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The Case of Estonia and Slovenia

Peter F. Orazem
Milan Vodopivec

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Summary findings

Orazem and Vodopivec analyze changes in women's relative wages, using social security data from Slovenia (1987–92) and a retrospective survey of Estonia's labor force (1989–94).

Estonia adopted liberal labor market policies. Slovenia took an interventionist approach. Nevertheless, relative wages for women rose in both countries. Actually, real wages fell for both men and women, but women lost less than men did.

Certain factors favored women:

• Returns to human capital rose during the transition.

• Relative labor demand shifted toward predominantly female sectors (health, education, financial services, retail trade) and away from traditionally male sectors (agriculture, manufacturing, mining, transportation).

• Women with low wages had a disproportionate incentive to exit the labor market, especially in Estonia.

Women were less mobile across jobs in both countries, however, so men disproportionately filled new jobs in expanding sectors. Women who remained employed had higher average education levels. Women's relative immobility will tend to reduce their early relative gains. Their relative wages will also continue to fall if their share of the expanding sectors continues to fall.

Male-Female Differences in Labor Market Outcomes during the Early Transition to Market: The Case of Estonia and Slovenia[a]

Peter F. Orazem
Department of Economics
Iowa State University
Ames, IA 50011-1070USA
FAX: (515) 294-0221
Email: pfo@iastate.edu

Milan Vodopivec
GEA College of Entrepreneurship, and   World Bank
Dunajska 156   1818 H Street NW
1000 Ljubljana, Slovenia   Washington D.C. 20433
                                                 FAX: (202) 522-1153
                                                 Email: mvodopivec@worldbank.org

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Centrally-planned employment and wage policies limited variation in labor market outcomes across individuals. As a consequence of transition toward market systems, wage inequality has increased to varying degrees in all Central and Eastern European countries.[1] Unemployment, which was virtually unknown in socialist economies, now represents a significant share of the labor force in all of these economies. Relative wages and employment for the least educated have fallen, while the most skilled have lost the least during transition.

Blau and Khan (1994) found that rising earnings inequality increased wage differentials between women and men in the western economies. Therefore, increased wage inequality associated with transition would presumably disadvantage women. Women might be further disadvantaged by the abandonment of centrally dictated wages because these policies which reduced wage inequality across workers under central planning would presumably have reduced inequality between men and women as well. It is also plausible that women would be further disadvantaged if men were given favored treatment in the competition for more limited job opportunities in transition. Women would then face a higher probability of transition out of employment and a lower probability of transition out of unemployment.

This study examines whether women are disadvantaged in earnings and employment relative to men over the first five years of transition in Slovenia and Estonia. For Slovenia, we cover the period from 1987 to 1992 with the transition beginning in late

1988. The Estonian transition began two years later in 1990, so the Estonia analysis covers the period from 1989 to 1994. The comparison of these two countries is particularly useful because it presents two different policy strategies. Slovenia took an interventionist approach in an effort to shield workers from labor market shocks, while Estonia took a very liberal approach in embracing a more free market oriented strategy. It was not clear a priori whether women would fare better under a free or a regulated labor market.

Slovenia entered transition in much better shape than Estonia. Slovenia's pretransition GDP per capita was nearly $9,000, nearly 2 to 4 times the level in Estonia.[2] A major factor explaining why Estonia did not create a large social safety net as did Slovenia was that Estonia could not afford it. Because of its relative wealth, Slovenia could better afford to support pensioners, the unemployed, and jobs in failing sectors. A second advantage Slovenia had was its prior trade relationships with the West. Estonia's trade relationships were primarily with Eastern bloc countries who were not strong prospects for continued trade in transition. One particular trade disruption, the cutoff of subsidized petroleum from Russia, forced Estonia to seek new energy sources on the world market and, as a result, forced Estonia to seek alternative sources of foreign exchange.

In both countries, transition was accompanied by large reductions in output. Consequently, the newly emerging labor markets were given the task of absorbing a huge drop in demand for inputs including labor. In Estonia, real output fell 25 percent in 1991 and 1992. However, the unemployment rate stayed below 5 percent until 1993 when the recovery began. To accommodate the huge decline in output without significant increase

in unemployment, real wages fell nearly 50 percent before beginning to increase in 1993. In Slovenia, real output fell 17 percent by 1992 relative to pretransition levels. Real wages fell 30 percent, but recovered to 92 percent of pretransition levels by 1995. The unemployment rate rose quickly after layoffs were legalized, holding at or above 10 percent since mid 1991.

Despite the differences in policy orientation, there are more similarities than differences in the relative labor market experiences of women and men in the two countries. Women represented a large share of the pretransition employed in both countries: 51 percent in Estonia and 47 percent in Slovenia. During early transition, women gained in relative pay in both countries.[3] The gains to women are related to a general increase in relative returns to skill during the transition, and women in both countries began the transition with higher levels of education than men. The gains to women are also related to the composition of demand for goods and services in transition: labor demand fell the most in predominantly male sectors in both countries, while predominantly female sectors either declined very little or expanded. The biggest difference between the two countries is that women's employment share rose initially in Slovenia, but fell in Estonia. Ironically, men appear to have lost employment in Slovenia because the predominantly female sectors (which were underdeveloped under the socialist system) did not expand to employ displaced men. In Estonia, predominantly female sectors gained employment, but men disproportionately filled the new openings.

I.   *Review of Transition Labor Market Policies*

Estonia and Slovenia took sharply differing labor market policy approaches in their initial years of transition. Table 1 reports summary information on the policies of

the two countries. The table shows that Slovenia took an interventionist approach, with significant barriers to job dislocation, generous support for unemployed workers and pensioners, and efforts to prevent reductions in real wages below a base level of consumption. Estonia took a very liberal approach, with few barriers to labor market dislocations or new job creation, meager support of the unemployed, and no effective wage floor. These policies were applied generally in the labor market, but as we will demonstrate, they did not have neutral effects on women's relative wages or employment. Other policies regarding maternity leave and day care had a more direct influence on women's labor market outcomes.

One major difference between the two countries is in the treatment of workers who became redundant in the transition. In Estonia, there have been modest restrictions on layoffs from the beginning. Layoffs require a two month advance notice and a severance package equal to two to four months of wages, depending on the length of service with the employer. The firm is not liable for other mandated benefits for its fired workers such as job placement or retraining. In fact, during the period studied, unemployment benefits were paid out of general tax revenues rather than experience-rated insurance premiums.[4] All of these policies implied that Estonian firms faced an unusually low marginal cost of layoffs. Layoffs were allowed in Slovenia, but at a large expense to firms. For each dismissal, firms must provide 6 months advance notice (even 24 months before 1991), and are liable for reassignment, retraining, or early retirement of the fired worker. If none of these options is available, workers are entitled to severance pay of one monthly wage for each year of services with the firm. Clearly these costs serve to reduce firm incentives to initiate layoffs.

Once unemployed, Estonia's policies have encouraged reemployment. The unemployment benefit is very low with benefits averaging about one-tenth of average monthly earnings. Benefits last six months, with an additional three months of benefits possible only if the individual has at least three children and has an income below a poverty threshold. The unemployed lose benefits if they do not search, and have only limited rights to refuse employment if offered.[5] Workers for whom no suitable jobs exist are eligible for up to six months of free training, and almost 40 percent undergo such training. In contrast, unemployment insurance in Slovenia is much more generous. Unemployment benefits replace up to 70 percent of previous earnings in Slovenia and benefits can last up to 24 months. Thereafter, unemployed individuals may qualify for means tested welfare benefits. Individuals may lose benefits if they refuse a job offer or training, but there is no requirement of active job search. The lack of a job search requirement and lax enforcement of the provisions for continuation of unemployment benefits have resulted in relatively little incentive to exit unemployment.

For those who were employed in Estonia, there were few distortions in setting wages or the number employed by sector. Minimum wages were imposed, but were so low as to be almost irrelevant--less than one percent of the labor force were paid the minimum wage in 1995. There was no program to subsidize failing firms or to use trade protection to preserve jobs, so growing sectors were not taxed to shore up shrinking sectors. Pensions were very low (the average pension was about one third of the average wage), so the tax burden for funding pensions represented only 5 percent of Estonia's GDP. In Slovenia, minimum wages were much higher, and the minimum was indexed to inflation at least twice yearly. Consequently, about ten percent of the employed were at

the minimum, suggesting that there was a binding wage floor to hire the least skilled. Pensions were indexed to the growth of average wages on a monthly basis, with the average pension amounting to about 75 percent of the average wage. For many workers, particularly low-skilled workers whose wage increases were below average, retirement was an attractive option. The implicit tax burden for funding the pensions' 15 percent share of GDP is a serious drain on the Slovenian economy. An additional implicit tax on growing sectors of the economy was the use of subsidies and tariffs to maintain employment in failing sectors. These subsidies represented nearly 1 percent of GDP.

Both countries faced sharply changing trade patterns in transition. In Slovenia, the war among the republics of former Yugoslavia disrupted trading patterns for many sectors. In Estonia, the disruption of trade with the former Soviet Union also created large shifts in the composition of final demand for sectoral outputs. As a consequence, in both countries there were sectors which faced large disruptions in labor demand. At the same time, sectors that were underdeveloped under central planning such as financial services and retail trade might be expected to expand, partially mitigating the adverse effects of the employment problems elsewhere. The extent to which these underdeveloped sectors grew depended upon the existence of capital to finance their expansion, and the potential for profit after taxes.

We have already shown that Slovenian firms faced the greater tax burden. Slovenian firms also faced more restricted access to capital. In Estonia, there were no restrictions placed on foreign ownership of former state enterprises or on new foreign investment. As a consequence, there was a tremendous flow of foreign capital into Estonia. By 1995, 9.1 percent of employed Estonians worked for foreign-owned firms

and cumulative foreign direct investment was over 5 percent of GDP. Resources flowed toward expanding sectors, financing employment growth of 25 percent in utilities, 57 percent in retail trade, 11 percent in hotels and restaurants, and 142 percent in financial services. In Slovenia, there were large barriers to foreign investment initially, and there are still restrictions on foreign ownership of land and equity. As a result, foreign direct investment in Slovenia lagged behind Estonia, even though the Slovenia transition began two years earlier and the per capita income in Slovenia was much higher than in Estonia. Five years into the Slovenian transition, no sector had greater employment than before the transition began.

Studies on job creation and job destruction document different adjustment paths of the two economies. The transition in Estonia led to a massive increase in worker flows out of some jobs and into others. The study by Haltiwanger and Vodopivec (1998), covering the period 1989-95, shows that reallocations of jobs were led by job destruction, which peaked at over 10 percent per year in 1992 and 1993. With a lag of approximately one year, job creation also surged to a 10 percent yearly rate. By 1994, the job creation rate exceeded the job destruction rate. In contrast, Bojnec and Konings (1998) report much lower job flows for Slovenia for the period 1991-96. Except for 1994, job creation rates were at or below one percent per year, while job destruction rates ranged from 3 to 8 percent.

How do these labor market policies affect the relative treatment of women in the two economies? Most of these policies are implemented uniformly for both men and women, so their relative impacts are not obvious. However, these policies will affect women and men differentially to the extent that women and men were employed in

different sectors of the economy at the start of the transition. In both countries, labor demand shocks disproportionately affected sectors that employed males such as manufacturing, agriculture, transportation and construction. Attempting to preserve jobs in these sectors, as was done in Slovenia, might be expected to have disproportionately benefited men. However, the cost of job preservation in these predominantly male sectors had to be borne by the other sectors of the economy. Consequently, the attempts to retain jobs in the shrinking sectors may have retarded the creation of alternative jobs in expanding sectors. If this scenario is accurate, then interventionist policies may have led to relative employment gains by women because the disproportionate male job loss in the shrinking sectors was inevitable, and flexible labor market policies were necessary if men were to gain employment elsewhere. In addition, Slovenia's imposition of interventionist policies may have slowed the overall recovery of the economy, both in GDP and in employment. The empirical work that follows is consistent with this assessment.

There are other policies which have more direct implications for female employment in transition. Both countries had very liberal policies regarding maternity leave and access to child care. In Slovenia, these programs remained unchanged during transition. In Estonia, however, the available maternity leave doubled in length. In addition, women with young children were offered up to four years of additional unemployment benefits. At the same time, the number of public day care centers decreased 14 percent from 761 to 656, partly in response to the decrease in number of births. Consequently, the cost of labor force participation rose for women with young children, the return to exiting the labor force increased, and the real wage fell. Therefore, these policies led to a greater incentive for women with children to leave the labor force

in Estonia, while these policies remained unchanged in Slovenia. The empirical work below bears out this prediction as well.

II. Data Sources

We make use of two data sets to monitor the progress of the transition in the two countries. For Slovenia, the primary data source was a 5 percent random sample of workers making payments into the Slovenian Pension and Invalid Fund (SPIF). These formal sector jobs include employees in state firms and in incorporated private firms. Privatization progressed slowly in Slovenia, so that for the period studied (January 1, 1987 through January 1, 1992) the social sector represented roughly 9 of 10 workers in the economy. The most important sectors excluded from this data base are the self-employed and workers in the "gray economy" who do not report their earnings to the SPIF. Workers in these gray economy jobs are considered out of the labor force in official government statistics.[6]

The Estonia data set is based on approximately a 1 percent random sample of the 1989 Census of the Estonia population.[7] Our analysis concentrates on the subsample who worked for wages in 1989 or 1994. In the survey conducted in 1995, individuals were asked to provide employment and earnings information retrospectively for the years 1989-1995. While recall bias may create measurement error problems in retrospective data, the survey methodology has the advantage of covering private sector and gray economy jobs as well as jobs in state-owned firms. Because Estonia moved much more aggressively than most formerly planned economies to encourage expansion of private sector, it was critical to base the analysis on the full labor market. As shown in Noorkoiv

et al. (1997), the retrospective data seems to match aggregate employment and wage patterns quite well, so the results should not be driven by recall bias.[8]

III.   The Effects of Transition on Earnings

A common policy among centrally planned economies was to suppress labor market forces which could increase wage inequality among workers. As a consequence, returns to human capital were suppressed. Wages for the most skilled were higher than for the least skilled, but the wage premia accorded to skills were very small compared to those in market economies. Consequently, relaxation of those constraints on the pricing of skills had a dramatic effect on relative wages. In Slovenia, Orazem and Vodopivec (1995) found that within five years of transition, the wage premium of workers with college training rose 25 percent relative to elementary trained workers, and 15 percent relative to high school (12 years) trained workers. In Estonia, Noorkoiv et al. (1997) reported that university trained workers gained 73 percent relative to primary educated workers and 40 percent relative to high school trained workers.[9] In both countries, returns to experience also rose, although this has not been true of all transition economies.[10]

The dramatic changes in returns to human capital are most easily observed through changes in the coefficients of an earnings function. In both data sets, worker earnings and hours were reported, allowing us to derive estimates of hourly wages. Let the natural log of wages for men and women (denoted by subscripts 'M' and 'F' respectively) in year t be written as:

$$w_{Mt} = X_{Mt}\beta_{Mt} + e_{Mt}$$
$$(1)$$
$$w_{Ft} = X_{Ft}\beta_{Ft} + e_{Ft}$$

where X_{it} represents a vector of human capital measures and other variables affecting the marginal product of labor, β_{it} is a vector of coefficients, and e_{it} is an error term uncorrelated with observed human capital. Similarly, the earnings structure in year t' would be captured by regressions of the form

$$(1') \quad \begin{aligned} w_{Mt'} &= X_{Mt'}\beta_{Mt'} + e_{Mt'} \\ w_{Ft'} &= X_{Ft'}\beta_{Ft'} + e_{Ft'} \end{aligned}$$

Changes in returns to measured human capital from t to t' are captured by changes in the coefficients from (1) to (1'), $\beta_{it'} - \beta_{it}$. Differences in returns to human capital across the sexes can be measured by $\beta_{Ft} - \beta_{Mt}$.

For Slovenia, we estimated log earnings functions for 1987 and for 1992. For Estonia, we estimated log earnings functions in 1989 and again in 1994. For both countries, the transition began the year after the base period. In Table 2, we trace out what happened to returns to skill by gender during transition. First, we report the coefficients from log earnings functions for the baseline period before transition. We then report estimates of $\beta_{it'} - \beta_{it}$ for men and women and estimates of $\beta_{Ft} - \beta_{Mt}$ for each year. The results are striking.

Holding industry of employment constant to control for localized labor demand shocks, returns to skill rose across the board. The measures of educational attainment are dummy variables reflecting the various degree levels in the two countries. The excluded group are workers who failed to complete primary school. The coefficients on these dummies measure the log wage premium associated with attaining the corresponding education level relative to returns to receiving only a primary education.

In 1987, the Slovenian wage structure was quite compressed relative to those of market economies. The most direct comparison would be to contrast the college to high school wage ratio. For both men and women, the premium was 49 percent compared to nearly 80 percent in the United States.[11] Nevertheless, this premium was not out of line with those in the United States in the 1970s. However, the college wage premium was even more compressed in Estonia. The coefficients implied only a 20 percent college premium for women in 1989, and only a 9 percent college premium for men.

The returns to skill rose with transition. For both men and women, returns increased more as education level increased. In Slovenia, the college premium rose 22 percentage points to 71 percent for men and to 61 percent for women. Returns to human capital rose even more in Estonia. The implied return to college relative to secondary earnings rose 44 percentage points to 53 percent for men and to 64 percent for women.

In both data sets, we observe actual years of work experience. Returns to experience also rose for both men and women. In both countries and for both genders, the log wage-experience profiles became less concave—the linear term became smaller and the quadratic term became less negative. As a consequence, implied earnings for more experienced workers rose.[12] In both countries, there was also evidence of increased earnings differentials across ethnic groups. In Slovenia, relative wages for the 12 percent of the labor force that were members of minority ethnic groups (Croats, Muslims from Bosnia and Kosovo, and Serbs) fell moderately. More significant numerically and statistically was the relative decrease in wages for the third of the Estonia labor force that were not ethnic Estonians. These groups (primarily ethnic Russians) lost about eight percentage points in relative wages.

Rising earnings disparity might be expected to disadvantage women. Institutions which held inequality in check might have been expected to reduce wage inequality across the sexes. In addition, research on western economies has found that rising wage inequality has tended to disadvantage women. Before transition, wages for women in Slovenia were 88 percent of wages for men in 1987, a much higher ratio than in market economies. In Estonia, however, women's wages in 1989 were only 64 percent of male wages, more similar to relative wages in market economies.[13]

In fact, the earnings function does not reveal any dramatic change in the relative valuation of women's' skills in the labor market. In both Slovenia and Estonia, the marginal significance level of the F-test of equality of coefficients between the male and female earnings functions fell over time, albeit by moderate amounts.[14] In other words, male and female skills were priced more equally in transition than under centrally-imposed wages. As a consequence, relative wages for women rose to .90 in Slovenia and to .74 in Estonia.

Why did women gain in transition? Part of the answer lies in women's relative stock of human capital: women held more human capital assets at a time where returns to human capital rose. Table 3 reports the distribution of men and women by education level in the two countries in the pretransition period. In Slovenia, 35 percent of women but only 28 percent of men were in the three education groups which had the fastest growing relative wages. In Estonia, 36 percent of women, but only 28 percent of men were in the two education groups experiencing the fastest growing relative wages. In short, women gained in part because they had more skills when skills became relatively more valuable.

IV.   The Effects of Rising Inequality on Women's Wages

Blau and Kahn (1992,1994) have argued that women are disadvantaged by rising inequality because they are disproportionately in the lower half of the earnings distribution. With rapidly rising inequality in Central and Eastern Europe, it is remarkable that women gained relative to men. In this section, we examine how women gained in the face of rising inequality by exploiting the methodology used by Juhn, Murphy, and Pierce (1993). Assuming that male and female earnings functions and their error variances changed in similar ways during transition, we can arbitrarily select the male earnings structure to represent the changing returns to skill in each economy. We can then compare how female earnings changed relative to male earnings. The male-female earnings differentials can be decomposed as follows: First, the male earnings function in (1) can be rewritten as

$$(2) \quad w_{Mt} = X_{Mt}\beta_{Mt} + \theta_{Mt}\sigma_{Mt},$$

where σ_{Mt} is the standard deviation of the residual of the male earnings function in year t, and $\theta_{Mt} = e_{Mt}/\sigma_{Mt}$ is the standardized residual of the regression. By construction, θ_{Mt} has mean zero and variance 1.

Taking the difference in wages between the male and female earnings functions in (1), one can obtain:

$$(3) \quad d_t = (X_{Mt} - X_{Ft})\beta_{Mt} + (\theta_{Mt} - \theta_{Ft})\sigma_{Mt},$$

where $\theta_{Ft} = (w_{Ft} - X_{Ft}\beta_{Mt})/\sigma_{Mt}$. The numerator of θ_{Ft} is the difference between the wage paid to a woman and the wage she would be paid if she were rewarded for her characteristics at the same rate as a man. This difference is interpretable as a measure of

wage discrimination. If $\beta_{Mt} = \beta_{Ft}$, the difference would have a mean of zero. More typically, this value is negative, which implies that women are paid less than men with the same characteristics. Deflating this difference by the standard deviation of the male earnings function yields the number of male residual standard deviations that the average woman is paid below zero, the value of θ_{Mt} for the average man.

The corresponding earnings differential for another year, t′ would be

$$(4) \qquad d_{t'} = (X_{Mt'} - \bar{X}_{Ft'})\beta_{Mt'} + (\theta_{Mt'} - \theta_{Ft'})\sigma_{Mt'}$$

so that the change in the wage differential over time becomes

$$(5) \qquad \begin{aligned} d_{t'} - d_t &= [(X_{Mt'} - X_{Mt}) - (X_{Ft'} - X_{Ft})]\beta_{Mt'} + (X_{Mt} - X_{Ft})(\beta_{Mt'} - \beta_{Mt}) \\ &\quad + [(\theta_{Mt'} - \theta_{Ft'}) - (\theta_{Mt} - \theta_{Ft})]\sigma_{Mt'} + (\theta_{Mt} - \theta_{Ft})(\sigma_{Mt'} - \sigma_{Mt}) \end{aligned}$$

This is the Blau and Kahn decomposition. The first term, "Observed X's", captures how the male-female earnings differential changed in response to changes in the male-female gap in characteristics. The second term, "Observed Prices", measures how changes in the returns to these characteristics affected the wage gap. The third term "Position", represents how the change in women's relative position in the male residual earnings distribution affected the pay gap.[15] The fourth term, "Inequality", shows how changes in the standard deviation of the residual earnings distribution affected the male-female wage gap.[16]

This decomposition was computed for the 1987-1991 period in Slovenia and the 1989-1994 period in Estonia. The decompositions are based on the regressions discussed in Table 2. Measures of σ_i and θ_i are reported in the top half of Table 4.[17] The standard error of the regressions in Table 2 measure residual wage inequality—a measure of the variation in wages that is uncorrelated with observed human capital and industry effects.

In Slovenia, residual inequality rose for both men and women. However, the standardized residual, θ_{Ft}, decreases in magnitude over time. In 1987, the average value of θ_F was -.50, implying that the average female wage was at the 31st percentile of the male wage distribution. By 1991, θ_F had fallen to -.30, and women had risen to the 38th percentile of the male residual wage distribution.

Residual inequality also rose among Estonian men but not among the women. Inequality actually fell slightly across women. Women's gains relative to men are apparent from the shrinking value of the standardized residual, revealing that women rose from the 20th to the 29th percentile of the male residual earnings distribution.

The bottom half of Table 4 traces out the impact of the changing wage distribution, returns to skill and worker characteristics on the wage gap between men and women. Negative values indicate a narrowing of the earnings gap while positive values would lead to an increase in the male-female gap. The decomposition does a nice job of highlighting the common and unique factors leading to women's' relative wage gains in the two countries.

The most important factor is the "position" effect: the movement of women up the male residual earnings distribution. The proximate cause for this is not clear—it could represent an improvement of women's unmeasured skills relative to men, a reduction of market discrimination against women or shifts in the composition of demand for output that favored female-intensive over male-intensive sectors. In the next section, we argue that evidence favors the composition of demand and unmeasured skills

possibilities, but that it is unlikely that women are facing less discrimination in either country.

A second common outcome in the two countries is that rising wage inequality lowers women's wages on average because women start off at the lower end of the wage distribution. In Slovenia, rapidly rising wage inequality, as measured by the increase in σ_M, nearly eliminated the gains created by the improved position of women in the wage distribution. In Estonia, σ_M rose only 14 percent compared to 63 percent in Slovenia. As a consequence, women's wage gains due to their improved position in the Estonian wage distribution swamped the adverse effects of rising inequality.

The third common result is that rising returns to skill increased women's relative wages in both countries. In both countries, the gains associated with rising returns represent just under half of the total gains to women. The larger gains in Estonia (.06 log points versus .014 log points) reflect the more dramatic gains to human capital in Estonia.

The only inconsistent result is that changes in observed worker attributes lowered the wage gap in Slovenia, but raised the wage gap in Estonia. Because the time span is very short, there are no dramatic changes in the human capital stock over the transition. However, the human capital stock of the employed population can change if entry or exit from the labor force is conditioned on human capital. In both countries, the least-skilled disproportionately exited the labor force, and so the human capital per worker rose. In addition, sector of employment changed dramatically in both countries, with men being more likely to change sector of work. These sectoral shifts and labor force exits resulted

in a .012 relative gain in log wages for women in Slovenia and a .020 relative loss in log wages for women in Estonia.

In both countries, observed changes in worker characteristics and in prices led to wage gains for women relative to men. These explained changes represent 87 percent of the wage gains for women in Slovenia (.026 of .03 log points), but only 29 percent of women's wage gains in Estonia. We will try to explore plausible explanations for the large unexplained increase in women's wages in Estonia and for the large position effects in both countries in the two sections that follow.

V.   *The Effects of Transition on Employment*

The first step in trying to identify plausible explanations for the improving position of women in the wage distribution is to assess whether we are looking at demand-side or supply-side phenomena. Demand-side shocks are indicated if relative wage and relative employment change in the same direction. Supply-side phenomena are indicated if relative employment gains (losses) correspond to relative wage losses (gains). As we will see, both phenomena are at work.

It is important to emphasize at the outset that policies in Slovenia attempted to prevent job dislocation, at least initially, while dislocations were allowed to occur in Estonia. In addition, significant efforts were made to encourage retirements and to provide transfers to the unemployed in Slovenia, while pension and unemployment benefits were kept very low in Estonia. Nevertheless, the patterns of relative employment changes are similar in the two countries.

Employment in Slovenia fell 15 percent relative to its pretransition level in the first five years of transition. Noorkoiv et al. (1997) placed the overall decline of

employment in the first five years of the Estonian transition at 14 percent, with 4 percentage points attributable to outmigration of ethnic Russians. Thus, the magnitude of the employment losses were comparable across the two countries. A second common result in both countries is that the least-educated disproportionately exited employment. Employment for Slovenians with elementary education or less fell 28 percent compared to a drop of only 7 percent for more educated workers. In Estonia, employment for workers with elementary training or less fell 36 percent compared to only a 3 percent decline for more educated labor. Consequently, the employment share of the most educated groups rise for both men and women, as can be seen in Table 3. In Slovenia, the employment share of the two least educated groups fell from 37 to 32 percent for men and from 40 to 34 percent for women. In Estonia, employment shares for these least-educated groups fell from 37 to 18 percent for men and 35 to 12 percent for women. These large reductions in relative employment, coupled with the large reductions in relative wages for the least-skilled, suggest that transition to market resulted in large relative labor demand shifts against those at the bottom of the earnings distribution.[19]

Women should have lost less employment than men in transition because women were more educated on average. Indeed, as shown in the last row of Table 5, smaller employment losses for women than men meant that women's employment share rose during the early Slovenia transition, albeit slightly, from 47 to 48 percent. In Estonia, women held over half the jobs in 1989. Nevertheless, in spite of their higher average education, women's employment share fell to 49 percent by 1994. The small relative employment growth for women in Slovenia, and their loss of employment share in

Estonia, suggest that something other than rising human capital returns also must be at work in these countries to hold back relative employment growth for women.

We explore this further by looking at what happened to relative female employment by industrial sector. As shown in the top half of Table 5, male employment fell in every sector and women's employment fell in all but one in Slovenia. The largest employment losses were in sectors which were predominantly male in 1987: manufacturing, agriculture, construction, utilities, and nonfinancial services. As a consequence, women's' relative employment benefited because female sectors faced smaller employment shocks. In fact, women's overall advantage in employment change relative to men, 1.04, exceeded their sectoral relative employment changes in all but one sector. This fact drives home the conclusion that women's employment gains were related to changes in the composition of relative output demand that favored predominantly female sectors. Within individual sectors, there was no systematic favoritism toward women.

The same pattern holds in Estonia, except that women lost employment share in every sector. In sectors which were predominantly male in 1989, relatively more severe employment losses led to larger employment losses for women than men. In predominantly female sectors where employment actually rose, male employment grew faster than employment for women. Once again, the relative loss of women's' employment overall, .92, is less severe than their relative employment loss in all but two sectors. That women did not lose even more in relative employment is due to sectoral demand shifts toward predominantly female sectors, and not to relative demand shifts toward women within sectors. We conclude that in neither Slovenia nor Estonia is there

evidence that diminishing discrimination against women is responsible for women's' relative wage gains.

As noted above, the educational composition of the work force changed dramatically with transition. The least educated men and women exited the labor force as their returns to work fell. At the same time, the most experienced workers exited the labor force as the premium on experience rose. In Slovenia, there were large decreases in employment for women with over 25 years of experience and for men with over 30 years experience. These were driven by supply-side factors—due to pension indexation rules, the real return to retiring rose in transition. In addition, the government tried to "make room" for the young by creating additional incentives for early retirement. Women responded to these incentives five years earlier than men because women qualified for pension with five years less experience.

This story does not hold for Estonia. Pensions were very low, so there was no great incentive for workers to retire. In fact, the number of employed men with 35+ years of experience rose in transition, even as employment for this group fell 67 percent in Slovenia. There is no discernible pattern of male employment change by experience group in Estonia.

That is not the case for women, however. Women's employment fell at every experience level in Estonia. Other than the youngest group, the pattern was for the largest employment reductions for the experience groups which had the smallest female employment shares before transition: 10-19 years of experience and 30+ years of experience. This suggests a supply-side explanation in which women made decisions to

exit employment in transition for reasons similar to those leading to exits before transitions. We will explore this possibility more fully in the next section.

VI.   *Labor Market Transitions in Transition*

The puzzle we are left with is why, when changes in the composition of demand seemed to favor women's sectors and skills, women's employment share in Estonia fell. A plausible answer follows from an examination of the transition probabilities to and from employment in the two countries. In both countries, but especially in Estonia, women appear to be less mobile than men in switching sectors or jobs. In addition, separations were more common in Estonia than in Slovenia, due in part to restrictions on job separations in Slovenia.[20] Thus, while women were less likely to be displaced than men, those women displaced in Estonia seemed to have more difficulty than men in moving to other employment. The male advantage among the displaced was large enough to outweigh the female advantage among the continuously employed.

Evidence supporting these conclusions come from multinomial logit analysis of observed changes in labor force status over a one year period. For Slovenia, we defined a sample of individuals employed as of January 1, 1991. We computed the probability of remaining employed, becoming unemployed, or exiting the formal sector by January 1, 1992. We cannot be precise about the true labor force status of individuals who exit the formal sector. They could be unemployed but not receive assistance or be registered with the local employment office; they could be employed in the gray economy: jobs with no official record because the employer does not pay into the social pension fund; or they could be out of the labor force. Similar analysis was performed to estimate the

probability of exiting unemployment within one year, where the sample included the universe of registered unemployed individuals as of January 1,1991.

For Estonia, the same type of analysis was performed on samples defined by labor force status as of January 1, 1994. Because the Estonia data is based on a random sample of the entire population rather than relying on state institutional records, we can distinguish between the unemployed, those employed in the gray economy, and those who have exited the labor market. To ease comparison across countries, we predict the probability of transiting from employment, from unemployment, and from out of the labor force, using the same vector of individual attributes that was used for the Slovenia analysis.

The results are reported in Table 6.[21] Two general observations about the Estonia and Slovenia results can be made at the outset. First, the overall pattern of predicted marginal probabilities are very consistent across the two countries. Second, the magnitude of the predicted marginal probabilities for Estonia tend to be larger than in Slovenia: differences in human capital and other individual attributes make a bigger difference in labor market transitions in Estonia than in Slovenia. This is consistent with the more liberal labor market policies in Estonia which allow greater differences across individuals in labor market outcomes.

The top half of the table reports the estimated difference in transition probabilities between men and women. Other factors held constant, in Slovenia, women were marginally more likely to remain employed after a year, but they were 1.6 percent less likely to remain employed in Estonia. In Slovenia, women were 1.8 percentage points more likely to leave unemployment for employment. In Estonia, women were marginally

more likely than men to enter employment from unemployment, but were much less likely to enter employment from out of the labor force. As a consequence, women gained employment share in Slovenia but lost employment share in Estonia.

A second difference between the relative transition probabilities across the two countries is that women were not more likely than men to exit the labor force in Slovenia, but were significantly more likely than men to exit the labor force in Estonia. With falling real wages, decreased day care and rising relative income support for women with children, incentives rose for women to exit the Estonia labor force. This was particularly true for the least educated who faced the largest reductions in real wages.[22] In Slovenia, maternity leave and day care did not change appreciably in transition, and so there was no disproportionate incentive for women to exit the labor force.

The pattern of transition probabilities suggests that women were less mobile across jobs in Estonia. Women who were out of the labor force In January 1994 were almost 9 percentage points more likely than men to remain out of the labor force. Unemployed women were less likely to remain unemployed, but only because they were more likely to stop searching and exit the labor force, not because they had a significant advantage in finding employment. Even the result that women were more likely to exit employment masks their relative immobility: Women were 5.5 percentage points more likely to remain in the same job during the year, but were 7.1 percent less likely to move to a different job, resulting in the net employment loss of 1.6 percentage points relative to men. Women who exited employment disproportionately left the labor force completely.[23] Even in Slovenia where transition probabilities favored women slightly, there is some evidence of relative immobility in employed job search. The slight 0.3

percentage point advantage to women in the probability of retaining employment over the year masked a 0.7 percentage point reduced probability of moving from one job to another, but a 1.0 percentage point increased probability of staying in the same job.

The rest of the table reinforces the earlier findings that more educated workers weathered the transition more easily than their less-skilled colleagues. In both countries, predicted marginal probabilities of transition out of employment fall monitonically as education level rises, while the marginal probability of exiting unemployment for employment rises monitonically. The advantage accorded university trained workers in unemployed job search are particularly large in both countries: over one-third higher probability of successfully finding employment within one year compared to the least educated groups.

The most experienced in both countries were atypically likely to leave employment by exiting the labor force and retiring. However, they did not have apparent problems in other transitions. In both Slovenia and Estonia, the most experienced were no more likely to enter unemployment than were other experience groups, and they had large, albeit imprecisely estimated, marginal probabilities of exiting unemployment for employment.

The transition results for human capital groups suggest one last result that may shed light on the unusually large relative wage gains for women attributed to the "position" effect in Table 4. Recall that the measure of a woman's standardized residual earnings is θ_{Ft}, which increases in $w_{Ft} - X_{Ft}\beta_{Mt}$. This difference will reflect a woman's human capital stock which is not captured by the earnings function but is valued in the

market. It seems plausible that if women have greater stocks of observed human capital, they might also have larger stocks of unobserved human capital. Furthermore, if low stocks of unobserved human capital led to an increased probability of exit from employment and from the labor force, as was true of measured human capital, then the average stock of unobserved human capital for women who remained in the labor force should have increased.

It is possible to test this hypothesis by observing how transition probabilities varied with pretransition wages. Holding fixed observed measures of human capital such as education, tenure and experience, individuals with higher pretransition wages should have higher levels of unmeasured human capital. This explanation works well for Estonia. Individuals with wages in the upper two-thirds of the wage distribution were 5.4 percentage points less likely to become unemployed and 2 percentage points less likely to exit the labor force. In other words, women remaining in the labor force had higher levels of both observed and unobserved human capital. In Slovenia, higher wages were associated with higher probability of switching jobs and lower probability of unemployment, which is consistent with the hypothesis of the increased human capital for women who remained in the labor force. However, high wages also led to higher probability of exit from the formal sector, presumably because the amount of pension was tied to wages. It is possible that exit from the formal sector may not have been an exit from the labor force because individuals could receive full pensions and accept work in the gray economy. Unfortunately, the institutional data from Slovenia does not permit us to examine if high wage individuals exiting the formal sector labor force in Slovenia are truly retired or working in other jobs.

VII. Conclusions

Real wages for both men and women fell in transition, but in both Slovenia and Estonia, women lost less. Consequently, average wages for women relative to men rose during the first five years of the transition to market. The gains are not attributable to reduced discrimination against women because women's employment shares were not rising systematically within individual industrial sectors. Instead, women in both countries benefited from shifts in the composition of labor demand toward more educated labor and away from the least-skilled. In addition, women were disproportionately employed in sectors that gained employment share during the transition. However, factors on the labor supply side of the market hindered women's relative employment growth from these advantageous demand shifts, and actually led to declining female employment shares in Estonia. In Slovenia, generous pension policies encouraged women to exit the formal labor market with five years less experience than men. In Estonia, women were less able than men to shift to new jobs so that, despite being less likely to lose jobs, women who did lose jobs were much more likely to remain unemployed or exit the labor force. In both countries, the composition of skills in the labor force changed as a result of these labor supply shifts. Women who remained employed had higher average education levels in both countries. In addition, evidence suggests that in Estonia, women remaining employed also had higher average levels of unmeasured skills.

It is not clear why women in both countries were less likely to switch to new jobs. If job switching also involved potential geographic mobility, men may have been more willing than women to commute. Men may have had a greater incentive to search for

new jobs because they were disproportionately in firms facing low profitability and potential layoffs. Finally, men may have received preferential treatment in competing for job openings.

This relative immobility of women will tend to decrease their early relative gains from transition as men gain a disproportionate share of the new positions in expanding sectors. Although we did not know this when we began writing this paper, women lost employment share in Slovenia in 1993, and their employment share is now below their pretransition levels. We would also expect relative wages for women to start falling in both countries if their share of the expanding sectors continues to fall.

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ENDNOTES

[1] Rutkowski (1996) examined changes in inequality in eight European transition economies, finding rising inequality in all but one.

[2] Source: Statistical Yearbooks of Slovenia and Estonia. At dollar exchange rates, Slovenia per capita GDP was around 4 times that of Estonia, but at purchasing power parity, Estonia's per capita GDP was around half that of Slovenia.

[3] It is important to emphasize that virtually all groups faced a loss of real wages during the early transition, so the relative wage gainers are groups that faced smaller loss of real wages, while the relative wage losers face even larger loss of real earnings.

[4] Firms have recently begun to be assessed unemployment insurance taxes.

[5] The unemployed must report every two weeks to their local employment office. They must interview for any jobs consistent with their qualifications. They may reject one job offer, but lose benefits if they reject a second offer. They must accept public works jobs if offered.

[6] Of course, multiple job holders who hold both gray economy and formal sector jobs will have their formal sector jobs in the SPIF records. For details on the Slovenia data set, see Orazem and Vodopivec (1995).

[7] Complete data necessary for the analysis were obtained for 77 percent of the observations. Emigration, change of address, or death were the main reasons for nonresponse. Less than 2 percent of the sample refused to participate.

[8]Sample means of the retrospective wage data matched the sample means of contemporaneously collected wage data for all five years. A comparison of the recall

data with 1989 census data on the same individuals revealed disagreements in labor force

status in only 8.6 percent of the cases. The majority of the discrepancies were

attributable to changes in how labor force participation was defined in the two surveys

and not to recall bias.

[9] We emphasize again that these relative wage gains for educated workers are due to

sharply falling real wages for the least educated relative to the more moderate real wage

reductions for the most educated. Relative wage gains do not translate into absolute

gains.

[10] For example, Bird, Schwarze and Wagner (1994) argued that returns to experience fell

in East Germany during transition. However, cross-sectional data can yield misleading

inference about returns to experience. If returns to experience rise rapidly but at a

diminishing rate, relative earnings for the youngest cohorts will rise rapidly. Thus, in

Estonia, Noorkoiv et al. (1997) found that returns to experience estimated with

longitudinal data were much higher than estimates based on a cross section of earnings

for different age groups.

[11] For example, this is computed as $\exp(.715) / \exp(.319) - 1$ for men, where the

coefficients on 4-year university and secondary dummy variables are inserted into the

parentheses.

[12] It is interesting that the differences in returns to experience between women and men

are either small and insignificantly different from zero, or else are actually larger for

women. In western economies, estimated returns to experience are typically larger for

men than for women. The difference between men and women in the west are usually

attributable to differences in planned years of labor force attachment between men and women, but men and women had virtually identical labor force attachments in socialist economies.

[13] Blau and Khan reported relative wages for women in eight western economies in the late 1980s. They ranged from .62 (Switzerland) to .77 (Sweden), well below the level in Slovenia. The ratio was .68 in Russia [Silverman and Yanowitch, 1997]; and .71 in Poland and .68 in Czechoslovakia [Rutkowski, 1996]; at the time of transition. We have no definitive explanation why women were paid so well relative to men in Slovenia. There is some evidence that women in Slovenia were atypically represented in managerial and supervising positions. For example, Kramberger (1989) reports that in 1986, about 190,000 of the total of 345,000 managerial and supervising jobs in Slovenia were held by women, but does not explain the underlying mechanism that led to this distribution of jobs.

[14] The F-statistics for the joint tests of the null hypothesis that the education, experience, and ethnicity coefficients were equal across the male and female earnings functions fell from 8.2 to 3.2 in Slovenia and from 2.18 to 2.00 in Estonia. In neither country can we reject the null hypothesis of equal valuation of these human capital attributes at the 5 percent level of significance.

[15] Note that at sample means, this equals $(\theta_{Ft} - \theta_{Ft'})\sigma_{Mt'}$ since $\theta_{Mt'} = \theta_{Mt} = 0$ at male sample means.

[16] Blau and Kahn (1994) labeled the third term "Gap", and the fourth term "Unobserved Prices".

[17] This decomposition evaluates the change in earnings structure using end-of-period parameters $\beta_{M'}$ and $\sigma_{M'}$. We could also use start of period parameters so that

$$d_{t'} - d_t = [(X_{M'} - X_{Mt}) - (X_{Ft'} - X_{Ft})]\beta_{Mt} + (X_{M'} - X_{Ft'})(\beta_{M'} - \beta_{Mt})$$

$$+ [(\theta_{M'} - \theta_{Ft'}) - (\theta_{Mt} - \theta_{Ft})]\sigma_{Mt} + (\theta_{M'} - \theta_{Ft'})(\sigma_{M'} - \sigma_{Mt}).$$

The qualitative results were not sensitive to the choice of base period parameters.

[18] Katz and Murphy (1992) and Blau and Kahn (1994) argued that demand shifts favoring women were most likely responsible for the increasing position of women in the male earnings distribution.

[19] Orazem and Vodopivec (1995) argued that rising relative returns to human capital occurred in transition economies because transition disabled centrally dictated wages that tended to create cross-subsidies toward the least-skilled and away from the most-skilled. In addition, the process of transition itself raised the need for managerial talent to adapt to rapidly changing economic conditions. Schultz (1975) argued that managerial talents were correlated with observable human capital.

[20] The separation rate in Slovenia from 1990-1996 averaged 18.2 percent, which overstates the separation rate in the early transition when bankruptcies were not allowed and strong restrictions on layoffs were in place. In comparison, the separation rate was 22.6 percent in Estonia over the 1989-1994 period.

[21] These are summary results from multinomial regressions which will be available from the authors on request.

[22] In a personal interview, an official in the Estonian Unemployment Office told us that, "in my neighborhood, only the women with university degrees are working. I asked my neighbors why they are not working and they said the wages are too low. They would rather stay at home with their kids."

[23] Narusk (1996), classifying Estonian families to "losers" (the vast majority of families fell into this category) and "winners", concluded that women from "loser" families "have often taken long maternity leaves -- the possibility that came with the new legislation in the 1990s -- and their return to work often seemed complicated." (p. 24)

Table 1: Comparison of Economic Policies in Transition: Estonia and Slovenia

	Estonia	Slovenia
Policy	Change relative to pretransition	Change relative to pretransition
Employment protection legislation	Job security removed Liberal dismissal policies No job preservation subsidies	Job security removed Dismissal policies restrictive Sizable subsidies to preserve jobs
Unemployment benefits	Duration of 6 months, expandable to 9 months in limited cases Replacement rate = 10%	Maximum duration of 24 months Replacement rate = 70%
Wage policies	Low minimum wage Low tax wedge	High minimum wage High tax wedge
Collective agreements on wages	8% of workers were covered by collective agreements	All workers covered by collective agreements
Privatization	Individual sale methods--effects on corporate governance already noticeable	Mixed method--effects on corporate governance have been small
Foreign trade	No tariffs or quotas on imports	Up to 28 percent tariff rates
Direct foreign investment 1989-96	Cumulative inflow per capita: $459	Cumulative inflow per capita: $366
Maternity leave	Increased from 1.5 years to 3 years plus 10 weeks pregnancy leave	Remained at 1 year
Public childcare	Prices of childcare increased; number of establishments decreased by 14%	Number of establishments increased by 1%
Income support	Up to 4 year extension of unemployment benefits for women with children under 6 years of age	No change

Table 2: Baseline Log Earnings Functions and Changes in Returns to Skill in the First Five Years of Transition, Slovenia and Estonia

| | Slovenia | | | | | | Estonia | | | | | |
| | Male | | Female | | Female-Male Difference | | Male | | Female | | Female-Male Difference | |
	Baseline[a] 1987	Change[b] '87 to '92	Baseline[a] 1987	Change[b] '87 to '92	1987[d]	1992[d]	Baseline[a] 1989	Change[b] '89 to '94	Baseline[a] 1989	Change[b] '89 to '94	1989[d]	1994[d]
Education (excluded: primary education)												
Elementary	.044	.063	.079	.033	.035	.005	.096	.101	-.017	.112	-.113	-.049
	(5.3)[a]	(3.64)	(10.1)	(1.87)	(3.09)	(.19)	(1.68)	(1.31)	(.31)	(1.49)	(1.43)	(.44)
Vocational	.163	.038	.164	.018	.001	-.018						
	(23.5)	(2.58)	(19.9)	(.98)	(.11)	(.77)						
Secondary	.319	.087	.370	.095	.051	.059	.123	.145	.075	.187	-.048	.052
	(40.0)	(5.22)	(44.9)	(5.16)	(4.43)	(2.36)	(2.21)	(2.09)	(1.44)	(2.84)	(.63)	(.48)
Special Secondary							.168	.227	.094	.307	-.074	.063
							(2.86)	(3.05)	(1.78)	(4.55)	(.94)	(.58)
University (2 years)	.520	.156	.569	.116	.048	.008						
	(43.3)	(6.28)	(50.9)	(4.80)	(2.93)	(.23)						
University (4 years)	.715	.228	.768	.171	.054	-.004	.208	.487	.254	.502	.046	.119
	(61.8)	(9.75)	(59.3)	(6.26)	(3.08)	(.10)	(3.39)	(6.28)	(4.46)	(7.08)	(.55)	(1.06)
Experience												
Experience	.019	-.001	.019	-.008	-.000	-.007	.131	-.085	.182	-.139	.051	.003
	(22.2)	(.57)	(19.6)	(3.60)	(.06)	(2.44)	(4.75)	(2.24)	(7.04)	(3.92)	(1.35)	(.07)
Experience²/100	.027	.007	-.019	.032	.007	.032	-.024	.007	-.029	.017	-.005	.004
	(11.3)	(1.35)	(6.55)	(4.31)	(1.98)	(3.27)	(4.80)	(1.02)	(6.21)	(2.59)	(.79)	(.63)
Ethnicity												
NonSlovene	.023	-.020	-.004	-.014	-.028	-.022	-.029	-.079	-.083	-.078	-.055	-.051
or Non Estonian	(3.41)	(1.43)	(.55)	(.89)	(2.71)	(1.05)	(1.07)	(2.08)	(3.56)	(2.34)	(1.54)	(1.42)
R²	.43	.34[c]	.46	.31[c]			.04	.16[c]	.08	.19[c]		

[a]T-statistics are in parentheses. Sample sizes: Slovenia - 1987: 15,884 men and 14,590 women. 1992: 10,882 men and 10,376 women. Estonia - 1989: 3,118 men and 3,290 women. 1994: 2,987 men and 2,822 women. Regressions also included industry dummy variables.

[b]Measures of $\beta_{it} - \beta_{it'}$, using the difference between regression coefficients in 1992 and 1987 (Slovenia) or 1989 and 1994 (Estonia). T-statistics represent tests of the null hypothesis of no change in marginal returns over time.

[c]The R² from the log earnings function estimated in 1992 (Slovenia) and 1994)Estonia).

[d]Measures of $\beta_{Ft} - \beta_{Mt}$. T-statistics represent tests of the null hypothesis of no difference in marginal returns between the sexes.

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Table 3: Pre- and Post-transition Educational Distributions of Men and Women in the Labor Market, Slovenia and Estonia

	Slovenia				Estonia			
	Male		Female		Male		Female	
	1987	1992	1987	1992	1989	1994	1989	1994
< Elementary	.21	.17	.17	.12	.08	.04	.09	.02
Elementary	.16	.16	.23	.22	.29	.15	.26	.10
Vocational	.35	.35	.25	.23				
Secondary	**.17**	**.19**	**.22**	**.28**	.34	.45	.30	.39
Special Secondary					**.16**	.20	**.22**	.29
University (2 year)	**.05**	**.05**	**.08**	**.09**				
University (4 year)	**.06**	**.07**	**.05**	**.06**	**.12**	.16	**.14**	.20

Columns may not sum to 1.0 due to rounding. Numbers in bold represent education groups gaining the most in relative earnings in each country.

Table 4.
A. Wage Distributions and Relative Wage Positions

	Slovenia		Estonia	
	1987	1991	1989	1994
σ_M	.30	.49	.43	.49
σ_F	.29	.51	.41	.39
θ_M	0	0	0	0
θ_F	-.50	-.30	-.85	-.55
Position	.31	.38	.20	.29

B. Decomposition of the Changes in Women's Relative Log Wages: Slovenia and Estonia

	Slovenia	Estonia
	1987-1991	1989-1993
1. Observed X's[a]	-.012	.020
2. Observed Prices[b]	-.014	-.060
3. Position[c]	-.100	-.146
4. Inequality[d]	.097	.046
Total Change	**-.03**	**-.140**
Explained changes (1+2)	-.026	-.040
Unexplained changes (3+4)	-.003	-.100

Note: Estimates are based on a fully specified wage equation, including sector dummy variables. Negative numbers indicate factors that increase women's pay in comparison with men's pay.

[a]How the wage gap changed in response to changes in characteristics between men and women.

[b]How changes in the returns to characteristics affected the wage gap.

[c]How the change in women's relative position in the male residual earnings distribution affected the wage gap.

[d]How increases in the standard deviation of the residual earnings distribution affected the wage gap.

Source: Authors' calculations.

Table 5: Change in Employment by Gender, Industry, and Experience: Slovenia and Estonia

	Slovenia				Estonia			
	Female	Employment Growth[b]		Relative	Female	Employment Growth[e]		Relative
Industry	Share[a]	Female	Male	Growth[c]	Share[d]	Female	Male	Growth[e]
Manufacturing	.44	.79	.81	.98	.49	.74	.79	.94
Agriculture	.33	.90	.81	1.12	.35	.48	.57	.84
Construction	.12	.82	.82	1.00	.19	.67	.93	.72
Utilities[f]	.18	.72	.79	.91	.32	1.06	1.10	.96
Trade	.63	.89	.93	.96	.75	1.16	2.80	.41
Nonfinancial Service	.36	.78	.79	.99	.75	1.04	1.43	.73
Financial Service[g]	.58	1.01	.98	1.03	.58	1.01	1.38	.73
Public Service	.72	.91	.91	1.00	.76	1.10 .	1.24	.89
Experience Group								
0-9 years	.49	.78	.80	.98	.46	.99	1.00	.99
10-19 years	.49	.92	.87	1.06	.50	.85	.96	.89
20-24 years	.45	1.07	.88	1.22	.54	.89	.89	1.00
25-29 years	.48	.78	1.00	.78	.56	.94	1.01	.93
30-34 years	.38	.58	.72	.81	.51	.87	.79	1.10
35+ years	.14	.31	.33	.94	.51	.74	1.03	.72
Total	.47	.86	.83	1.04	.51	.88	.96	.92

[a]Female share of jobs in the sector, 1987.
[b]1992 employment relative to 1987 employment.
[c]Female employment growth relative to male employment growth.
[d]Female share of jobs in the sector, 1989.
[e]1994 employment relative to 1989 employment.
[f]Includes communication, energy, and transportation.
[g]For Slovenia, employment growth is through January 1991.

Table 6. January to January Marginal Transition Probabilities Based on Multinomial Logit Estimates, Slovenia and Estonia[a]

A. Change in Transition Probability for a Female Relative to an Otherwise Identical Male.

	Slovenia[b] 1991 State			Estonia[b] 1994 State		
1992 State	E	U	1995 State	E	U	O
E	0.3*	1.8	E	-1.6*	0.3	-7.9*
U	-0.1*	-1.8[c]	U	-2.9*	-4.9	-0.9*
O	-0.2		O	4.5*	4.5	8.8

B. Marginal Transition Probabilities for Education and Experience Groups.

	Slovenia[b]			Estonia[b]		
Education (base = < Elementary)	E to U	E to O	U to E	E to U	E to O	U to E
Elementary	-1.5*	0.4	4.5	-6.7*	-0.3	1.9
Vocational	-2.2*	-0.5	16.5*			
Secondary	-2.6*	-0.9	19.1*	-6.8*	-1.6	5.3
Special Secondary				-7.1*	-1.8	11.7
University	-4.2*	-2.1*	34.6*	-10.6*	-2.7	33.8*
Experience (base = 3-5 years of experience)						
< 3 years	2.7*	1.2*	2.2	0.1	-0.6	12.7
5-10	-1.0	-1.2*	0.7	-3.8	-0.8	17.6
10-20	-0.8	-1.2*	-0.3	-0.6	1.4	-1.4
20+[c]	-1.0	1.4*	5.6	1.1	10.2*	16.0

E: Employed.   U: Unemployed.   O: 'other' in Slovenia; 'out of labor force' in Estonia.

[a]The sample is based on labor force status on January 1, 1991 for Slovenia and January 1, 1994 for Estonia. The analysis also included controls for age, tenure, fixed-term contract status, and ethnicity.

[b]* represents estimated marginal probabilities associated with a coefficient that is significantly different from zero at the .10 significance level.

[c]In Slovenia, because the information comes from institutional data we could not distinguish if workers who left employment office registers would be classified as unemployed or out of the labor force.

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