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Women in Transition:
Changes in Gender Wage Differentials in Eastern Europe and the Former Soviet Union

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Abstract: Under socialism, women in Eastern Europe and the Soviet Union fared relatively well in the labor market: female-male wage differentials were similar to those in Western Europe and the United States, and female labor force participation rates were among the highest in the world. Have women in these countries maintained their relative positions since the introduction of market reforms in the early 1990s? This question is investigated using household survey data from three former Soviet republics and six East European countries. The results indicate a remarkable increase in female relative wages in the countries of Central and Eastern Europe, and a substantial decline in female relative wages in Russia and Ukraine. Women in the latter countries have been penalized by the tremendous widening of the wage distribution in those countries. Modest increases in wage inequality in Eastern Europe have also depressed female relative wages, but these losses have been more than offset by gains in rewards to observed skills and by an apparent decline in discrimination against women. Female labor force participation rates have fallen significantly in all countries but have been matched by similar declines in male labor force participation rates.

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I. Introduction

The socialist countries of Eastern Europe and the former Soviet Union were long committed -- at least nominally -- to equality in the labor market for men and women. Government policies such as relatively high minimum wages and generous maternity leave and day care benefits encouraged women to work, and female labor force participation rates were high compared with those of other countries. While women remained over-represented in areas such as health and education, they fared at least as well as their counterparts in most developed and developing countries in terms of female-male wage differentials.

How have women in formerly socialist countries been affected by the introduction of market reforms in those countries? Given the profound economic changes in Eastern Europe and the former Soviet Union, it is likely that the labor market experiences of men and women have differed. Have women borne an equal share of the burden of economic restructuring, or shared an equal measure of the gains from the transition to a market economy? In other words, is the introduction of market reforms in formerly socialist countries a gender-neutral policy?

This paper attempts to answer these questions using recent household surveys and published data for a wide range of countries. These countries include the former Soviet republics of Ukraine, Russia, and the Kyrgyz Republic; and the East European countries of Bulgaria, Hungary, Poland, Slovenia, and the Czech and Slovak Republics. Although survey data from the pre-transition period is limited, most countries published survey-based information on male and female wages during the mid- to late-1980s, enabling comparisons with the current economic position of women in Eastern Europe and the former Soviet Union.

Given the similar economic structure and labor market institutions of these countries before the transition, and the common elements of the recent economic reforms (although not necessarily the speed with which the reforms have been implemented), one might expect the

change in women's economic status over this period to be broadly similar across the countries surveyed here. The surprising finding, however, is the opposite: while women in some countries -- such as Russia and Ukraine -- are now faring substantially worse in terms of wages relative to men than they did under socialism, women in other countries -- such as Poland, Hungary and Slovenia -- have gained significantly relative to men since the late 1980s. These differing labor market experiences appear to be related both to differing changes in the wage structure across countries (rising inequality and increasing prices of measured and unmeasured skills) and to changes in gender-specific factors such as discrimination. Differing macroeconomic performances across these countries appears to play little role in explaining the differences.

It should be noted at the outset that while the female-male wage differential is one summary measure of women's labor market experience, this statistic in itself does not capture the full range of women's experiences in transition. This paper focuses on changes in relative wages and briefly discusses labor force participation rates, but ignores other aspects of the changes in women's daily lives. A fuller treatment of the topic would examine changes in the female burden of non-market work, such as shopping and child care, which are clearly affected by the reforms, as well as the relative benefits of political liberalization. While these issues undoubtedly contribute to changes in the quality of women's lives, they are beyond the scope of this paper.[1]

II. Labor market institutions and female labor market performance under socialism

[1]Fong and Paul (1992) and Paukert (1994) discuss some of these issues.

Labor market institutions in Eastern Europe and the Soviet Union shared many features and largely followed the Soviet model.[2] Central planners assigned wages by establishing an occupational wage scale within each industry, and wages were set as a multiple of the base wage (the wage of the lowest-grade occupation). Wage scales were compressed; in the Soviet Union in the late 1970s, for example, the wage in the highest-ranked occupation was typically only about two times that of the lowest occupation. Workers also earned bonuses for plan fulfillment; this component of wages became increasingly important in many countries in the mid-1980s as enterprise managers gained flexibility in wage-setting.

Other labor market institutions included pervasive membership (approaching 100%) in official unions; these unions played little role in wage determination (with the exception of Poland in the 1980s) and largely acted as a "transmission belt" for Communist Party policies and ideology. Unemployment was not officially recognized and in some countries brought criminal charges and imprisonment. Housing shortages -- and an internal passport system in the Soviet Union -- severely limited geographical mobility in most countries. These features of central planning resulted in similar labor market characteristics across countries, including open excess demand for labor (due to soft budget constraints faced by enterprises and the emphasis on plan fulfillment rather than cost minimization); narrow wage differentials between occupations with a bias favoring manual workers; and relatively low levels and slow growth of wages.

The economic status of women under socialism

Female labor force participation began to grow rapidly in all of these countries soon after the introduction of central planning (in the late 1940s in Eastern Europe and the early 1930s in

[2]With the exception of the worker self-management system in Yugoslavia (see Orazem and Vodopivec (1995) for a description). Labor market institutions in socialist countries are described in Adam (1984), Boote and Somogyi (1991), Ham *et al.* (1995), Kirsch (1972) and Redor (1992).

the Soviet Union). Female labor was needed to fuel the intense industrialization drives that most of these countries initiated, and authorities encouraged women to enter the labor force with an explicit guarantee of the right to equal pay for equal work.[3] Generous maternity benefits[4] and extensive provision of day care centers also encouraged women to work, as did the relatively low average wages that compelled women to work to supplement family income. As a result, female labor force participation rates in Eastern Europe and the Soviet Union reached extremely high levels by international standards, on the order of 80% of the female working-age population in many countries. Since women also continued to do the bulk of the housework (70 to 80% according to time-use surveys (Fong and Paul 1992)), most women bore a double burden of market and non-market work, made yet more difficult by the lack of services and modern appliances in most of these countries.

At least by international standards, however, the socialist countries succeeded in achieving relatively equal labor market outcomes for men and women. This is illustrated in Figure 1, which presents the mean female-male wage ratio for Eastern Europe and the former Soviet Union as of the mid- to late-1980s, as well as that of selected developing and developed countries in the same period. By this measure women in socialist countries did at least as well as women in most other countries.[5] For example, the ratio of average female to male wages in the

[3]In the Soviet Union, for example, this right was written into the 1922 Soviet Labor Code and the 1936 Constitution (McAuley 1981).

[4]In most countries women were entitled to take up to three years of maternity leave per child, with the right to return to a suitable job with the same employer. Families also received non-means tested maternity benefits and child care allowances. These policies continue to apply in most countries (Paukert (1991); Sziráczki and Windell (1992)).

[5]Note that the ratios given in Figure 1 are not strictly comparable with one another: ratios of monthly or weekly wages are given for Latin America, the former Soviet Union and Eastern Europe and most of the Asian countries, but the ratios for Europe and the U.S. are for hourly wages.

United States was 65% in 1987, compared with 69% in the Russian republic in 1989.[6] This measure is somewhat deceiving, however, since the wage distributions in the centrally planned economies were relatively compressed, which benefited workers with below-average wages. A complementary measure of female labor market performance which avoids this drawback is given by the mean (or median) position of women in the male wage distribution.[7] This is an indicator of relative female progress that reflects both measured labor market skills and discrimination, and is unaffected by the spread of the wage distribution. If wages are viewed as a measure of skill, then a man and a woman with the same percentile ranking in the male wage distribution are arguably seen as comparable workers in the eyes of employers. A higher mean female ranking is associated with improvements in women's measured and unmeasured skills, as well as with declining discrimination against women.

By this measure, women in Eastern Europe fared poorly compared with some of their U.S. and European counterparts. For example, the mean female in the Czech and Slovak Republics in 1988 ranked at roughly the 18th percentile of the male wage distribution, compared with the 33rd percentile in the United States in the late 1980s (Blau and Kahn 1995). The mean female in Russia, on the other hand, ranked at the 37th percentile, a high ranking compared with the U.S. and other European countries.[8]

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[6]Relatively high female wages in the Kyrgyz republic at the time (78%) were likely due, at least in part, to the uniform minimum wage in the Soviet Union, which had more "bite" in low-wage regions such as Central Asia.

[7]This measure is calculated by assigning each woman a percentile ranking in the male wage distribution, and finding the mean (or median) of these rankings.

[8]Since the wage data reported here are not adjusted for hours worked, female relative wage rates are likely to be understated if women work fewer hours on average than men. This issue is discussed in more detail below.

As in many countries, the occupational and industrial distribution of female employment in Eastern Europe and the Soviet Union was skewed towards areas such as health and education, retail trade and semi-skilled professional occupations. While wages were lower in the "low priority" health and education sectors, women often chose these professions because they had shorter and more flexible working hours. Because part-time employment was almost unknown in these countries, this was the only means by which women could reduce their total working time (Chapman 1991; Fong and Paul 1992). Women did, however, make inroads into some traditionally “male” areas such as medical doctors and some manual occupations, and were fairly highly represented in manufacturing. In Russia, for example, women comprised 48% of employment in industry in 1990 (Goskomstat 1995).

III. Market reforms and changing labor market institutions in the 1990s

The market reform experiences in these countries have been diverse, rendering generalizations difficult. Typical reforms in most countries have included wage and price liberalization; trade liberalization; privatization of state-owned enterprises; and tax and legal reforms.[9] Across countries, the reforms have differed less in their elements than in the speed with which they have been implemented. Most East European countries initiated major reforms in 1990 or 1991 and have since made substantial progress in creating the institutions necessary for a market economy. The Kyrgyz Republic has also been among the “fast” reformers, adopting comprehensive reforms in 1992-93 and making substantial headway in privatizing its economy. Russian reforms have been much more erratic and resulted in near hyper-inflation in 1992 before achieving a partial stabilization in 1994. Russia, however, has been among the most successful

[9]The EBRD’s *Transition Report 1995* summarizes and evaluates the reform experiences of formerly socialist countries.

of these countries in privatizing its state-owned enterprises. Ukraine has been among the more reluctant reformers, delaying major reforms until late 1994 amid paralyzing political battles between the Communist-dominated parliament and reformist government. In most countries the first years of reforms were followed by substantial declines in measured GDP and real wages, as well as high rates of inflation and increasing unemployment. Russia and Ukraine suffered much greater declines in GDP and much higher inflation rates than did the East European countries surveyed here, although the declines in GDP are overstated due to measurement problems (see EBRD (1995) and Fischer *et al.* (1996) for a discussion). Table 1 gives summary measures of the speed and status of the reform experience in these countries.

Labor market institutions have also changed dramatically and become much more diverse across countries.[10] The centralized wage-setting system has been abandoned and replaced with new arrangements ranging from decentralized plant-level negotiations to collective bargaining, with the former Soviet Union inclined toward the former and Eastern Europe favoring the latter. Most countries introduced some form of tax-based incomes policy early in the transition to restrain wage growth, but many had abandoned these policies by 1994 or 1995.

Wage-setting appears to be most decentralized in Russia, where wages are primarily set through informal plant-level negotiations with little union influence (outside of a few sectors like mining). Government influence on wage-setting has been minimal except for that introduced through a relatively modest excess wage tax imposed on public and private sector enterprises.[11] Wage-setting is also decentralized in the Kyrgyz Republic and Ukraine, although the latter still

[10]The following overview of changes in labor market institutions draws from numerous sources, including Bogeti and Fox (1993); Boote and Somogyi (1991); Bristow (1996); EBRD (1995); Flanagan (1995); Freeman (1994); Ham *et al* (1995); Jackman (1994); OECD (1995a, 1995b); and Orazem and Vodopivec (1995).

[11]The excess wage tax imposed a penalty of 12 to 25% on the excess of the average wage of an enterprise over six times the minimum wage in 1994.

nominally continues to use the centralized tariff wage system. The wage scales in Ukraine appear to be routinely ignored by employers, however, and wages are set informally at the enterprise level. Both Ukraine and the Kyrgyz Republic levy an excess wage tax as well, but it has reportedly been weakly enforced or ineffective in both countries.

Wage determination is somewhat more centralized in Central and Eastern Europe, although again the institutional arrangements -- and their effectiveness -- vary widely across countries. Most countries, with the exception of Poland, have established tripartite commissions and collective bargaining arrangements of some sort, and national-level negotiations have largely focused on the form and duration of the tax-based incomes policies introduced in the early phases of the reforms.

A relatively decentralized wage-setting system has evolved in Bulgaria, apparently by default rather than intention. In 1991 a tripartite national agreement established both a floor and a ceiling on nominal wage increases in state enterprises, but the agreement disintegrated by the end of the year. A similar agreement reached in 1992 was not enforced. As a result, wages have effectively been set through enterprise-level collective bargaining in Bulgaria.

Tripartite wage bargaining also met with limited success in Czechoslovakia (prior to the dissolution in 1993). In 1992 -- the year under study for these two republics -- the parties failed to reach an agreement so wage determination was subject only to an excess wage tax that had been imposed in 1991.[12] Although Poland's draconian (500%) excess wage tax has since been abandoned, it continued to be in effect in 1992 (the year of the Polish Budget Survey used here) and was the primary vehicle for regulating wage growth in that country. In Slovenia wages are now largely set by tripartite collective bargaining; an excess wage tax was in effect through 1992 but apparently met with limited success.

[12]The Czech Republic managed to conclude a tripartite agreement in 1993, however.

The role of unions varies widely across countries and across industries within countries. In many cases newly formed independent unions are competing with the successor unions to the former official trade unions for worker representation. While unions have generally gained influence relative to their former status, as yet there is no statistical evidence of union wage effects in any of these countries.[13]

Some countries have maintained relatively high minimum wages while others have allowed inflation to erode the minimum wage to extremely low levels (Table 2). Ukraine and Russia previously maintained the minimum wage at about 30% of the average wage, but in recent years have allowed it to erode to only 8-9% of the average wage. The minimum wage is much higher in Eastern Europe, ranging from 32% of the average wage in Hungary and the Czech Republic to 60% in Slovenia. Changes in the real value of the minimum wage will have a greater impact on female wages because women have lower wages on average than men.

How might the changing labor market institutions affect women? As discussed in Blau and Kahn (1992, 1995 1997, the factors that influence the gender wage gap can be divided conceptually into two areas: those related to changes in the overall wage structure (the market rewards to observed and unobserved skills, as well as rents), and changes in gender-specific factors such as discrimination and relative levels of labor market skills. The dramatic changes in labor market institutions in formerly socialist countries are likely to have an impact on both factors. The expected widening of the wage structure following wage decentralization will penalize women relative to men, since prior to the reforms women disproportionately occupied the lower part of the wage distribution. On the other hand, it is likely that market valuations of skills will change, and may favor women relative to men. For example, since women in these

[13]The coefficient on a dummy variable for union status in log wage regressions is statistically insignificant in Bulgaria (Jones and Ilayperma 1994), the Czech Republic (Flanagan 1995) and Poland (Belka 1994).

countries are generally more highly educated than men, an increase in the return to education will increase female wages relative to male wages (everything else equal). Women's relative wages will also be affected by changes in gender discrimination, although it is unclear *a priori* whether discrimination will increase or decrease. The breakdown of state control over enterprises may enable employers to discriminate against women more openly; employers may feel justified in doing so if they now face hard budget constraints and view women -- and their mandatory maternity and child care benefits -- as high-cost labor.[14] On the other hand market forces may result in less gender discrimination if discrimination becomes too costly for enterprise managers facing hard budget constraints and increasing competition.

Changes in labor force participation rates are also difficult to predict. Declining real wages for women (as well as men) have a theoretically ambiguous effect on labor force participation, since the income effect of declining real wages encourages increased work effort but the substitution effect discourages it. On the other hand, the widening of the wage structure may now enable families at the upper end of the wage distribution to have single-earner families, so female labor force participation may drop. An increase in female relative wages, however, may be an incentive for women to remain in the labor force.

IV. Data

In the past the analysis of gender wage differentials (and the wage structure in general) in Eastern Europe and the Soviet Union has been hampered by the lack of reliable micro-level data.

[14]Discrimination may also adversely affect women through access to credit: if men have better access to capital than women, men will be in a better position to exploit profit-making opportunities in the economy. While this would likely affect the *income* distribution, it may have little impact on the wage distribution.

While micro data from the 1980s remain limited, a surprising amount of recent household survey data from these countries has become available to researchers, enabling comparisons of this type.

Household surveys for the following countries are used in the empirical work discussed below (the dates indicated are the dates that the wage information refers to rather than the survey date; the number of observations listed is the number actually used in the empirical work rather than the full sample size):[15]

	Pre-reform data		Post-reform data	
Former Soviet Union:				
Russia	Mar.-May 1991	N= 1,695	Mar.-May 1994	N= 4,827
Ukraine	Mar.-Apr. 1991	N= 435	Dec. 1994	N= 2,700
Kyrgyz Rep.	na		Sep.-Oct. 1993	N= 857
Eastern Europe:				
Bulgaria	na		1992-1993	N= 1,094
Hungary	1986-1988	N= 3,537	1991	N= 1,727
Poland	1986	N=10,017	1992	N= 4,506
Czech Rep.	1988	N=10,479	1992	N= 17,381
Slovak Rep.	1988	N= 5,123	1992	N= 15,971

Means of the demographic variables in the data sets are given in Table 3; more detailed information on these surveys is provided in Appendix Table 1. Published data from household surveys conducted in Slovenia (1987, N=26,706 and 1991, N=24,966) is also included.[16]

The samples analyzed here exclude men and women of retirement age, which in all countries except Poland is age 60 for men and age 55 for women. The Polish samples comprise men age 18 to 64 and women age 18 to 59, reflecting the higher retirement age in that country. The published results for Slovenia apparently do not limit the samples to any particular age

[15]While it would be preferable to avoid pooling samples (as for Bulgaria and Hungary), the overall wage structure and the gender wage gap appears to change little over time within these samples.

[16]The Slovenian results are from Orazem and Vodopivec (1995).

group, so the Slovenian results are not strictly comparable in this sense. In addition, all samples used here have been trimmed of the top and bottom 1% of wage observations in order to eliminate implausibly low or high wages; the Slovenian samples apparently have not been trimmed in any way.

The wage concept used in this analysis is monthly wages, unadjusted for hours worked (few of the data sets include information on hours worked). If women work fewer hours on average than men, then female wages will be understated relative to male wages. The *change* in the gender wage differential, the key variable of interest, will be affected only if there have been changes in relative hours worked between the two sexes. Given rising unemployment and increasing use of shortened working hours in many transition economies, it is likely that relative hours worked have changed. The direction of the bias might be predicted, given the lack of data on hours worked, by comparing female and male unemployment rates. As discussed below, however, no consistent pattern has emerged in terms of female and male unemployment rates: in some countries the female unemployment rate is higher than the male unemployment rate, while in other countries the opposite is true. Thus while the confounding effects of changes in relative hours worked should be kept in mind when interpreting the results, it is unclear how these trends have differentially affected women overall. Similarly, it should be noted that the empirical results presented here focus on relative wages; the effect on women's welfare of declining labor force participation and rising unemployment is not taken into account in the measures used here.

An important disadvantage of these data sets is that two of them (the Polish and Slovenian surveys) do not include information on wages earned by workers in the private sector. While this will have a limited effect on the pre-reform wage structure due to the small size of the private sector prior to the reforms, it may bias the post-transition results: to the extent that

female relative wages are higher in the state sector -- as is typically the case in most countries -- the reported female-male wage differential will be overestimated.

V. Empirical results

Given the similarity of the economic systems and wage-setting institutions in these countries prior to the reforms, and the similarity of the basic market reforms and decentralization of labor markets, one might expect the position of women to have uniformly improved or deteriorated in these countries. This has not been the case, however: while women's wages have unambiguously improved relative to men's wages in all of the East European countries surveyed here, women in Russia and Ukraine have fared much worse in terms of relative wages since market reforms were introduced. In the Kyrgyz Republic, on the other hand, the gender gap in wages appears to have disappeared.[17]

The changes in the mean and median female/male wage ratios over time are given in Table 4.[18] Women's relative wages have increased in all of the East European countries; the most dramatic increases have occurred in Poland (where the mean female/male wage ratio increased from 72% in 1986 to 81% in 1992) and Hungary (from 68% to 75%). The absolute levels of the female/male wage ratios in most East European countries, in fact, now appear to be comparable to those observed in the Scandinavian countries which boast relatively high female

[17]Because of the high non-response rate in this survey, however (see Appendix Table 1), the results for the Kyrgyz Republic are likely to be unrepresentative.

[18]Note that female relative wages in the USSR appear to have improved dramatically between 1989 (Figure 1) and 1991 (Table 4). While the 1991 figures may be anomalous, two other 1991 surveys confirm the results: a VTsIOM survey taken in October 1991 (N=2,229) has mean and median gender wage ratios that are nearly identical to those reported here, and the General Social Survey (of European Russia only) taken in May 1991 (N=982) has mean and median gender wage ratios of 74.8% and 77.3%, respectively. Relative improvements in female wages were likely due to Gorbachev's reforms which, among other things, increased relative wages in female-dominated industries and occupations (see Chapman 1991 for a discussion).

wages. In contrast, female relative wages have fallen dramatically in Russia and Ukraine, with women earning on average 68% of male wages in the former and only 60% of male wages in the latter.

A similar story is told by the changes in a female dummy variable in log wage regressions that pool male and female observations (Table 5). The gender penalty by this measure falls in Eastern Europe after the reforms but rises in Russia and Ukraine. Since the change in the gender gap by this measure is similar in both the human capital specification and the "full" specification which controls for industry and occupation, little of the change in the female-male wage gap will likely be explained by occupational and industrial shifts that have impacted women adversely (for Russia and Ukraine) or beneficially (Eastern Europe) relative to men. The limited impact of industrial shifts on the gender wage gap is confirmed in another test described below.

Returning to Table 4, the last column in each panel presents the mean and median female positions in the male wage distribution. As noted above, this is a summary measure of female labor market progress that reflects both measured labor market skills and discrimination. A woman at a given percentile in the male wage distribution is perceived by employers to have skills comparable with the skills of a man at that percentile in the distribution. An improvement in women's actual labor market skills, or a decline in discrimination, will move the mean female ranking up in the male wage distribution. Assuming that the position of the mean female is in the bottom half of the wage distribution, an increase in overall wage dispersion will penalize women relative to men. Thus, a relatively high mean female percentile can be associated with relatively low female wages if wage inequality is high; this has been shown to be the case in the United States (Blau and Kahn 1995). Comparing the change in the female/male wage ratio over time with the change in the mean (or median) female percentile will give a first indication of the role played by changes in the overall wage structure in explaining changing relative wages.

As indicated in Table 4, the mean and median female percentiles in both Russia and Ukraine changed little over the period, suggesting that the decline in the female/male wage ratio is due almost entirely to changes in the overall wage structure in these two countries; gender-specific factors appear to explain little of the poor labor market outcomes of women in Russia and Ukraine. In contrast, the mean and median female percentiles in all of the East European countries rose substantially in the years following the introduction of market reforms. This suggests that women's labor market skills improved in these countries relative to men's skills, or that discrimination fell, or both.

Explaining changes in relative wages: the role of the wage structure and labor market institutions

To shed some light on the role the overall wage structure has played in the changing gender gap, Table 6 summarizes the changes in male and female wage inequality in these countries after the introduction of market reforms. As expected, the wage structure widens in all countries over the period, but the changes differ dramatically between countries. The wage structure has widened modestly in the East European countries for both men and women, but has increased substantially in the countries of the former Soviet Union. The level of wage inequality in the latter countries, as measured by the 90-10 log wage differential, appears to be greater than that currently observed in the United States, which has one of the most unequal wage distributions of any developed country. Wage inequality in Ukraine is remarkably high and is likely to be at least as great as that in some developing countries which have great extremes of wealth and poverty. Since in all of these countries women disproportionately occupied the lower part of the wage distribution both before and after reforms, any increase in wage dispersion penalizes female wages relative to male wages. As will be confirmed by further tests described below, this widening of the wage structure more than explains the deterioration of female relative

wages in Ukraine and Russia. The widening of the wage structure also penalized women in Eastern Europe, but favorable changes in gender-specific factors more than offset this effect, resulting in a narrowing of the gender gap in these countries.

Why has the wage structure widened so dramatically in Russia and Ukraine, but modestly in Eastern Europe? While a detailed investigation is beyond the scope of this paper, it is likely to be due at least in part to the differing labor market institutions that have evolved in these countries. Although dismantling the centralized wage-setting system should allow the previously distorted wage structure to freely adjust to reflect relative scarcities and reward skills accordingly, as noted above most countries replaced centralized wage-setting with new institutions that had the potential to distort the wage structure in new ways. The imposition of tax-based incomes policies, the indexation of minimum wages, and the emergence of collective bargaining arrangements are all likely to narrow the wage structure from what it would have been absent these institutions. While the institutional arrangements across these countries are diverse and labor market policies have been implemented with varying degrees of effectiveness, it does appear that the countries with the most decentralized wage-setting systems -- Russia, Ukraine and the Kyrgyz Republic -- have experienced the greatest increases in wage inequality over the period. Countries with less unequal wage distributions are those with effective incomes policies, collective bargaining arrangements and relatively high minimum wages.

A related component of the widening of the wage structure in these countries is the change in returns to labor market skills. The return to education for both men and women has increased in all countries surveyed here, and women continue to earn higher returns to education than men (Figure 2). Since women are more highly educated than men on average, the increase in market returns to education should increase the female/male wage ratio. In contrast, changes in returns to labor market experience have been mixed, falling in Russia and Poland and rising in

other countries (Figure 3). Since women have close to the same levels of (potential) labor market experience as do men, this price change will likely explain little of the change in relative wages.

Differing changes in wage inequality may also be related to the differing initial levels of macroeconomic disequilibrium across countries. Although it is difficult to provide statistical evidence on this hypothesis, it does appear that wage inequality is higher in the countries of the former Soviet Union, which experienced well-known, dramatic shortages on the consumer goods market in the late 1980s. Greater initial disequilibrium will result in greater labor market adjustments in response to price and wage liberalization, and will create more opportunities for workers to earn rents in the early years of transition.

Decomposing the change in the female-male wage differential

To further explore the reasons for the change in female-male relative wages, the change in the gender wage differential can be decomposed into changes due to gender-specific factors, such as observable skills and discrimination, and changes due to the widening of the wage structure. This technique was first developed by Juhn, Murphy and Pierce (1991) and has since been used to examine changes in gender wage differentials in the United States (1997 and to compare international differences in gender wage differentials (Blau and Kahn 1992, 1995). These studies highlight the potentially important role that wage inequality can play in explaining relative pay differences, as well as the traditional factors of discrimination and differences in observed and unobserved skills.

Following Blau and Kahn (1997) one can decompose the gender wage differential into these components by starting with a male wage equation for period t, written in the form:

where W_{Mt} is the log of monthly wages, X_{Mt} is a vector of explanatory variables, $_t$ is a vector of coefficients, $_t$ is the standard deviation of the residual of the male wage equation, and $_{Mt}$ is the standardized residual of the male wage regression, with mean 0 and variance 1 (i.e., $_{Mt} = e_{Mt}/ _t$). Writing the wage equation in this way illustrates the two components that comprise the residual: the percentile the individual occupies in the residual distribution, $_{Mt}$, and the spread of the residual distribution itself, represented by $_t$. This conceptual distinction is exploited by the Juhn Murphy and Pierce decomposition technique.

The male-female wage gap can then be written as:

where $_{Ft} = (W_{Ft} - X_{Ft\ t})/ _t$, which reflects the wage a women would receive if her skills were rewarded at the same rate at which men's skills are rewarded (deflated by the male standardized residual). Thus, the gender wage gap in a given period comprises an effect due to differences in observed skills between men and women, weighted by the return received by men to these skills, and an effect due to differences in the standardized residual, weighted by residual male inequality.

The change in the gender gap between two periods t and t' can then be written as:

The first term is known as the "Observed **X**'s" effect, which reflects changes in the gender wage differential that result from changes in male-female differences in observed labor market skills such as level of education and years of work experience. Given the relatively short time horizon under study, it is unlikely that changes in observed labor market qualifications will explain more than a small share of the changes in the gender wage gap.

The second term captures the contribution of changes in the prices that the labor market attaches to observed skills of men. If the wage distribution in these countries was artificially compressed under socialism and rewards for observed skills increase as wage determination is decentralized, those with more skills will benefit disproportionately. In many East European countries, for example, women have higher levels of education than do men, and so will benefit more from increased returns to education.

The third term, which Blau and Kahn label the "gap" effect, represents the contribution of changes in the relative position of women in the male residual wage distribution. Women will move up in this distribution if their unobserved labor market skills improve relative to men's, or if labor market discrimination against women declines.

The fourth term, the "unobserved prices" effect, measures the changes in the gender gap attributable to the widening (or narrowing) of the distribution of male wage residuals, holding the gap in male-female unmeasured skills constant. In other words, this term reflects the contribution of the widening of the male residual distribution, holding the mean female ranking in the male residual distribution constant.

This decomposition was carried out for Ukraine, Russia, Hungary, Poland, and the Czech and Slovak Republics; the results, along with those for Slovenia, are presented in Table 7. The same decomposition is presented for the United States (for the 1975 to 1987 period) for comparison. Positive numbers indicate factors that have decreased female wages relative to male wages over the period; negative numbers indicate factors that have improved female relative wages over the period. Comparing across these countries highlights the substantial differences in the forces affecting Russia and Ukraine as compared with the East European countries.

In both Russia and Ukraine, the changes in returns to observed skills (column 2) and the small relative gains in the mean female rank in the male residual distribution (column 3)

contributed to improvements in female wages relative to male wages. However, these positive forces were more than offset by the adverse impact on women of the extreme widening of the wage distribution, reflected in column (4). Changes in the wage structure alone account for more than 100% of the deterioration in the female-male wage differential in these countries.[19]

One factor that may explain the poor female labor market experience in Russia and Ukraine is that macroeconomic performance in these countries has been substantially worse than in the East European countries (compare, for example, the cumulative declines in GDP across countries in Table 1). It is possible that marginal workers -- such as married women -- have been more adversely affected by this deep recession than have those with stronger labor force attachment. Under this hypothesis, married women should have lost more ground in the male wage distribution relative to single women, or perhaps are dropping out of the labor force altogether. However, the relative percentile rankings of married and unmarried women in Russia have remained essentially unchanged before and after the transition: while the mean ranking for married women fell from 37.4 to 35.2 over the period, the mean ranking for single women fell similarly, from 37.2 to 35.6 (Table 8). The surveys used here indicate that labor force participation for married women stayed roughly the same between 1991 and 1994 while that for single women increased from 72% to 80%.[20] Thus the poor macroeconomic performance in Russia and Ukraine appears to explain little of the deterioration of relative female wages in those

[19]For Russia, Hungary and Poland -- for which consistent data is available -- this decomposition can also be done while controlling for industry of employment. As might be expected the contributions of the "Observed **X**s" and "Observed Prices" effects increase, but these are still small relative to the contributions of the "Gap" effect and "Unobserved Prices" effect.

[20]Note, however, that census and labor force survey data indicate an overall decline in female labor force participation in Russia (discussed below), which suggests that the labor force participation rates by marital status reported here may not be indicative of national trends.

countries. The more likely cause is the tremendous widening of the wage structure in both countries, combined with continued discrimination against women by employers.

While the widening of the wage structure also worked against women in the East European countries, this was more than offset by women moving up in the residual male wage distribution (the "gap" effect; see column 3 of Table 7). This remarkable improvement in the mean female percentile in the male residual distribution indicates either that women are now subject to less discrimination in the labor market than previously, or that women's unobserved labor market skills have improved relative to men's; it could also be due to supply and demand shifts that have adversely impacted men relative to women. Demand and supply indexes presented below, however, suggest that relative supply and demand shifts are unlikely to explain a large part of these changes. Improvements in observed labor market skills also contributed to higher female relative wages in Hungary and Slovenia (and worked against women in the Slovak Republic); this is surprising given the short time horizon under study.

The large values of the "gap" effect and the unobserved prices effect for the Czech and Slovak Republics are also surprising. Mechanically these high values are generated by the large increases in the male residual standard deviation in both countries over the period, which more than doubled in both countries (however the absolute level of the male residual standard deviation, .39 in both countries, is roughly half of the size of that for Russia and Ukraine in 1994). Had women in the Czech and Slovak Republics not made such substantial progress in the residual male wage distribution, the female-male wage differential in these countries would have deteriorated more than it did in Russia and Ukraine.

The factors that contributed to the declining gender gap in some of these countries, such as Hungary, Poland and Slovenia, are remarkably similar to the factors that decreased the gender wage gap in the United States in recent years. As in these countries, women's wages in the U.S.

improved relative to male wages largely because of improvements in female observed and unobserved skills relative to male skills (the "gender-specific" factors). As in Hungary, Poland and Slovenia, women's relative wage gains in the United States occurred despite their "swimming upstream" against a widening wage structure that adversely impacted female wages relative to male wages. In both these East European countries and in the United States, the widening wage distribution reclaimed from one- to two-thirds of the improvement in female relative wages.

Changes in female employment and labor force participation

One factor that may explain changing gender wage differentials is differing shifts in the occupational and industrial distribution of employment between men and women. For example, since men comprise a larger share of employment in heavy industry, the expected shift in the industrial structure away from heavy industry should favor women relative to men. Similarly, changes in relative labor supply of men and women will also affect the gender wage gap.

Although data on this issue is limited, it is possible to construct indexes to reflect changes in relative labor demand (by industry) and supply for Russia, Hungary and Poland. The effect of between-sector demand shifts on relative labor demand can be measured using a fixed-coefficient "manpower requirements" index, which measures the percentage change in demand for a given group as the weighted average of percentage employment growth by industry (weights are the industrial employment distribution for the given group in the base period). This index can be written as:

$$D_k = \sum_j {}_{jk} (E_j/E_j)$$

where j indexes industry, E_j is total employment of all groups in industry j, $_{jk} = E_{jk}/(\ _jE_{jk})$ is a base year, and E_{jk} is the employment of group k in industry j.[21] Changes in supply can be measured as:

$$S_k = \ln E_{k1} - \ln E_{ko}$$

where E_{k1} represents the share of total employment in the post-reform year of group k, and E_{ko} is the share of employment of the group in the base (pre-reform) year. Changes in net supply are measured as: $NS_k = S_k - \ln(1 + D_k)$.

The results of this calculation are shown in Table 9, along with those for the U.S. for the 1979 - 1988 period. The direction of demand and supply shifts in all countries is consistent with the observed change in the gender wage gap: in Russia, where female relative wages fell, the net supply of women rose while that of men fell. In Hungary and Poland, in contrast, the net supply of women fell while that of men rose; this is consistent with the rising relative female wages observed in those countries. The magnitude of the shifts, however, is small, especially in comparison with those that occurred in the U.S. in the 1980s. This suggests that demand and supply shifts explain some, but not all, of the change in the gender wage gap in these countries. It should be noted, however, that because of data limitations these indices do not account for occupation or within-industry demand shifts, which also likely explain some of the changes in the gender wage gap.

Further information on changes in relative supply of women is given in Table 10, which shows changes in male and female labor force participation rates. While declines in female labor force participation have been substantial, male labor force participation rates have also declined a

[21]Katz and Murphy (1992) provide a formal justification for the use of this index, assuming that employment is based on efficiency units (value-weighted labor inputs). Since data for the latter is unavailable, employment is used here. Note that such demand indexes will tend to understate the demand shift favoring groups with rising relative wages.

great deal in most countries.[22] In Poland, in fact, male labor force participation has declined more than female labor force participation. This again suggests that changes in the relative supply of female workers is unlikely to explain the changes in the gender gap in any of these countries.

Figure 4 illustrates male and female unemployment rates in these countries as of 1993-1994. There are no systematic patterns in unemployment by gender in these countries: male and female unemployment rates are roughly equal in three countries (Ukraine, Russia and the Slovak Republic); female unemployment rates are higher than male rates in three countries (Bulgaria, Poland and the Czech Republic); and male rates are higher than female rates in three countries (the Kyrgyz Republic, Hungary and Slovenia).

Thus no obvious, single explanation for the changing gender wage differentials is apparent. While increased wage inequality appears the most likely explanation for declining female relative wages in Russia and Ukraine, it is puzzling that gender discrimination seems to have persisted in these countries yet declined in Eastern Europe. Although difficult to prove, one hypothesis is that persistent or declining labor market discrimination is related to the competitiveness of markets in these countries. Markets are more monopolized in the countries of the former Soviet Union, and the countries of Central and Eastern Europe have a greater share of foreign trade in GDP than do Russia and Ukraine. Thus, it is likely that East European firms face more competition, both internal and external, than do their Russian and Ukrainian counterparts. Neoclassical theory predicts that, in competitive markets, employers who practice discrimination (which is costly) will be forced out of business or forced to change their ways (Becker 1957).

[22]Note that the "pre-reform" participation rates presented in Table 10 are derived from census data on employment. It is possible that respondents at that time overstated participation rates because of the ideological pressure to work under the previous socialist regimes.

Thus, more competitive markets in Eastern Europe may have reduced discrimination against women in those countries.

Given the small number of countries in this sample, it is difficult to test this hypothesis empirically. Some suggestive evidence is provided in Figure 5, which shows the correlation between the gender wage gap and the extent to which each country had liberalized its internal and external markets by 1994, as measured by the cumulative liberalization index.[23] A higher ranking reflects greater progress in economic liberalization, and is taken to indicate a greater degree of competition faced by firms. The top panel shows the relation with the level of the post-reform gender gap; the bottom panel shows the relation with the change in the gender gap. Both the post-reform level of the gender wage gap and the change in the gender wage gap are positively related with the liberalization index, suggesting that a lack of competitive pressure on firms may allow firms to continue discriminating against women. These correlations suggest that gender discrimination may indeed be eroded by the forces of competition, and that women in Russia and Ukraine may benefit from the continued de-monopolization and liberalization of those economies.

VI. Conclusion

In retrospect it appears that the introduction of market reforms in formerly socialist countries is not a gender-neutral policy, although these reforms have affected women in surprisingly different -- and unpredictable -- ways. Women have borne an unequal burden of the economic restructuring in Russia and Ukraine, but have gained substantially relative to men in the countries of Central and Eastern Europe. It should be recognized, however, that the market

[23]The construction of the cumulative liberalization index is described in deMelo, Denizer and Gelb (1997), from which it is taken. The index is normalized by reform duration, so that it reflects the number of "Poland-equivalent" reform years each country has undertaken.

reforms in Russia and Ukraine, as well as in the other countries, have benefited women in many ways outside of the labor market. In particular, the tremendous increase in the availability of goods and services in these countries since the introduction of market reforms has eliminated the once-legendary need to spend hours standing in line to obtain food to feed one's family. This has freed a significant amount of time in non-market work that was formerly required of women.

In addition, the changing economic status of women in these countries may have broader implications for economic growth. The shift in the wage distribution away from women in some countries and towards women in others will likely have consequences for the distribution of income within families. If, as has been shown in some countries, women have a higher marginal propensity than do men to spend money on goods that benefit children, the resulting decline in investment in human resources in Russia and Ukraine may depress the long-run growth rates of these economies from what they would be otherwise. Re-allocating wages toward women in Eastern Europe may have the opposite effect of promoting the long-term growth prospects in these countries.

This research further raises the question of how women in developing countries have been affected by the structural adjustment programs introduced in recent years. Although this is an area for future research, the experience of the countries reviewed here suggests that the gender neutrality of structural adjustment programs may have less to do with the specific macroeconomic policies involved and the speed with which they are implemented than with the changes in the labor market institutions that accompany structural adjustment.

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Kyrgyz Republic:
1993 data set: Poverty and Human Resources Division, Policy Research Department, World Bank

Bulgaria:
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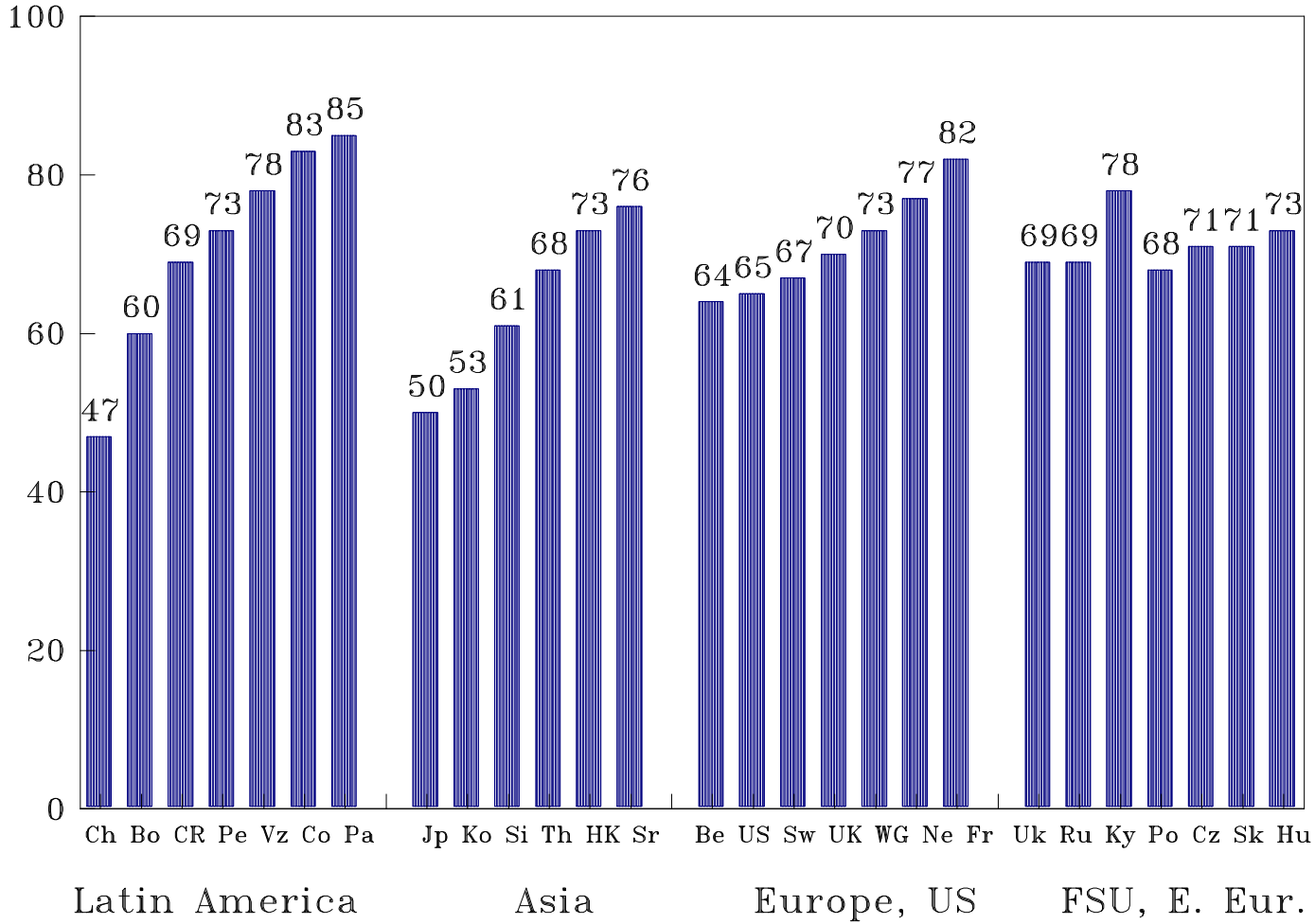
Hungary:
1986-1988 data sets: International Social Survey Program, 1986, 1987, 1988, distributed through the Inter-University Consortium for Political and Social Research
1991: Luxembourg Income Study

Poland:
1986 data set: Luxembourg Income Study
1992 data set: Luxembourg Income Study

Czech Republic, Slovak Republic:
1988 data (calculations): Jiri Vecernik
1992 data set: Luxembourg Income Study

Figure 1. Female/male wage ratios in various countries, late 1980s



Sources: Psacharopoulous and Tzannatos (1991) and ILO (various years), in Terrell (1992); Atkinson and Micklewright (1992).

Table 1. Summary of economic indicators

	GNP per capita (PPP) 1993	Cumula-tive GDP decline 1989-94 (1989= 100)	Retail or consmr. prices, end-yr. 1994	Non-state sector share in GDP, 1994	Share of agric. in GDP, 1994	Share of ind. in GDP, 1994	EBRD reform index (1= little; 5=a lot)	Date of major reforms (price and wage liberalization)	Dates of surveys used in paper "Pre"	"Post"
Ukraine	4,450	52.1	401	41.0*	16*+	52*+	2.22	Oct. 1994	4,5/91	1/95
Kyrgyz Rep.	na	50.6	87	58.0	43.3+	29.5+	2.78	July 1992	na	11/93
Russian Fed.	5,050	48.3	203	62.0	7.5	34.8	2.56	Jan. 1992	5/91	4-6/94
Bulgaria	4,100	27.4	122	40.2[p]	13*	42.3*	2.56	Feb. 1991	na	1992-93
Hungary	6,050	18.3	21	52.4*	6.6	25.9	3.67	1988-91	1986-88	1991
Poland	5,000	17.8	30	56.0	7.1*	37.8*	3.56	Jan. 1990	1989	1992
Czech Rep.	7,550	21.4	10	56.3	5.5	39.3#	3.67	Jan. 1991	1989	1992
Slovak Rep.	6,290	25.1	12	43.8	6.1	37.5	3.44	Jan. 1991	1989	1992
Slovenia	10,585	16.8	18	19.5^	4.5	35.1	3.33	1990	1987	1991

* 1993.

^ Excluding socially managed enterprises.

+ Share in Net Material Product (excludes depreciation and value added from most of the service sector). Ukraine industry share includes mining.

Including construction.

Sources: EBRD, *Transition Report 1995*; Fischer, Sahay and Végh (1996), Goskomstat of Russia, *Rossiiskii statisticheskii ezhegodnik 1995* (Moscow 1996).

Table 2. Minimum wage as % of average wage

	1988	1989	1990	1991	1992	1993	1994
Ukraine	35.0	32.2	28.2	na	12.0*	14.1	7.9 (Jan.)
Kyrgyz Rep.	38.1	35.4	31.9	43.1	29.5	32.2^	na
Russian Fed.	29.8	27.1	23.6	25.3	11.9	10.1	8.5
Bulgaria	na	51.1	44.6	52.7	35.9	35.3	36.7
Hungary	na	35.0	42.0	39.0	36.0	33.0	32.0
Poland	na	11.6	21.1	34.9	37.5	41.0	41.0
Czech Rep.	na	na	na	51.1	45.9	36.5	31.9
Slovak Rep.	na	na	na	52.0	47.5	42.1	39.0
Slovenia**	na	na	60.0	60.0	60.0	60.0	na

* April-Sept.
^ Jan.-Aug.

Sources:
Former Soviet Union: Goskomstat USSR (1989), Goskomstat of Russia (1995), IMF (1993), ILO-CEET (1994)
Eastern Europe: *Employment Observatory: Central and Eastern Europe* no. 8, 1995; Abraham and Vodopivec (1993)

** Slovenia: The minimum wage is set at 60% of the average net wage in the social sector over the previous six months (Abraham and Vodopivec 1993).

Table 3. Means of demographic variables

	% female		Years of education		Average age		% Married	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Ukraine	49.0	49.1						
Men			11.2	12.0	38.3	38.0	76.1	74.3
Women			11.4	12.1	36.3	36.0	74.2	69.3
Kyrgyz Rep.	na	48.1						
Men			na	10.0	na	34.2	na	na
Women			na	11.2	na	32.9	na	na
Russia	47.7	55.4						
Men			11.4	11.7	37.8	37.7	75.0	75.8
Women			11.8	12.1	36.7	37.2	68.1	67.9
Bulgaria	na	47.3						
Men			na	11.3	na	40.6	na	82.5
Women			na	11.8	na	37.5	na	80.5
Hungary	48.5	46.6						
Men			11.4	11.4	36.9	38.1	76.3	75.1
Women			11.2	11.8	36.1	37.5	78.3	67.1
Poland	44.9	46.4						
Men			10.9	11.2	38.2	39.3	na	na
Women			11.1	11.7	37.4	39.2	na	na
Czech Rep.	40.5	46.7						
Men			11.5	11.6	38.3	38.3	79.0	74.1
Women			10.9	11.3	37.9	38.0	72.0	74.6
Slovak Rep.	42.2	45.7						
Men			11.4	11.7	37.2	36.9	79.3	75.6
Women			11.2	11.0	38.0	36.7	70.6	72.0
Slovenia	40.5	41.6						
Men			na	na	na	na	na	na
Women			na	na	na	na	na	na

Table 4. Female/male wage ratios (%) and position of women in the male wage distribution*

	Pre-reform				Post-reform			
	Fem./male wage ratio, at means	**Fem./male wage ratio, at medians**	**Position of mean female in male wage dist.**	**Position of median female in male wage dist.**	**Fem./male wage ratio, at means**	**Fem./male wage ratio, at medians**	**Position of mean female in male wage distribution**	**Position of median female in male wage distribution**
Ukraine	76.4	77.1	33.1	26.6	59.7	50.0	35.3	28.7
Kyrgyz Rep.	77.5^	78.8^	na	na	100.1	100.1	54.3	54.6
Russian Fed.	80.1	83.3	37.1	30.5	67.9	65.8	35.6	31.0
Bulgaria	na	na	na	na	85.6	85.7	44.4	44.5
Hungary	67.7	67.6	24.3	16.5	75.1	75.7	33.9	27.2
Poland	71.8	73.4	25.4	17.9	81.2	83.3	35.6	31.7
Czech Rep.	68.2	67.7	17.9	11.0	72.1	71.5	27.1	19.0
Slovak Rep.	70.8	68.9	18.9	10.7	77.3	77.0	31.1	22.6
Slovenia	88.0	na	na	35.0	90.0	na	na	40.0

* Calculated by assigning each woman a percentile ranking in the male wage distribution, and finding the mean or median of those rankings.

^ Official published estimate (Atkinson and Micklewright, 1992).

Table 5. Coefficient on a female dummy variable

(standard error)

	Pre-reform		Post-reform	
Specification:	**Human capital**	**Full**	**Human capital**	**Full**
Ukraine	-.272 (.038)	-.221 (.039)	-.568 (.035)	-.530 (.036)
Kyrgyz Rep.	na	na	.058 (.052)	.069 (.070)
Russian Fed.	-.237 (.018)	-.182 (.020)	-.393 (.020)	-.366 (.019)
Bulgaria	na	na	-.178 (.035)	na
Hungary	-.370 (.012)	-.361 (.013)	-.303 (.023)	-.289 (.025)
Poland	-.326 (.007)	-.253 (.007)	-.226 (.011)	-.207 (.012)
Czech Rep.	-.377 (.006)	na	-.320 (.006)	-.328 (.007)
Slovak Rep.	-.365 (.008)	na	-.250 (.006)	-.285 (.007)
Slovenia	na	na	na	na

Note: The human capital specification is a regression of log monthly wages on years of education, potential experience and its square. The "full" specification includes these variables as well as controls for occupation, industry and a binary variable for state or non-state sector employment (if available). The Russian "full" regressions also include eleven region controls. Specifically, the regressions include the following controls: Ukraine: eleven industry controls and a state/non-state sector control; Kyrgyz Republic: nine occupation and a state sector control; Russia: (1991) six industry, eighteen occupation and a state sector control; (1994) six industry, nine occupation and a state sector control; Hungary: nine industry and four occupation controls; Poland: sixteen industry and two occupation controls; Czech Republic (1992) and Slovak Republic 1992: eight occupation and one state/non-state sector control.

Table 6. Summary measures of the log wage distribution

	Pre-reform				Post-reform			
	90-10 log wage differential*		Variance of log wages		90-10 log wage differential*		Variance of log wages	
	Men	Women	Men	Women	Men	Women	Men	Women
Ukraine	1.251	1.180	.207	.190	2.427	2.526	.927	.906
Kyrgyz Rep.	na	na	na	na	1.948	1.992	.575	.598
Russian Fed.	.968	.979	.162	.139	1.891	1.709	.536	.441
Bulgaria	na	na	na	na	1.472	1.338	.362	.304
Hungary	1.068	.940	.166	.136	1.297	1.229	.293	.272
Poland	.908	.861	.137	.116	1.050	.954	.196	.167
Czech Rep.	.754	.788	.104	.124	.988	.984	.179	.179
Slovak Rep.	.711	.745	.095	.099	.971	.933	.174	.171
Slovenia	na	na	na	na	na	na	na	na

* The log wage at the 90th percentile of the wage distribution minus the log wage at the 10th percentile of the distribution

Figure 2. Return to an additional year of education

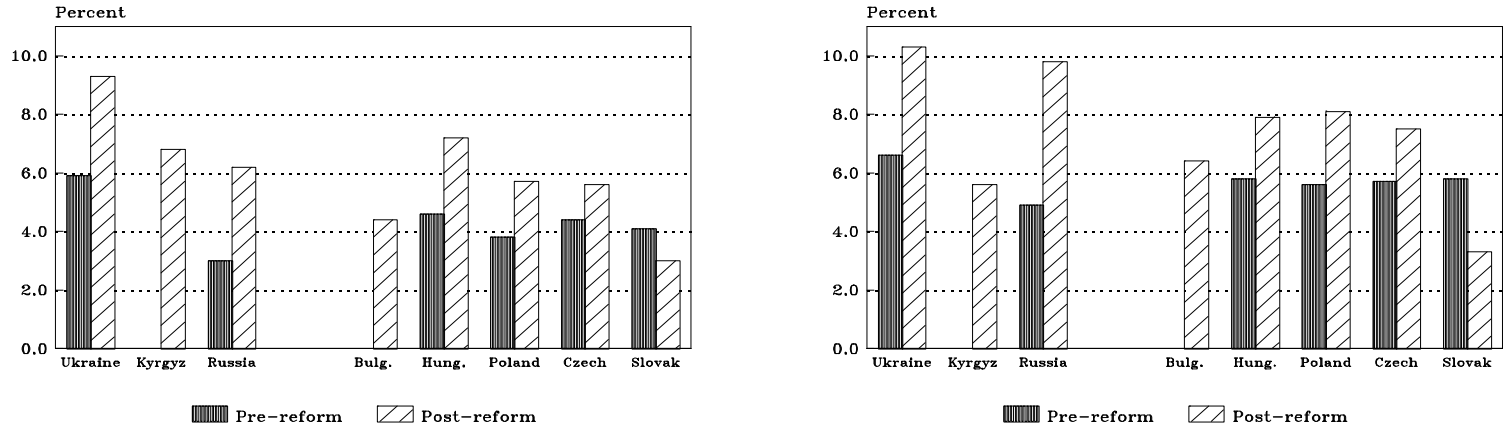
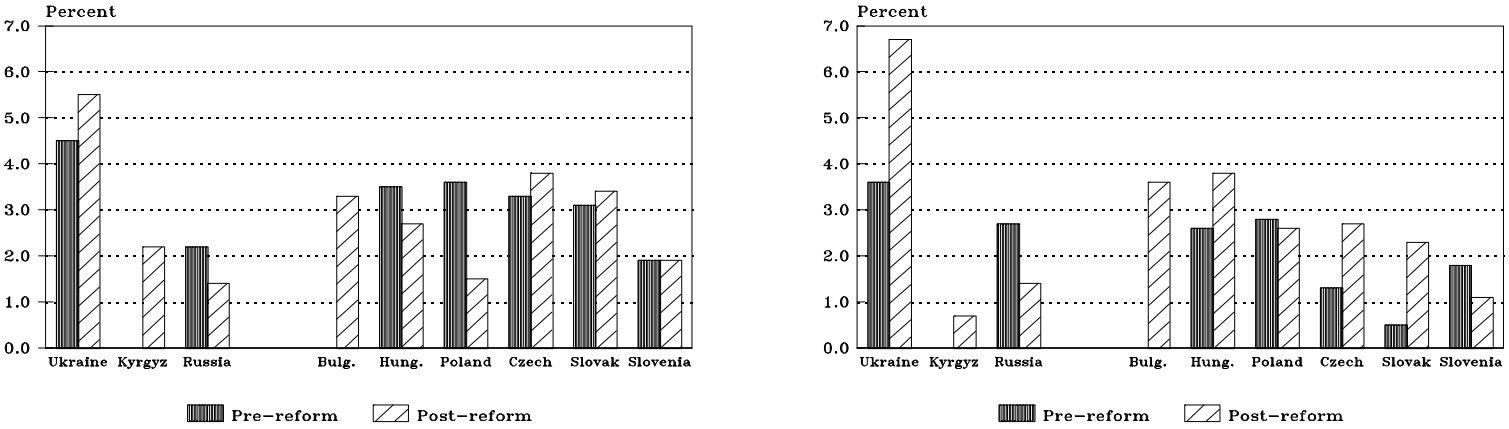


Figure 3. Return to first year of (potential) experience



Note: From regressions of log monthly wages on years of education, potential experience (age − years of education − 7) and its square.

Table 7. Decomposition of the change in the gender wage differential

	Observed change in gender gap (log wages)*	*Of which*: Observed **X**'s (1)	Observed Prices (2)	Gap (3)	Unobserved Prices (4)	Sum gender-specific (1+3)	Sum wage structure (2+4)	Explained (1+2)	(3+4)	Unex-plained
Ukraine	.270	-.012	-.013	-.054	.349	-.066	.336	-.025		.295
Russia	.145	-.001	-.013	-.041	.200	-.042	.187	-.014		.159
Hungary	-.096	-.032	.006	-.196	.126	-.228	.132	-.026		-.070
Poland	-.124	-.016	-.002	-.147	.042	-.163	.040	-.018		-.105
Czech Rep.	-.063	-.008	.004	-.640	.581	-.648	.585	.012		-.059
Slovak Rep.	-.092	.037	-.006	-.786	.663	-.749	.657	.031		-.123
Slovenia	-.030	-.012	-.014	-.100	.097	-.113	.083	-.026		-.003
U.S. (1975-1987)	-.152	-.076	.042	-.146	.027	-.222	.069	-.034		-.119

* The change in gender wage gap is calculated as: $(\ln W_F - \ln W_M)^{POST} - (\ln W_F - \ln W_M)^{PRE}$
so a positive number indicates deteriorating relative wages for women over time; a negative number indicates improving relative wages.

Note: From regressions of log wages on years of education, potential experience and potential experience squared.

Sources: Slovenia: Orazem and Vodopivec (1995); U.S.: Blau and Kahn (1997); others: author's calculations.

Table 8. Mean female position in male wage distribution by marital status

	Pre-reform		Post-reform	
	Married	Unmarried	Married	Unmarried
Ukraine	32.5	34.9	35.6	34.9
Kyrgyz Republic	na	na	na	na
Russia	37.4	37.2	35.2	35.6
Bulgaria	na	na	45.6	39.5
Hungary	24.2	24.8	34.5	32.6
Poland	na	na	na	na
Czech Republic	18.8	15.6	27.4	26.3
Slovak Republic	18.9	18.8	31.7	29.5
Slovenia	na	na	na	na

Table 9. Measures of demand and supply shifts of men and women

	Supply	Demand*	Net supply
Russia			
Men	-.0701	-.0057	-.0644
Women	.0659	.0061	.0598
Hungary			
Men	.0160	-.0110	.0271
Women	-.0177	.0115	-.0291
Poland			
Men	-.0150	-.0216	.0067
Women	.0177	.0248	-.0071
U.S. (1979 - 1988)**			
Men	-.1123	-.0054	-.1069
Women	.1838	.0101	.1737

* Based on 7 industry groups for Russia, 10 for Hungary and 17 for Poland.
** Source: Blau and Kahn (1997).

Table 10. Labor force participation rates (working age population)

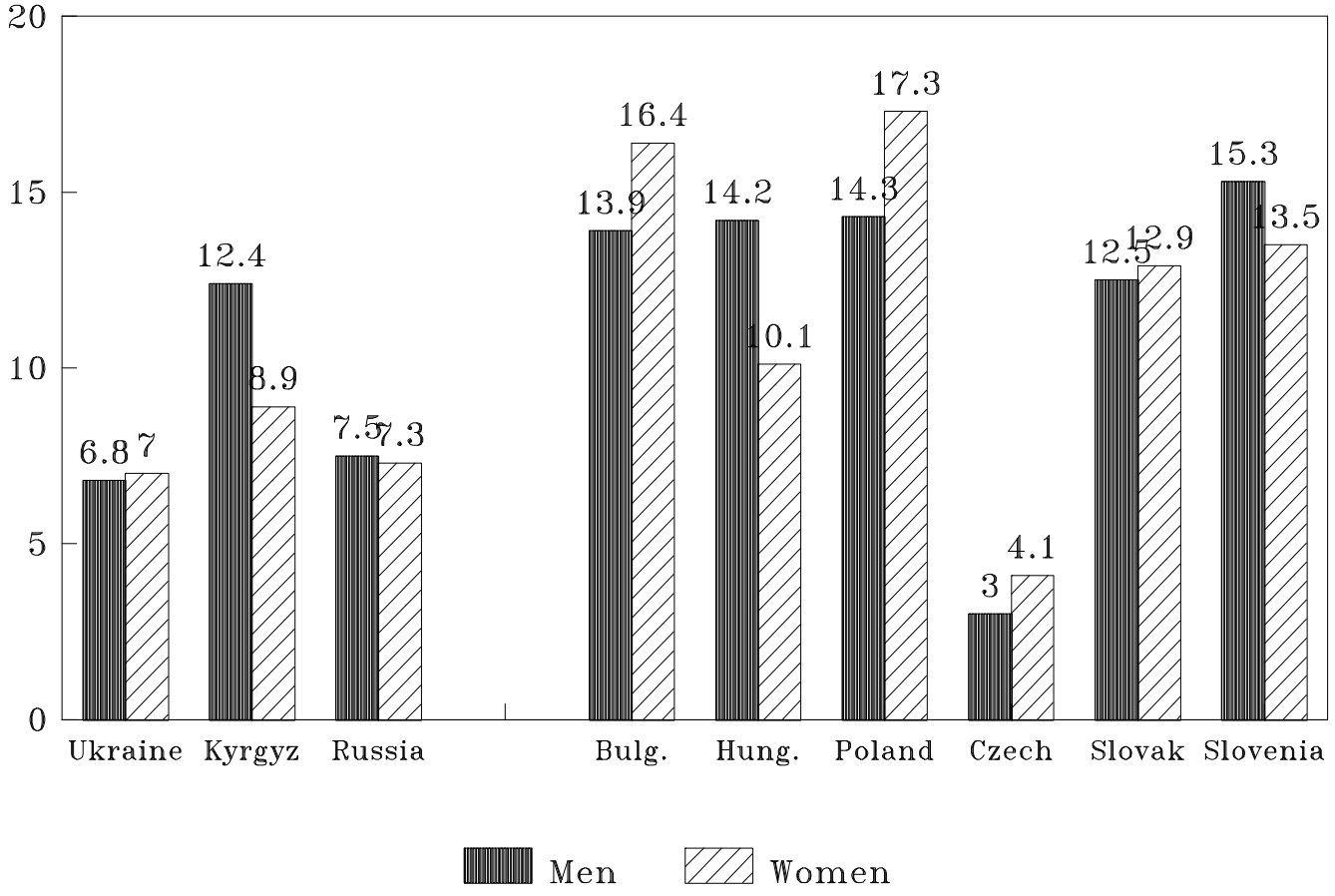
(Unless otherwise noted, "pre-reform" refers to Census data;
"post-reform" refers to Labor Force Survey data)

	Pre-reform		Post-reform		Change	
	Men	Women	Men	Women	Men	Women
Ukraine	92.0	90.3	87.2	84.0	-4.8	-6.3
Kyrgyz Rep.	na	na	na	na	na	na
Russian Fed.	85.7	82.8	80.8	78.6	-4.9	-4.2
Bulgaria	90.6	91.8	86.1	88.4	-4.5	-3.4
Hungary	84.0	86.1	72.9	70.0	-11.1	-16.1
Poland	79.2	66.8	76.4	66.5	-2.8	-0.5
Czech Rep.	87.8	85.0	83.6	78.9	-4.2	-6.1
Slovak Rep.	84.5	80.1	81.7	76.3	-2.8	-3.8
Slovenia	na	75.0	68.7	65.0	na	-10.0

Ukraine: 1989, age 15-59 (m), age 15-54 (f)
1994 from household survey used here; age 18-59 (m), age 18-54 (f)
Russia: 1989, age 15-59 (m), age 15-54 (f)
1994, from 1994 Lab. Force Surv., age 15-59 (m), 15-54 (f)
Bulgaria: 1985, age 20-59 (m), age 20-54 (f)
1992, age 20-59 (m), age 20-54 (f)
Hungary: 1980, age 15-59 (m), 15-54 (f)
1994, age 15-59 (m), 15-54 (f)
Poland: 1988, age 15-64 (m), age 15-59 (f)
1992, age 15-64 (m), age 15-59 (f)
Czech, Slov: 1989, age 15-59 (m), age 15-54 (f)
1994, age 15-59 (m), age 15-54 (f)
Slovenia: 1987 (ages unclear) from Orazem and Vodopivec (1995)
1993, age 15-59 (m), age 15-54 (f)

Sources: ILO, various years; Goskomstat of Russia (1995), Orazem and Vodopivec (1995), Paukert (1995)

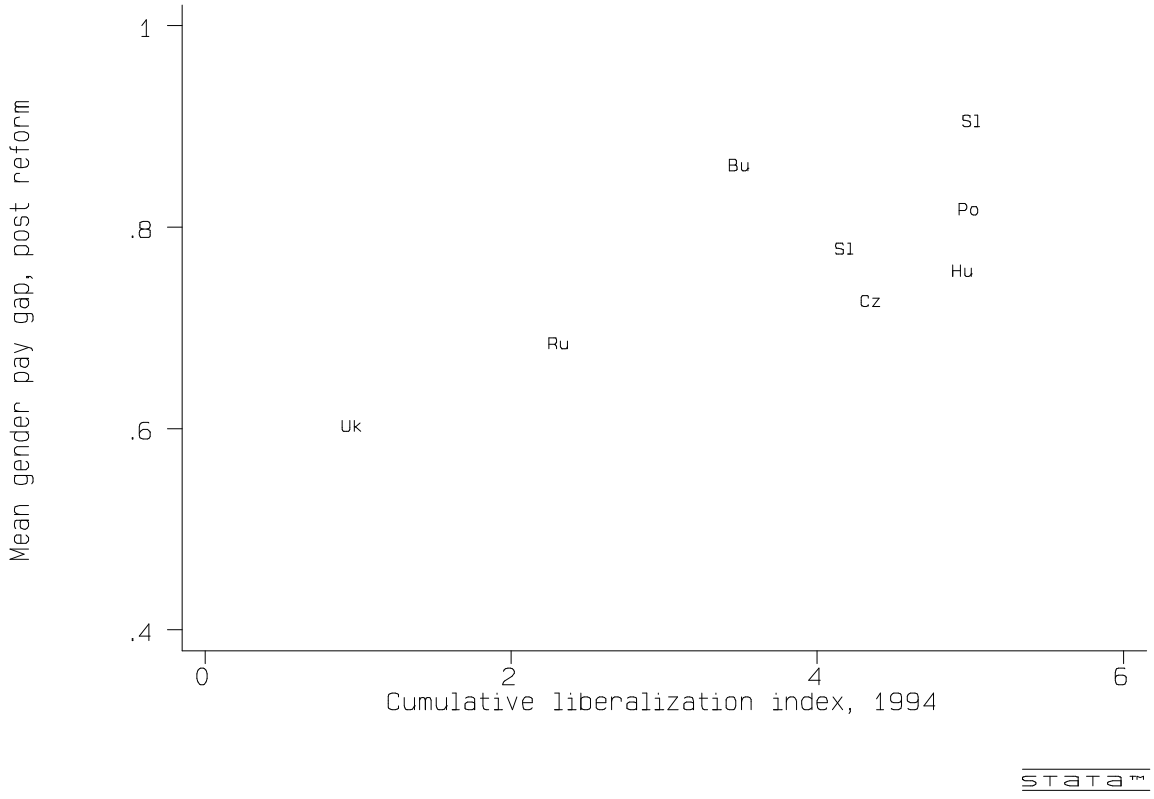
Figure 4. Male and female unemployment rates (ILO definition)

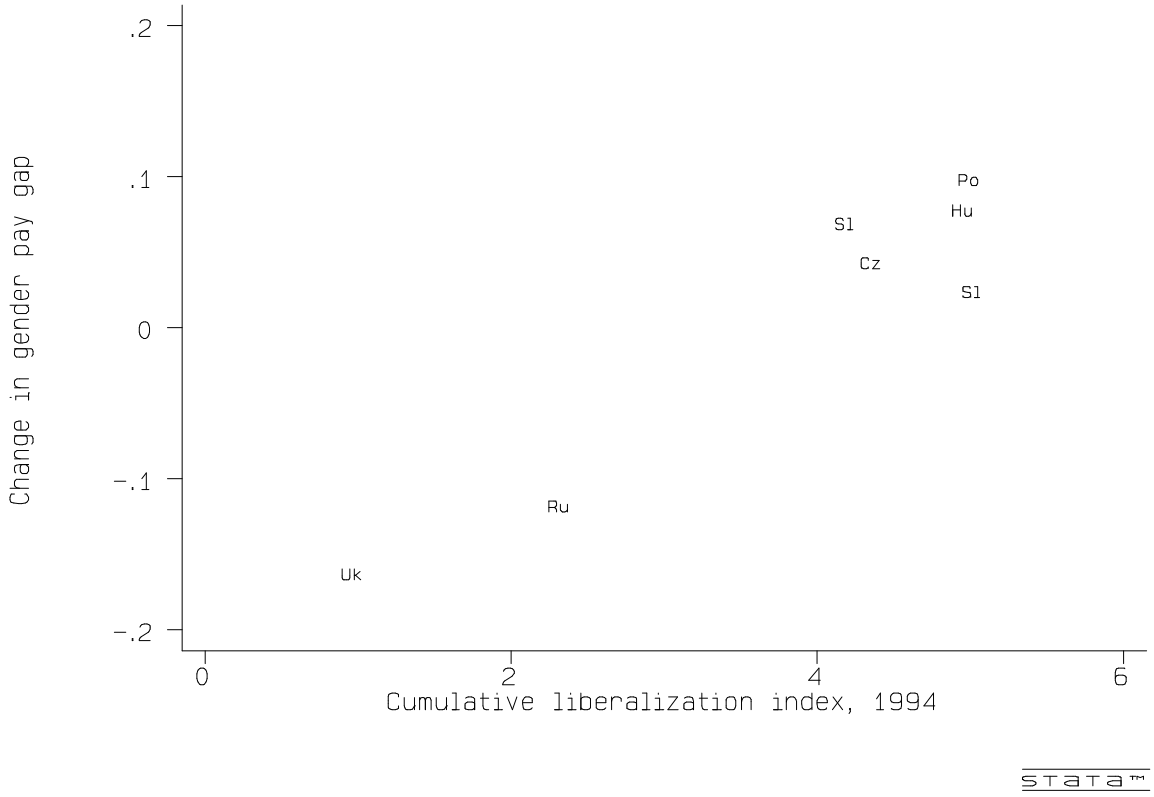


FSU: 1994; Bulgaria: 1992; all others: 1993

Source: ILO, various years; World Bank surveys (Ukr., Kyrg.)

Figure 5. Correlations between the gender wage gap and the extent of economic liberalization


Mean gender pay gap, post reform
1
.8
.6
.4
0
2
4
6
Cumulative liberalization index, 1994
Sl
Bu
Po
Sl
Hu
Cz
Ru
Uk
STATA


.2
.1
0
-.1
-.2
Change in gender pay gap
Po
Hu
Sl
Cz
Sl
Ru
Uk
0
2
4
6
Cumulative liberalization index, 1994

Appendix Table 1. Sample sizes and non-response rates*

	Pre-reform			Post-reform		
	Survey	**Sample size**	**Non-response rate**	**Survey**	**Sample size**	**Non-response rate**
Ukraine	General Social Survey, Apr.-May 1991	Men: 222 Women: 213	6.9%	World Bank household survey (5 cities), Jan . 1995	Men: 1,374 Women: 1,326	15.5%
Kyrgyz Rep.	na	na	na	World Bank Kyrgyz Multipurpose Poverty Survey, Oct.-Nov.1993	Men: 445 Women: 412	72.1%
Russian Fed.	VTsIOM, April 1991	Men: 887 Women: 808	4.7%	VTsIOM, Apr.-June 1994 ^	Men: 2,152 Women: 2,675	5.9%
Bulgaria	na	na	na	ISSP 1992, 1993	Men: 576 Women: 518	3.5%
Hungary	ISSP,1986-1988	Men: 1,820 Women: 1,717	1.1%	Hungarian Household Panel 1992 (first wave)	Men: 922 Women: 805	3.5%
Poland	Household Budget Survey 1986	Men: 5,523 Women: 4,494	9.4%	Household Budget Survey 1992	Men: 2,416 Women: 2,090	14.3%
Czech Rep.	Microcensus 1989	Men: 6,235 Women: 4,244	8.0%	Microcensus 1993	Men: 9,257 Women: 8,124	6.5%
Slovak Rep.	Microcensus 1989	Men: 2,960 Women: 2,163	10.2%	Microcensus 1993	Men: 8,669 Women: 7,302	4.9%
Slovenia+	Slovenian Pension and Invalid Fund 1987	Men: 15,884 Women: 10,822	na	Slovenian Pension and Invalid Fund 1991	Men: 14,590 Women:10,376	na

* Sample sizes are for the employed, working age population after elimination of observations with missing variables. Dates given are the dates the surveys were conducted. The non-response rate refers to the non-response to the wage question, of the employed working age population. Working age population for all countries except Poland is age 16-59 for men and age 16-54 for women; for Poland the working age population is age 16-64 for men and age 16-59 for women. All samples use these age ranges but start at age 18.

^ Russian wages for May and June 1994 have been deflated into April 1994 wages using the regional consumer price indices for those months.

+ From Orazem and Vodopivec (1995).