0.021
	(5.33)	(3.51)	(.81)	(.11)
Post-Graduate?	-.-	0.27	0.40	0.030
		(.85)	(.70)	(.10)
Constant	-0.65	-1.83	1.90	0.30
	(5.08)	(10.14)	(8.73)	(1.13)
IDENTIFYING VARIABLE				
People per room	-0.030	0.14	-0.035	-0.005
	(.73)	(3.62)	(.72)	(.12)
rho	-0.024	-0.14	0.002	-0.14
	(.23)	(.88)	(.03)	(.60)
sigma	0.26	0.36	0.25	0.37
Log-likelihood	-1932.4	-1262.5	-1131.4	-1103.0
Number of observations	4271	1929	4161	1869

Note: Regional dummies included in both earnings and participation equations

TABLE IVb
SELECTION CORRECTED DETERMINANTS OF (LOG) EARNINGS
Slovakia
(Absolute Values of T-Statistics in Parentheses)

	WOMEN		MEN	
WAGE DETERMINANTS	**1984**	**1993**	**1984**	**1993**
Experience	0.023	0.043	0.033	0.026
	(6.30)	(6.01)	(12.33)	(6.01)
Experience Squared	-0.036	-0.082	-0.069	-0.063
	(4.18)	(5.21)	(12.16)	(6.51)
Vocational?	0.10	0.11	0.024	0.054
	(4.73)	(3.89)	(1.52)	(1.81)
Incomplete Secondary?	0.054	0.21	0.076	0.10
	(1.74)	(3.82)	(3.03)	(2.16)
Technical Secondary?	0.17	0.28	0.083	0.18
	(7.68)	(8.71)	(4.28)	(5.18)
Academic Secondary?	0.14	0.29	-0.007	0.19
	(4.04)	(6.37)	(.17)	(3.24)
Incomplete Tertiary?	0.35	0.45	0.13	0.28
	(4.14)	(8.14)	(2.74)	(5.57)
Tertiary?	0.37	0.56	0.21	0.39
	(11.15)	(11.89)	(8.93)	(10.35)
Post-Graduate?	0.58	0.48	0.52	0.53
	(2.97)	(7.36)	(9.13)	(8.43)
Constant	7.23	7.43	7.63	8.07
	(142.36)	(66.54)	(215.37)	(112.60)
WORK DETERMINANTS				
Experience	0.15	0.14	0.11	0.073
	(14.07)	(12.47)	(8.90)	(5.81)
Experience Squared	-0.36	-0.32	-0.27	-0.20
	(16.82)	(14.29)	(13.24)	(9.12)
Vocational?	0.35	0.15	0.094	0.25
	(3.56)	(1.57)	(.93)	(2.47)
Incomplete Secondary?	0.46	-0.10	0.10	0.25
	(3.06)	(.59)	(.55)	(1.42)
Technical Secondary?	0.66	0.42	0.13	0.16
	(6.35)	(4.17)	(.94)	(1.31)
Academic Secondary?	0.14	0.11	-0.24	-0.10
	(.88)	(.69)	(.97)	(.52)
Incomplete Tertiary?	0.27	0.46	0.010	0.29
	(.69)	(2.24)	(.03)	(1.58)
Tertiary?	1.11	0.63	0.30	0.008
	(5.80)	(3.73)	(1.59)	(.06)
Post-Graduate?	-0.21	0.66	-.-	0.069
	(.29)	(2.35)		(.29)
Constant	-0.61	-0.88	1.16	0.53
	(3.37)	(4.13)	(4.45)	(2.27)
IDENTIFYING VARIABLE				
People per room	0.048	-0.024	0.079	-0.035
	(.88)	(.47)	(1.17)	(.82)
rho	-0.12	0.08	0.17	0.47
	(.93)	(.35)	(1.07)	(1.80)
sigma	0.27	0.31	0.24	0.33
Number of observations	2149	1685	2069	1832
Log-likelihood	-1105.1	-1167.0	-554.6	-1207.1

Note: Regional dummies included in both earnings and participation equations

TABLE V
WOMEN'S LABOR FORCE PARTICIPATION
DIFFERENCES BETWEEN REGIONS AND REGIMES
Probit Coefficients
(Absolute Values of Asymptotic T-statistics in Parentheses)

	A	B	C
Intercept	-24.39	-36.59	-36.41
	(33.85)	(30.34)	(25.96)
Wife's Earnings	0.74	1.62	1.70
	(7.59)	(10.90)	(9.99)
Husband's Earnings	2.45	3.17	3.07
	(33.08)	(29.70)	(23.61)
1993 Dummy	-1.50	17.46	17.59
	(30.55)	(11.03)	(8.15)
Slovak Dummy	0.18	-0.08	-0.16
	(6.01)	(2.02)	(.06)
1993 Interactions			
1993*Wife's Earnings	-.-	-0.91	-2.04
		(4.51)	(7.54)
1993*Husband's Earnings	-.-	-1.51	-0.45
		(9.72)	(2.12)
1993*Slovak Dummy	-.-	0.50	0.18
		(8.01)	(.05)
Slovak Interactions			
Slovak*Wife's Earnings	-.-	-.-	-0.32
			(.92)
Slovak*Husband's Earnings	-.-	-.-	0.32
			(1.38)
1993*Slovak Interactions			
1993*Slovak*Wife's Earnings	-.-	-.-	2.36
			(5.24)
1993*Slovak*Husband's Earnings	-.-	-.-	-2.22
			(6.83)
Log-likelihood	-5219.7	-5065.9	-5024.4
Chi-squared Statistic of additional variables		295.3	81.8

N=10,088

TABLE VIa
WOMEN'S LABOR FORCE PARTICIPATION
PROBIT ESTIMATES OF dF/dX
Czech Republic
(Absolute Values of Asymptotic T-Statistics in Parentheses)

	1984		1993	
Wife's Earnings-MLE	0.54	-.-	-0.13	-.-
	(9.99)		(1.61)	
Husband's Earnings-MLE	0.97	-.-	0.98	-.-
	(23.61)		(15.42)	
Wife's Earnings-OLS	-.-	0.55	-.-	0.11
		(10.20)		(1.42)
Husband's Earnings-OLS	-.-	0.96	-.-	0.90
		(23.29)		(14.84)
Log-Likelihood	-1878.1	-1875.9	-1108.5	-1080.3
Pseudo R-squared	0.26	0.26	0.13	0.15
Observed Probability	0.727	0.727	0.625	0.625
Predicted Probability	0.752	0.753	0.636	0.637
Number of Observations	4308	4308	1920	1920

TABLE VIb
WOMEN'S LABOR FORCE PARTICIPATION
PROBIT ESTIMATES OF dF/dX
Slovakia
(Absolute Values of Asymptotic T-Statistics in Parentheses)

	1984		1993	
Wife's Earnings-MLE	0.49	-.-	0.63	-.-
	(4.56)		(8.79)	
Husband's Earnings-MLE	1.21	-.-	0.26	-.-
	(17.95)		(4.53)	
Wife's Earnings-OLS	-.-	0.58	-.-	0.72
		(5.44)		(9.42)
Husband's Earnings-OLS	-.-	1.23	-.-	0.18
		(16.49)		(2.51)
Log-Likelihood	-1049.3	1048.0	-988.5	-1001.0
Pseudo R-squared	0.24	0.24	0.11	0.10
Observed Probability	0.671	0.671	0.632	0.632
Predicted Probability	0.679	0.681	0.644	0.644
Number of Observations	2169	2169	1691	1691

TABLE VIIa
PROBIT ESTIMATES OF dF/dX
AGE SPECIFIC SAMPLES
Czech Republic
(Absolute Values of Asymptotic T-Statistics in Parentheses)

	1984			1993		
	Under 35	35 to 50	Over 50	Under 35	35 to 50	Over 50
Wife's Earnings	0.71	0.16	1.79	0.01	0.05	0.67
	(6.26)	(2.06)	(11.14)	(.10)	(.69)	(7.91)
Husband's Earnings	0.27	-0.08	0.25	0.01	0.00	0.23
	(2.00)	(1.18)	(3.31)	(.09)	(.02)	(2.76)
Log-Likelihood	-704.6	-383.8	-616.0	-343.1	-258.2	-326.3
Pseudo R-squared	0.04	0.01	0.26	0.00	0.00	0.13
Observed Probability	0.81	0.93	0.38	0.61	0.90	0.29
Predicted Probability	0.82	0.93	0.35	0.61	0.90	0.27
Chi-squared	65.8	4.8	431.9	0.0	0.6	95.1
N	1511	1543	1254	514	785	621

TABLE VIIb
PROBIT ESTIMATES OF dF/dX
AGE SPECIFIC SAMPLES
Slovakia
(Absolute Values of Asymptotic T-Statistics in Parentheses)

	1984			1993		
	Under 35	35 to 50	Over 50	Under 35	35 to 50	Over 50
Wife's Earnings	0.66	-0.05	0.92	0.42	0.26	0.78
	(3.86)	(.40)	(6.36)	(2.94)	(2.78)	(7.74)
Husband's Earnings	0.29	0.63	0.39	0.10	-0.12	-0.27
	(1.31)	(4.93)	(2.15)	(.82)	(1.55)	(2.02)
Log-Likelihood	-437.7	-280.5	-307.5	-319.5	-372.8	-243.8
Pseudo R-squared	0.03	0.05	0.14	0.02	0.01	0.13
Observed Probability	0.78	0.86	0.29	0.62	0.80	0.34
Predicted Probability	0.78	0.87	0.27	0.62	0.81	0.32
Chi-squared	28.5	28.0	99.2	12.5	8.3	72.4
N	851	725	593	491	764	436

TABLE VIIIa
EFFECTS OF CHANGING R.H.S. VARIABLES
Czech Republic

1984

Number Row % Column %	Predicted Participation (1993 Sample Coefficients) 0	1	Total
Predicted 0	626	0	626
(1984 Sample Coefficients)	100.0	0.0	100.0
	14.6	0.0	14.5
Predicted 1	3655	32	3687
(1984 Sample Coefficients)	99.1	0.9	100.0
	85.4	100.0	85.5
Total	4281	32	4313
	99.3	0.7	100.0
	100.0	100.0	100.0

1993

Number Row % Column %	Predicted Participation (1984 Sample Coefficients) 0	1	Total
Predicted 0	3	441	444
(1993 Sample Coefficients)	0.7	99.3	100.0
	100.0	22.6	22.7
Predicted 1	0	1515	1515
(1993 Sample Coefficients)	0.0	100.0	100.0
	0.0	77.5	77.3
Total	3	1956	1959
	0.2	99.9	100.0
	100.0	100.0	100.0

Note: Regional dummies were included in the probits used for predictions.

TABLE VIIIb
EFFECTS OF CHANGING R.H.S. VARIABLES
Slovakia

1984

Number Row % Column %	Predicted Participation (1993 Sample Coefficients) 0	1	Total
Predicted 0	405	0	405
(1984 Sample Coefficients)	100.0	0.0	100.0
	19.93	0	18.65
Predicted 1	1627	139	1766
(1984 Sample Coefficients)	92.13	7.9	100.0
	80.07	100	81.35
Total	2032	139	2171
	93.6	6.4	100.0
	100	100	100

1993

Number Row % Column %	Predicted Participation (1984 Sample Coefficients) 0	1	Total
Predicted 0	111	239	350
(1993 Sample Coefficients)	31.7	68.3	100.0
	100.0	14.8	20.3
Predicted 1	0	1375	1375
(1993 Sample Coefficients)	0.0	100.0	100.0
	0.0	85.2	79.7
Total	111	1614	1725
	6.4	93.6	100.0
	100.0	100.0	100.0

Note: Regional dummies were included in the probits used for predictions.

TABLE IXa
EFFECTS OF CHILDREN
Czech Republic
(Absolute Values of Asymptotic T-Statistics in Parentheses)

	1984			1993		
	Under 35	35 to 50	Over 50	Under 35	35 to 50	Over 50
Wife's Earnings	0.44	0.15	1.79	0.04	0.05	0.70
	(4.04)	(2.03)	(11.10)	(.19)	(.73)	(8.09)
Husband's Earnings	0.05	-0.04	0.26	0.18	0.08	0.19
	(.38)	(.56)	(3.36)	(.97)	(1.09)	(3.60)
Children under 2	-0.19	-0.06	0.16	-0.39	-0.44	-.-
	(10.80)	(2.96)	(1.85)	(5.16)	(2.98)	
Children 3 to 5	-0.05	-0.06	-0.14	-0.66	-0.25	-.-
	(3.40)	(2.87)	(.64)	(13.06)	(5.61)	
Children 6 to 9	0.02	-0.02	0.01	-0.07	0.04	-.-
	(1.33)	(1.87)	(.06)	(1.65)	(.94)	
Log-Likelihood	-628.0	-359.5	-614.0	-296.0	-237.0	-321.8
Pseudo R-squared	0.14	0.04	0.26	0.12	0.08	0.13
Observed Probability	0.81	0.93	0.38	0.61	0.90	0.29
Predicted Probability	0.84	0.94	0.35	0.64	0.91	0.27
Chi-squared	205.6	31.8	435.1	230.4	43.0	96.6
N	1507	1539	1253	514	785	618

TABLE IXb
EFFECTS OF CHILDREN
Slovakia
(Absolute Values of Asymptotic T-Statistics in Parentheses)

	1984			1993		
	Under 35	35 to 50	Over 50	Under 35	35 to 50	Over 50
Wife's Earnings	0.70	-0.06	0.93	0.27	0.30	0.79
	(4.14)	(.46)	(6.35)	(1.85)	(3.12)	(7.83)
Husband's Earnings	-0.05	0.64	0.39	0.17	-0.11	-0.28
	(.23)	(4.94)	(2.17)	(1.41)	(1.43)	(2.09)
Children under 2	-0.15	-0.091	0.024	-0.32	-0.43	0.46
	(6.47)	(2.28)	(.38)	(4.87)	(2.91)	(1.12)
Children 3 to 5	-0.063	-0.028	-0.040	-0.22	-0.27	-0.13
	(2.86)	(.59)	(.38)	(5.75)	(3.46)	(.29)
Children 6 to 9	-0.030	0.013	-0.018	-0.06	-0.03	0.26
	(1.64)	(.41)	(.20)	(1.91)	(.86)	(.91)
Log-Likelihood	-404.3	-275.1	-307.1	-294.2	-360.0	-242.4
Pseudo R-squared	0.09	0.06	0.14	0.10	0.05	0.13
Observed Probability	0.78	0.86	0.29	0.62	0.80	0.34
Predicted Probability	0.80	0.88	0.27	0.63	0.81	0.32
Chi-squared	80.1	34.9	99.4	63.1	34.0	75.1
N	846	724	592	491	764	436