
The Gender Implications of Public Sector Downsizing: The Reform Program of Vietnam

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Using data from Vietnam, this article describes several types of analysis that could be conducted before launching a major downsizing operation to identify possible gender effects. It draws several conclusions about Vietnam's downsizing reforms. First, although women's prospects of obtaining salaried jobs following displacement from state-owned enterprise worsened as a result of recent reforms, they are likely to improve in the near future. Second, reforms are associated with a sharp decline in the gender gap in earnings, both in and outside the state sector. Third, overstaffing is greatest in sectors in which most employees are men, such as construction, mining, and transportation; it is much less prevalent in sectors in which women dominate the work force, such as footwear, textiles, and garments. Fourth, training and assistance programs currently in place to help redundant workers reveal no evidence of strong gender bias. Fifth, severance packages based on a multiple of earnings are more favorable to men, whereas lump-sum packages favor women.

A comprehensive economic reform program is likely to affect men and women differently. Some of the effects may be indirect. Moving from central planning to a market economy may change the labor market payoffs to education, for example, which could affect men and women differently given different levels of educational attainment. Trade liberalization may change the composition of labor demand and hence the gender structure of employment.

Other effects are much more direct, especially when the reform program includes massive public sector downsizing. The burden of job separations may not be borne evenly by male and female workers. The welfare impact of these separations could also differ by gender.

It is increasingly accepted that policymaking has to pay attention to social impacts, including those on gender. The conceptual framework and the information

needed to predict the gender impact of reform programs in general and public sector downsizing in particular are often lacking, however.

Gender issues have been the focus of much research in industrial countries. Much less is known about gender issues in developing and transition economies. At the risk of simplifying, the scant literature on the gender implications of economic reforms, especially of public sector downsizing, can be summarized by four hypotheses. Empirical support for each of these hypotheses varies, but in no case is it strong.

The first hypothesis suggests that reforms aimed at shifting the economy from central planning and self-reliance to market orientation and exposure to international markets should improve women's prospects for salaried employment. Women should benefit because capital-intensive heavy industries are more likely to employ men, whereas labor-intensive light industries are more likely to employ women. Heavy industries are favored by state-led development strategies as symbols of national pride and self-reliance. Capital-intensive industries are also promoted by import-substitution policies, which shift the allocation of resources away from a developing economy's comparative advantage, namely, unskilled labor. In contrast, export-oriented growth relies on light, labor-intensive industries. Support for the hypothesis that economic reforms are associated with a feminization of employment is provided mainly by the East and South Asian experiences (World Bank 2001).

The second hypothesis posits that economic reforms may affect the gender gap in labor earnings, although the sign of this effect is ambiguous a priori. A frequent outcome of the transition to a more market-oriented economy has been the decompression of labor earnings in general and wages in particular. This decompression results from increases in the market returns to various skills and productivity characteristics. If women have less education than men, the gender gap in labor earnings could increase. This phenomenon has been observed in the Russian Federation and Ukraine (Rodgers 1999). But economic reforms also reduce the scope for employers to discriminate against women. Faced with increased competition, employers have a stronger incentive to hire lower-priced female labor, which should reduce the gender gap in earnings. The experience of Mexico during a recent period of trade liberalization is consistent with this hypothesis (Artecona and Cunningham 2001).

The third hypothesis is that women may suffer a larger drop in total compensation as a result of downsizing. The gender gap in labor earnings tends to be smaller in the public sector, implying a larger loss (in relative terms) for displaced female workers. The gender gap in private-sector earnings has been documented by several studies of developing economies (Psacharopoulos and Tzannatos 1992; Appleton and others 1999). Other studies have tried to estimate the drop in earnings of men and women following public sector downsizing (Mason 1997; Rama 1999). Downsizing of the public sector may also hurt women more than men because the public sector usually offers benefits that are highly valued by women, such as maternity leave, more flexible working hours, and child care facilities. These benefits are less

common in the private sector. They are generally not offered in the informal sector, where many displaced workers end up. The loss in total compensation experienced by women is thus potentially larger than the more easily measurable loss in earnings.

The fourth hypothesis suggests that women are more likely than men to withdraw from the labor force after downsizing. Women's earnings fall markedly, and many displaced women have no earnings at all. However, labor force withdrawal is sometimes voluntary. A tracer study of displaced Central Bank employees in Ecuador found that the earnings loss was significantly larger for women than for men (Rama and MacIsaac 1999). The study also included questions on subjective well-being, taking into account the compensation received, the increase in leisure time associated with withdrawal from the labor force, and other adjustments in the life of the household following job separation. Taking these factors into account, the net change in well-being was not significantly different for men and women.

Although these hypotheses provide interesting insights on the expected gender impacts of economic reforms, especially of public sector downsizing, they are not detailed enough to inform economic policy in a particular country at a particular time. Depending on the magnitude of the gender impact on employment, earnings, and well-being, special policy measures may be needed, such as programs targeting women who lose jobs as a result of downsizing. Policy adjustments may also need to be made to aspects of the economic reform program that appear to be gender-neutral but actually have different impacts on men and women.

This article describes some of the types of analysis that could be conducted before launching a public sector downsizing program to assess gender impact. These analyses seek to predict how trends in salaried employment by gender will be affected by the reform program, quantify the potential changes in the gender gap in labor earnings, evaluate job losses by gender, and assess whether programs to assist and compensate redundant workers affect the well-being of men and women differently. Some of these analyses rely on little more than educated conjectures; others require rigorous quantitative work. Despite their weaknesses, they may provide a useful picture of the effects of public sector downsizing.

When the article was written, the Vietnamese government was about to launch a massive reform program that will involve the liquidation, divestiture, or restructure of up to 5,740 state-owned enterprises over a decade. About 1.68 million workers (roughly 5 percent of the labor force) worked in state-owned enterprises, and about 450,000 of them were expected to lose their jobs (Belser and Rama 2001); many others were expected to take early retirement. The research for this article was originally conducted as input for this reform program, which could in principle have disproportionately affected women.

The specific findings reported herein may not hold in other countries, where public sector downsizing could have different gender implications. The article should be viewed as a template with which policymakers can assess gender implications before

introducing a policy. Household- and enterprise-level data similar to those used here are widely available in other developing and transition economies. The use of this template could thus be generalized, even if its specific results should not be.

The article can also be seen as an illustration of a broader trend toward the ex ante evaluation of economic programs or policies. Most evaluations are implemented after a program or policy has been in effect for a while, using tracer surveys of affected households or enterprises. Although ex post evaluations are potentially more accurate, evaluating a program after it is in place often means that major mistakes or biases are corrected only several years down the road, if at all. A natural complement to ex post evaluations is the ex ante simulation, using microeconomic data, of the potential impact of the programs or policies under consideration.

Impact of Reform on Salaried Employment

The effects of previous reforms in Vietnam should shed light on the possible effects of its current reform program. In 1986 the Sixth National Congress of the Communist Party adopted the Doi Moi, or renovation process. Since then several reform policies have been implemented and the country has been moving steadily from a centrally planned to a market-oriented economy.

In 1991 the pace of reform was dramatically accelerated by the disintegration of the Soviet Union, which entailed the loss of Vietnam's main trading partner and aid provider. The result was a collapse in economic growth and high inflation, which peaked at about 450 percent a year. Confronted with this situation, the government launched a massive restructuring of loss-making state-owned enterprises, leading to the displacement of about a third of the public enterprise work force.

Studies of the condition of women in Vietnam can help analyze the gender impact of these reforms (see the overview by Long and others 2000 and the comprehensive bibliography by Pham 2000). Those studies do not always allow the effects of economic reforms to be disentangled from those of other, more permanent factors affecting gender relations. Even so, they prove interesting when combined with data on employment from the 1992–93 and 1997–98 rounds of the Vietnam Living Standards Survey.

A striking fact that emerges from the Vietnam Living Standards Survey data is the slow growth of salaried employment among women relative to men. This fact is at odds with the first hypothesis about the gender implications of economic reforms, according to which women should face better employment prospects than men do. This employment pattern is not due to a decline in female participation rates, as observed in many countries in Eastern Europe and the former Soviet Union. Labor force participation rates are very high for women in Vietnam, and they increased during the 1990s (table 1). At the end of the decade, the percentage of women of working age who were employed was almost the same as the percent-

Table 1. Economic Activities of Working-Age Population in Vietnam, by Gender, 1992–93 and 1997–98
(percent)

Status	1992–93			1997–98		
	Female	Male	Total	Female	Male	Total
Active	83.86	87.85	85.74	85.44	86.92	86.14
Employed	80.91	84.49	82.59	83.73	84.79	84.23
Unemployed	2.95	3.37	3.15	1.71	2.13	1.91
Not active	16.14	12.15	14.26	14.56	13.08	13.86
Attending school	2.12	3.71	2.87	6.27	8.58	7.37
Housekeeping	3.97	0.22	2.20	3.71	0.23	2.05
Other	10.06	8.21	9.19	4.58	4.28	4.43

Note: Working-age population includes everyone between ages of 15 and 64.
Source: Bales (2000).

age of men. Moreover, women were less likely than men to be unemployed. Still, the number of women in wage employment expanded at a much slower pace than the number of men, growing 10.1 percent between 1992–93 and 1997–98, compared to 25.6 percent for men.

A natural candidate to explain this trend is the massive downsizing program of the early 1990s. The total number of employees in the state sector was reduced from 3.86 million in 1985 (about 15 percent of the labor force) to 2.92 million in 1992 (9 percent). Because public sector jobs account for a larger share of wage employment among women than among men, even a gender-neutral downsizing would lead to a larger drop in wage employment (in relative terms) for women than for men. This downsizing was not gender-neutral: about 70 percent of the displaced workers were female. In 1990–91 alone some 553,000 female workers at state-owned enterprises, representing 19.7 percent of all female wage employment in 1992–93, were laid off (Beresford 1994).

Over time, however, downsizing in Vietnam is likely to improve women's prospects of obtaining salaried employment. In 1998 state-owned enterprises represented 46.2 percent of industrial GDP but just 24.2 percent of industrial employment. In contrast, private manufacturing firms were clearly labor-intensive and export-oriented (Belser 2000). Vietnam's economic reform program should lead to a gradual contraction of the public sector and a rapid expansion of the private manufacturing sector. Belser estimates that given Vietnam's endowment of natural and human resources, manufacturing exports could triple over a five-year period, generating on average about 300,000 direct jobs a year. Jobs in exporting firms often come with the benefits associated with participation in the formal sector of the economy.

A majority of the jobs to be created as a result of the reform program could be held by women. A survey of 1,294 enterprises carried out by the Ministry of Labor, Inva-

lids and Social Affairs (1998) provides valuable insights in this respect. The sample included 408 state-owned enterprises, 761 private firms, and 125 enterprises with foreign investment capital. The sample was not intended to be representative, and all of the enterprises in it were presumably formal. An interesting finding of this survey is that the highest proportion of female workers is found in private firms (55.6 percent), followed by enterprises with foreign investment capital (48.8 percent). The lowest proportion of women, 39.7 percent, is found in state-owned enterprises. This ranking is observed despite a government policy that encourages state-owned enterprises to employ as many female workers as possible (International Labour Office [ILO] 1998). If the ranking holds over time, an expansion of private firms and enterprises with foreign investment capital and a contraction of the state sector should lead to better employment opportunities for women.

Impact on Labor Earnings

Mincerian equations, or earnings functions, are useful tools with which to assess the impact of economic reforms on the gender gap in labor earnings. These functions, usually estimated using individual records from household surveys, link (the log of) labor earnings to individual characteristics, such as educational attainment, work experience, or region of residence. Earnings functions can be estimated separately for men and women, decomposing the gender gap into two effects: differences in endowments (for example, educational attainment) and differences in the returns to those endowments. An intuitively simpler way to assess the gender gap is to estimate the earnings function by pooling workers of both sexes but including a gender dummy among the explanatory variables. The coefficient multiplying this variable indicates whether two workers of different genders with the same average educational attainment, experience, and so forth have different earnings.

Coefficients of these simple earnings functions were estimated at two points during the reform process, using individual records for salaried workers of both genders obtained from the 1992–93 and 1997–98 rounds of the Vietnam Living Standards Survey (table 2). Many factors may have changed between these two periods. Differences in the skill composition of the labor force, the terms of trade faced by the country, the world interest rate, or even weather conditions could account for some of the change in the coefficients. But the effects of these exogenous differences are probably dwarfed by those of the economic reforms launched under the Doi Moi.

The earnings functions reported in table 2 do not correct for potential self-selection biases. Women who hold salaried jobs could be different in some systematic way from other women. They could, for example, be more talented. More talented workers are also likely to have higher educational attainment. Earnings functions could attribute to educational attainment what is in reality due to talent, thus biasing upward the

Table 2. Determinants of Wage Earnings in Vietnam, 1992–93 and 1997–98

Explanatory variable	Dependent variable: Log of total earnings in main occupation			
	1992–93		1997–98	
	State-owned enterprises	Private firms	State-owned enterprises	Private firms
Female (yes = 1)	-0.3399*** (-5.222)	-0.4919*** (-10.329)	-0.2047*** (-4.810)	-.3025*** (-8.096)
Education (in years)	0.0272*** (2.737)	0.0234*** (2.755)	0.0363*** (3.575)	0.0398*** (6.031)
Work experience (in years)	0.0017 (0.146)	0.0229*** (2.846)	0.0001 (0.387)	0.0175*** (3.097)
Work experience squared	0.0003 (0.922)	-0.0005*** (-3.498)	0.0001 (0.387)	-.0005*** (-4.976)
Married (yes = 1)	0.0938 (0.962)	-0.0955 (1.257)	0.1847*** (3.196)	0.0990** (2.135)
Household head (yes = 1)	-0.0320 (-0.419)	0.0548 (0.843)	0.0474 (0.777)	-0.0043 (-0.093)
Ethnic and religion dummies	Yes	Yes	Yes	Yes
Urban dummies	Yes	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes	Yes
Community characteristics	Yes	Yes	Yes	Yes
R ²	0.376	0.217	0.370	0.284
F-test	330.76	14.90	20.57	17.53
Number of observations	340	1342	566	1921

*Significant at the 10 percent level.

**Significant at the 5 percent level.

***Significant at the 1 percent level.

Note: Values in parentheses are t-statistics.

Source: Author's calculations based on individual records of wage earners in the Vietnam Living Standards Surveys.

corresponding coefficient. And the coefficients on other individual characteristics could be biased as well. If the self-selection bias is stable over time, however, the comparison between the coefficients obtained for 1992–93 and 1997–98 should still be informative regarding the changes caused by economic reforms.

Moreover, careful analysis of the data reveals no evidence of self-selection bias. The econometric techniques used to assess this bias rely on assumptions about the self-selection mechanism at work. They are likely to be effective only if one or several variables exist that affect the selection into salaried work but not labor earnings. Some household characteristics could play this role. For instance, having children to care for might affect the decision to work (either for a salary or independently), but it should not affect the earnings of those who do work. Re-estimating the 1992–93 and 1997–98 earnings functions using the Heckman selectivity correction with the number of

children as an additional explanatory variable does not produce results that differ much from those reported in table 2.

According to the second hypothesis emerging from the literature, an increase in the returns to education should be expected. In Vietnam this increase is observable in both state-owned enterprises and the private sector, as shown by the coefficients multiplying the education variable in table 2. Although returns to education appear to be substantially lower than in other countries, they almost doubled over a five-year period. In the private sector the contribution of each additional year of education to earnings increased from 2.34 percent to 3.98 percent between 1992–93 and 1997–98. Because women have lower levels of education than men, this decompression of earnings must have reduced their earnings relative to men. This effect is probably small, however, because the difference in average levels of education between men and women is only about one year. The earnings decompression could then be associated with an increase in the earnings gender gap of less than two percentage points.

In contrast, the 1990s witnessed a substantial decline in the gap in earnings between men and women, as measured by the coefficient multiplying the gender dummy variable. As expected, the gender gap in earnings is larger in the private sector than it is in the public sector (table 2). But the gap declined dramatically in both sectors. Other things equal, in 1992–93 female workers in the private sector earned 38.9 percent less ($[\exp(-0.4919)-1] * 100$) than male workers. By 1997–98 the gap had shrank to 26.1 percent ($[\exp(-0.3025)-1] * 100$). The trend is similar in state-owned enterprises, with the gap falling from 28.8 to 18.5 percent. This second effect more than offsets the effect of increased returns to education. The reforms launched under the Doi Moi have thus reduced the gender gap in earnings, a trend that can be expected to continue with the new wave of reforms.

The comparisons in table 2 refer to wage earners only, as data on the earnings of the self-employed were not available. Few of the women who lost their jobs in state-owned enterprises are likely to have found salaried jobs, and many ended up doing unpaid work. The figures in table 3 were constructed by Rodgers (1999), using data from the 1992–93 round of the Vietnam Living Standards Survey. That survey contains detailed information on employment at the time of the survey, over the previous 12 months, and 12 to 24 months before the survey. Many workers at state-owned enterprises lost their jobs before the survey was administered; the recall questions on employment history, however, cover at least some of the retrenchment period.

During the first 12 months after a job change, many more women than men withdrew from the labor force (table 3). To a large extent, this withdrawal appears to be voluntary, as unemployment rates are low for all groups. Only 1.3 percent of the women who left jobs in the public sector reported having sought work subsequently. At first glance, this result is consistent with the fourth hypothesis on the gender impact of economic reforms in developing economies. It is possible that displaced women

Table 3. Activity Following Public Sector Retrenchment in Vietnam, 1991
(percent)

Previous job	Gender	Activity at time of survey			
		Unpaid work	Paid work	Seeking work	Out of labor force
<i>Up to 12 months after job switch</i>					
In public sector	Female	47.5	8.8	1.3	42.5
	Male	52.8	11.3	0.0	35.8
In other sector	Female	21.5	10.4	2.4	65.7
	Male	23.1	27.5	3.4	46.0
<i>More than 12 months after job switch</i>					
In public sector	Female	74.0	14.3	1.3	10.4
	Male	70.0	22.4	0.4	7.2
In other sector	Female	71.3	18.1	0.3	10.3
	Male	63.9	27.3	0.7	8.1

Source: Adapted from Rodgers (1999).

took the opportunity to spend more time with their families, supporting household consumption with the separation package they received. This is just a conjecture, however; the Vietnam Living Standards Survey does not include enough information with which to support or reject it.

Whatever the reason for the labor force withdrawal, it was temporary. After 12 months, the levels of men and women out of the labor force declined substantially, returning to the shares observed for the population at large (table 1). Based on the experience of the early 1990s, it is thus unlikely that the latest downsizing reforms will have a lasting effect on the labor force participation rate of women.

The decline in the share of workers out of the labor force observed after 12 months is largely associated with an increase in unpaid work (table 2). Unpaid work is the main activity of most of those who changed jobs, whether the jobs they left were in the public sector or not. The share of unpaid work is roughly twice as large 12 months after a job change than within the first 12 months. Paid work remains more prevalent among men than among women, even after 12 months, regardless of whether the previous job was in the public sector.

Impact of Reform on Job Losses

Vietnam's public sector downsizing in the early 1990s disproportionately affected women. Will this be the case in the early twenty-first century? According to Hyun and others (2000), the gender division of labor in these industries would remain largely unchanged if they were privatized. There are some grounds to share this con-

clusion. Individual records from a sample from the 1997–98 round of the Vietnam Living Standards Survey show that the average characteristics of men and women employed in state-owned enterprises are similar (table 4). The sample contains 451 people whose main source of employment was a state-owned enterprise. Although the sample was not drawn proportionally, there is no reason to believe that its sampling fractions were correlated with the individual characteristics of workers at state-owned enterprise. Therefore, the figures reported in table 4 are nonweighted averages across those 451 people.

Female workers differ from male workers at state-owned enterprise workers in two main respects. First, and not surprisingly, women earn less than men. The annual basic salary is more than 1 million dong (US\$67) lower for women than for men. When bonuses, allowances, and payments in kind are taken into account, the gap climbs to roughly 2 million dong (\$133). It widens by an extra half-million dong (\$33) when extra earnings in secondary and tertiary occupations are considered as well. Given the similarity of average age, education, and seniority, this difference confirms the existence of a gender gap in labor earnings, as suggested by the regressions in table 2. Second, men are more likely than women to be married.

These two differences could have opposite effects on the probability of being declared redundant. Other things equal, female workers are less expensive than male workers. From a purely economic perspective, it could therefore be in the enterprise's interest to cut male employment first. The interest could even be stronger for the new private owners, who might be more profit-oriented than public-sector managers. Alternatively, males workers may be less likely to be laid off because employers, recognizing that men are more likely than women to have dependents, may be more reluctant to fire them; from a social perspective state-owned enter-

Table 4. Characteristics of Workers in State-Owned Enterprises in Vietnam, 1997–98

Variable	Female	Male	All
Age (years)	35.0	37.0	36.0
Married (percent)	58.5	71.7	66.1
Household size	5.3	5.1	5.2
Education (years)	11.0	11.2	11.1
Vocational training (years)	0.7	0.8	0.8
Seniority in state-owned enterprise (years)	10.7	9.5	10.0
Basic annual salary in state-owned enterprise (thousands of dongs)	7,311	8,652	8,078
Total annual earnings in state-owned enterprise (thousands of dongs)	8,544	10,456	9,638
Total annual earnings in all jobs (thousands of dongs)	10,000	12,568	11,469
Percentage of total of workers	42.8	57.2	100.0

Note: Refers to workers whose main occupation was in a state-owned enterprise at the time of the 1997–98 Vietnam Living Standards Survey. Earnings figures are adjusted to December 1999 prices.

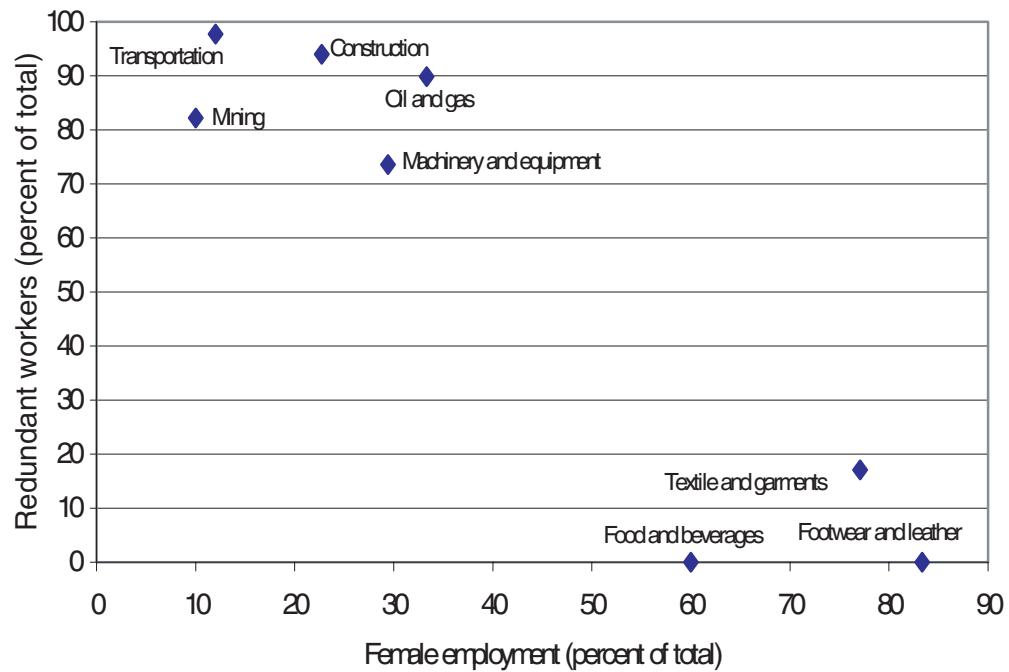
Source: Author's calculations based on the 1997–98 Vietnam Living Standards Survey.

prises (and even the new private owners) may therefore prefer to lay off women first. It is difficult to tell a priori whether the economic or the social considerations will dominate.

It is not possible to analyze the link between labor redundancy and gender at a disaggregated level, unfortunately, because there are no matched data for enterprises and individuals in Vietnam. In particular, none of the enterprise databases provides a breakdown of employment by gender. However, data for enterprises and individuals can be matched at the sector level. The female share of employment by sector of activity is estimated based on the 451 people in the 1997–98 round of the Vietnam Living Standards Survey whose main employer was a state-owned enterprise. The source of the data is thus the same as in table 4. The female share of employment was in turn matched to sectoral indicators of labor redundancy, estimated using enterprise-level data.

Figure 1 plots the female share of employment in state-owned enterprises against the fraction of workers who are potentially redundant, by sector of activity. The fraction of potentially redundant workers was estimated by Belser and Rama (2001), comparing employment levels across enterprises with different degrees of state ownership. Belser and Rama control for sector of activity, region, and the age of the enter-

Figure 1. Female Employment and Labor Redundancy in Vietnam, by Sector



Source: Author's calculations based on Downsizing Options Simulation Exercise (DOSE) for Vietnam and Belser and Rama (2001).

prise, among other variables. They then measure the drop in employment that would occur if all state-owned enterprises were to operate as privately owned enterprises. The calculation rests on a forecast of the employment level of each enterprise if the state's share of its capital were to fall to zero. This forecast is compared to the observed employment level. In practice, the number of job separations will be smaller than suggested by this comparison, as some enterprises are bound to remain (at least partially) in state hands, others will be divested or restructured only gradually, and some labor redundancies will be handled through natural attrition. Still, the indicator in the vertical axis of figure 1 should be highly correlated with the (smaller) fraction of workers who could be declared redundant.

Overstaffing is not prevalent in sectors in which female employment is dominant (figure 1). State-owned enterprises in footwear and leather, food and beverages, and textile and garments are not substantially (or at all) overstaffed compared with their private sector counterparts (Belser and Rama 2001). These are the sectors of activity in which female employment is more prevalent.

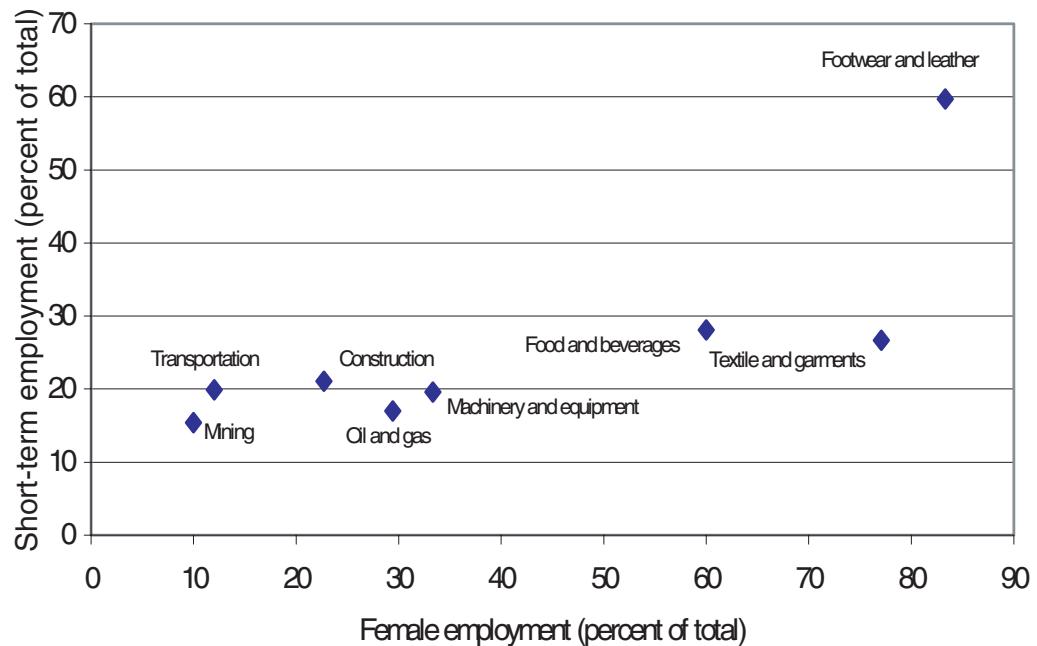
In contrast, the vast majority of workers in state-owned enterprises in transportation, construction, oil and gas, mining, and machinery and equipment are potentially redundant. Male employment is dominant in these sectors. Overall, there is a strongly negative association between female employment and potential labor redundancy. The correlation coefficient between these two variables is -0.92.

The nature of the labor contracts used in different sectors of activity also suggests that female workers are in higher demand than male workers. Figure 2 plots by sector of activity the female share of employment against the fraction of state-owned enterprises workers who are employed on short-term or temporary contracts. Short-term and temporary contracts usually indicate precarious employment conditions. State-owned enterprises or their new owners could discontinue these contracts on short notice by simply not renewing them. From the point of view of the enterprise, then, a short-term or temporary contract can be seen as an indication that an employ is productive. It follows that most of the truly redundant workers must be employed on either long-term or open-ended contracts.

Short-term and temporary contracts are prevalent in the footwear and leather sector, where more than 80 percent of the workers are female (figure 2). At the other extreme, less than a quarter of all workers are on short-term or temporary contracts in the mining, transportation, construction, oil and gas, and machinery and equipment sectors, in which male employment is dominant. Other sectors, such as food and beverages and textile and garments, occupy an intermediate position. The data suggest a positive association between female employment and short-term and temporary contracts with a correlation coefficient of 0.78.

This positive association has two different implications. On one hand, it suggests that the gender gap is larger than revealed by earnings. Women not only earn less

Figure 2. Female Employment and Temporary Contracts in Vietnam, by Sector



Source: Author's calculations based on Downsizing Options Simulation Exercise (DOSE) for Vietnam and Belser and Rama (2001).

than men with similar skills, they also face more economic insecurity. To the extent that short-term or temporary contracts entail fewer nonwage benefits, the earnings gap also probably underestimates the gap in total compensation. In contrast, the positive association implies that women may suffer less from public sector downsizing than men. Truly redundant workers, employed on either long-term or open-ended contracts, are more likely to be male than female.

It is important to stress that the correlations revealed in figures 1 and 2 do not arise by construction. In estimating the fraction of state-owned enterprise workers who are potentially redundant, Belser and Rama do not use information on the female share of employment (which is not available at the enterprise level) or on the fraction of workers who are on short-term or temporary contracts. The variables in the horizontal and vertical axes of figures 1 and 2 are generated independently. In figure 1 they even come from different sources, as the estimates by Belser and Rama (2001) rely on an enterprise database, which reports no gender breakdown, whereas the female share of employment comes from 1997–98 round of the Vietnam Living Standards Survey, which is a household survey.

Gender Biases in Assistance Programs

Are government assistance programs aimed at helping displaced workers biased against women? Workers whose short-term or temporary contracts are not renewed at expiration receive no cash compensation, training, or any other form of assistance. This lack of assistance may not be gender-neutral, however. The third hypothesis emerging from the literature is that women are likely to experience a larger drop in earnings than men in the event of job displacement. Providing the same amount of support (including no support at all) to displaced men and women therefore means that women accept a larger loss in earnings. If large numbers of workers hired on short-term or temporary contracts were to be displaced in Vietnam, women could suffer disproportionately.

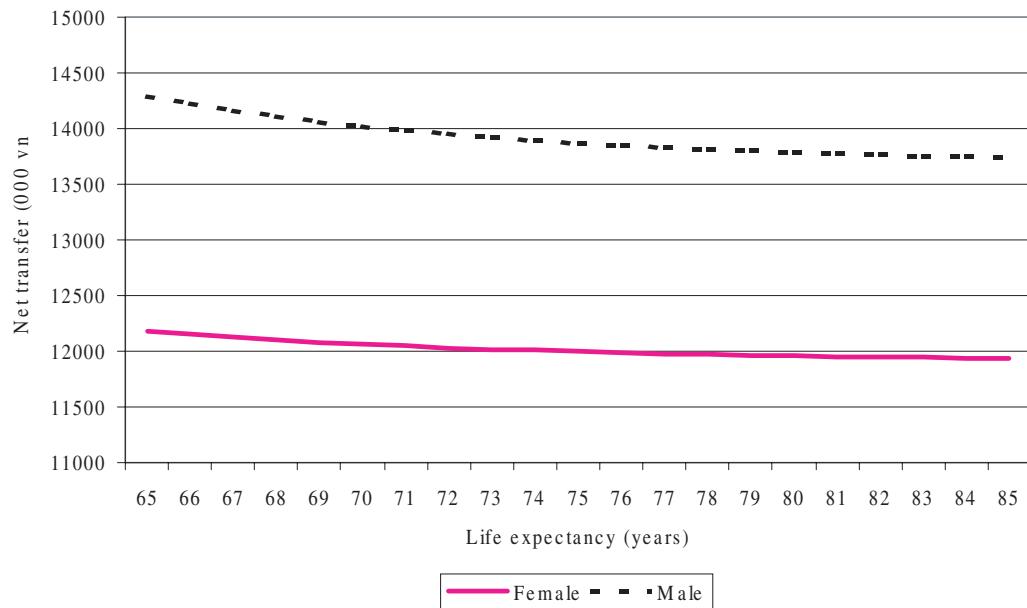
For workers on long-term or permanent contracts, a key component of the assistance strategy considered by the government of Vietnam is early retirement. In 1998 the government decreed that workers can receive old-age pensions up to five years before the normal retirement age of 60 years for men and 55 years for women. The old-age pension is reduced by 1 percent for each year below the normal retirement age. The reduction in retirement age is the same for both sexes, so that on the surface the program does not discriminate against women. The case has been made, however, that women in Vietnam are penalized by their lower retirement age. Being forced to retire, the argument goes, prevents women from reaching the upper echelons of the enterprises and agencies for which they work.

To try to determine whether women are discriminated against, the Vietnam Women's Union (1998) surveyed 302 people, equally divided by gender, in Haiphong. Most of the respondents worked in administrative and production units of state-owned enterprises and government agencies; the rest were retirees. This sample is not representative, and the interpretation of some of the responses is difficult. Even so, some of the survey's results are interesting (for a more detailed analysis, see Rama 2001).

According to the survey, women are more inclined than men to claim that early retirement adversely affects their status. From a social point of view, the early retirement program could thus be detrimental to women. However, this perception is voiced by less than half of the interviewees. Only two assertions receive a majority of supporters among women. One is that early retirement leads to a lower pension, which is so by design. The other is that early retirement benefits women more than men. From an economic point of view, then, the early retirement program could be favorable to women. Whether the adverse social implications are offset by the economic implications probably depends on the characteristics of individual workers.

Although the subjective evaluation of early retirement is unobservable, the implicit transfer of resources created by the program can be quantified. Figure 3 displays the average transfer for all the state-owned enterprise workers who would have been

Figure 3. Estimated Net Transfer of Resources from Early Retirement in Vietnam



Source: Author's calculations based on Downsizing Options Simulation Exercise (DOSE) for Vietnam.

eligible for early retirement in the sample of the 1997–98 round of the Vietnam Living Standards Survey had the early retirement decree been in force at that time. To estimate the average transfer, it is necessary to compute both the full pension at the normal retirement age and the reduced pension at early retirement for all eligible workers, taking into account their earnings and work histories. The average transfer is the outcome of two effects of different sign. On one hand, workers who retire early receive a pension until they reach the legal retirement age, up to a maximum of five years. On the other hand, they receive a lower pension over all the years between their legal retirement age and their death. The net transfers reported in figure 3 are the present value of these two flows of opposite sign, discounted at an annual rate of 10 percent (in real terms), under different assumptions regarding life expectancy.

Computations were carried out using the Downsizing Options Simulation Exercise (DOSE), an Excel-based application that incorporates the lessons from a broader research project on public sector downsizing (see Rama 1999). The DOSE is a small-scale version model of the public sector agencies or enterprises to be restructured, constructed using all the information available about their workers. For Vietnam the DOSE is made up of the 451 state-owned enterprise workers included in the 1997–98 Vietnam Living Standards Survey sample. The DOSE takes into account their individual characteristics as well as the characteristics of their public sector jobs. Using this

information it predicts, worker by worker, the consequences of different early retirement programs. Reported figures are averages over all the workers eligible for early retirement.

Based on the results in figure 3, the early retirement program entails a net transfer of roughly 14 million dong (\$933) for the average eligible male worker and 12 million dong (\$800) for the average eligible female worker. The ratio between these two figures is very close to the ratio between the average earnings of male and female workers in state-owned enterprises, suggesting that the early retirement program could be considered gender-neutral. However, this conclusion does not hold if the size of the monetary transfer, rather than its relationship to earnings, is considered. From that perspective, the early retirement program is more advantageous for male workers.

Another component of the assistance strategy considered by the government is training. A variety of training programs already exists in Vietnam. Their use may be intensified if displaced workers are given a training allowance or a training voucher. Between 1999 and 2002 a training allowance was under consideration as part of a broader severance package (discussed in the next section). Although the ability of training programs to improve the skills of trainees remains unclear, such programs in Vietnam do not appear to be biased against women.

The Vietnam Women's Union operates vocational training centers for such skills as computer operation, English language, garment manufacture, knitting, lace-making, embroidery, handicrafts, beauty treatment, and domestic skills. Some of these training programs may simply reflect gender stereotypes; others appear to be geared toward the needs of the labor market. Many of these training centers received initial funding from international agencies or from the national level of the Vietnam Women's Union, but they are largely self-supporting. Trainees are required to pay a fee, usually ranging from \$10 to \$30 a month. These vocational training centers could play a key role in helping female workers who are displaced from their state-owned enterprises.

Gender Biases in Severance Packages

Cash compensation for job loss is usually one of the most important components of assistance for redundant workers. Compensation of this sort takes the form of a severance package, generally based on individual characteristics, such as salary and seniority.

Although compensation formulas do not explicitly discriminate by gender, they may treat men and women differently. Because women earn less than men, they may receive less compensation. Moreover, the present value of the loss in earnings and benefits from displacement could be larger for women. Compensation formulas should therefore be scrutinized to assess whether they implicitly discriminate by gender.

At present, separation packages in Vietnam are determined by the 1995 Labor Code, which grants displaced workers half a month of salary per year of service. Because this formula was deemed insufficiently generous to handle mass layoffs, the government set up a special fund to pay for potentially more expensive severance packages. Under the special compensation formula, workers displaced from state-owned enterprises receive two months' salary per year of service, plus a training allowance equal to six months' salary plus 5 million dong (\$333). This formula resulted from protracted policy debates.

It is interesting to assess the gender implications of compensation packages that have been used in a variety of countries and contexts. Most packages can be seen as a combination of three basic formulas (see the survey by Kikeri 1997). The first is based on earnings. In this case, the amount of compensation S_i received by worker i is a multiple of his or her total salary in the state-owned enterprise, W_i :

$$S_i = AW_i \quad (1)$$

As parameter A increases, the amount of compensation becomes more generous. Parameter A can be measured in months of total salary.

The second formula involves current earnings and the number of years of service in the state-owned enterprise, Y_i . The amount of compensation received by worker i is

$$S_i = BW_i Y_i \quad (2)$$

The generosity of this package hinges on parameter B , which can be measured in months of total salary per year of service.

The third formula is a lump-sum payment, which does not take into account any individual characteristic of the worker:

$$S_i = C \quad (3)$$

In this case, parameter C directly indicates the amount of compensation received by the worker. Parameter C can be measured in (thousands of) dong.

Because not all workers have the same earnings and the same number of years of service, the three formulas would compensate them differently. For instance, workers whose earnings are higher than average would receive a more generous severance package under the first formula than they would under the third one.

Different workers also have different outside alternatives. Those with good job opportunities or who want to withdraw from the labor force may need only a small amount of compensation to be enticed to leave their job. Those who would like to continue working but are relatively unemployable may require much larger amounts. Each of the three packages may thus look acceptable to some workers and unacceptable to others.

Is this acceptability systematically different for men and for women? One way to address this issue is to compare each of the three severance packages to the present

value of the loss from job displacement for each of the 451 workers included in the DOSE simulation. The present value of job loss is calculated using a methodology initially proposed by Fiszbein (1994) and subsequently developed by Assaad (1999) and Chong and Rama (2001). This methodology relies on an estimation of the alternative earnings of each worker, given his or her individual characteristics. In practical terms, the DOSE relies on an earnings function similar to the one in the last column of table 2.

Comparing these alternative earnings with actual earnings suggests that a majority of workers laid off from state-owned enterprises would be worse off as a result of displacement. There is, however, a nonnegligible group of workers who apparently could earn more (in some cases, much more) outside the public sector. The fact that these workers did not voluntarily leave the state sector suggests that they attach a high value to noncash benefits associated with their jobs (health coverage, old-age pension, low work effort).

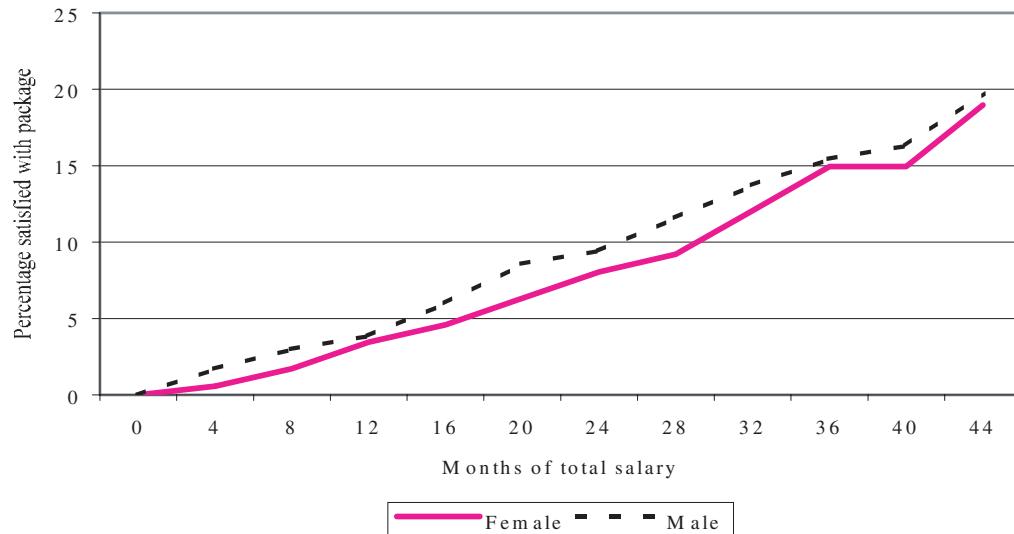
Some of the potential earnings gains generated by the model are too large to be credible, implying that they are likely due to measurement error. The approach developed by Chong and Rama (2001) assumes that the top 10 percent of expected changes in earnings from job displacement are too high to be realistic and eliminates them from the sample. Once these unrealistic cases have been removed, the highest predicted change in earnings is used as an indicator of the cash value of the benefits associated with public sector employment. This cash equivalent is added to the actual earnings in the state-owned enterprise to create an indicator of total compensation, including non-cash benefits. The present value of the loss from displacement is calculated as the difference between total compensation in the state-owned enterprise and alternative earnings, discounted over all the years until the worker reaches normal retirement age.

Using this method, the benefits associated with a job in a state-owned enterprise are estimated to be worth 56 percent of the total salary for male workers and 60 percent for female workers. Discarding only the top 8 percent of values yields a larger gender gap, with employment in a state-owned enterprise worth 65 percent of total salary for men and 75 percent for women. The higher figures for female workers are consistent with the fact that some of the benefits available in state-owned enterprises but not necessarily in other enterprises (such as maternity leave) are valued more by women.

Figures 4, 5, and 6 report the acceptance rates of each of the three compensation formulas for different values of parameters A , B , and C . The acceptance rate is the fraction of workers for whom the severance package would exceed the present value of the estimated loss in earnings and benefits from job displacement. Parameters A , B , and C , were chosen so that the highest acceptance rate is close to 20 percent for all three packages. However, the average compensation per worker needed to attain the same acceptance rate is different in all three cases. Overall, the severance package that combines salary and years of service tends to be the most expensive.

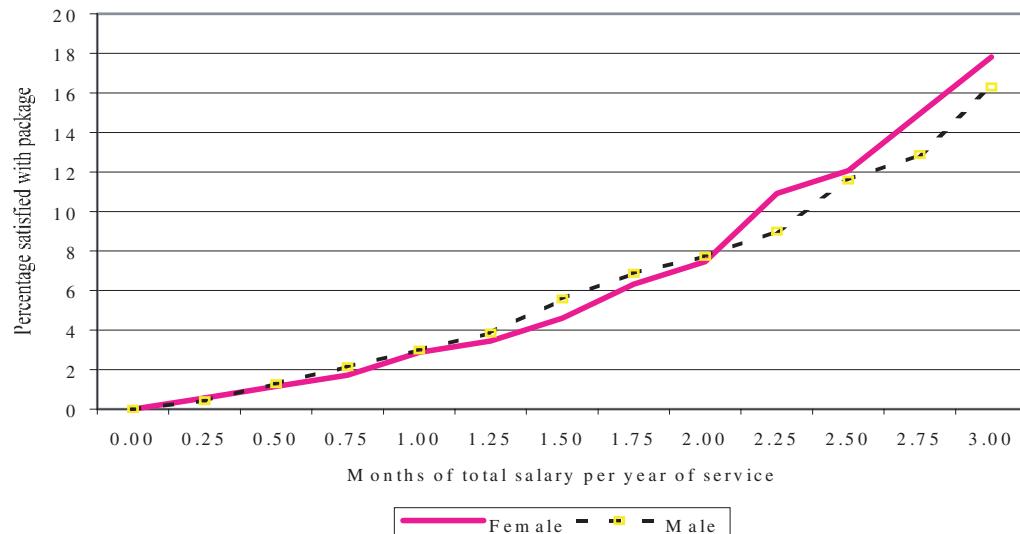
From a gender perspective, the formula based on earnings displays consistently higher acceptance rates for male workers (figure 4). The formula based on a lump-

Figure 4. Percentage of Workers Willing to Accept Severance Package Based on Earnings, by Size of Package



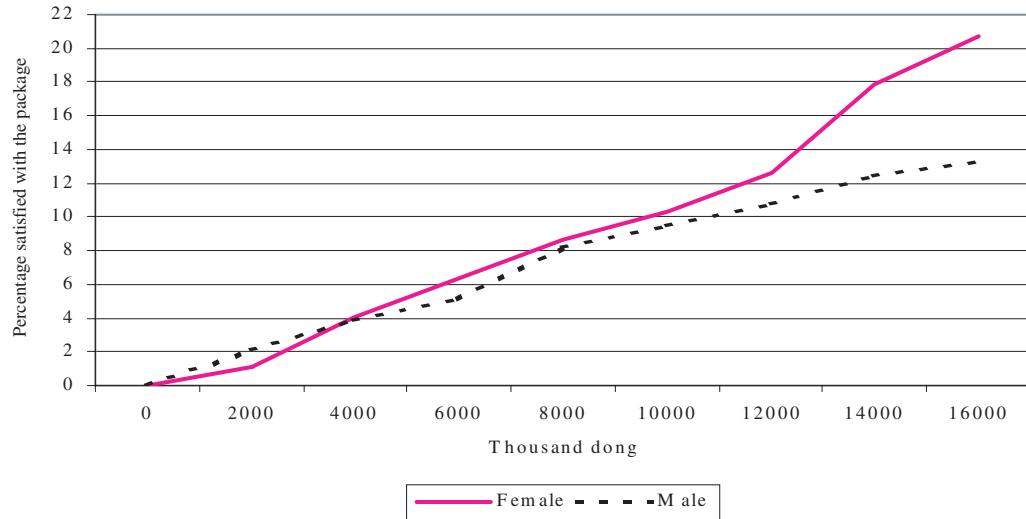
Source: Author calculations based on Downsizing Options Simulation Exercise (DOSE) for Vietnam.

Figure 5. Percentage of Workers Willing to Accept Separation Package Based on Seniority, by Size of Package



Source: Author calculations based on Downsizing Options Simulation Exercise (DOSE) for Vietnam.

Figure 6. Percentage of Workers Willing to Accept Lump-Sum Severance Package, by Size of Package



Source: Author calculations based on Downsizing Options Simulation Exercise (DOSE) for Vietnam.

sum payment is more attractive to female workers, increasingly so as it becomes more generous (figure 6). The formula combining earnings and seniority occupies an intermediate position, as revealed by the multiple intersections of the solid and the broken lines (figure 5). These figures suggest that a severance package involving a large lump-sum component is less likely to penalize women. This is the rationale for the formula chosen by the government of Vietnam, which involves a large training allowance, payable in cash.

Conclusions

This article proposes a conceptual framework and identifies the kind of information needed to carry out an ex ante evaluation of the effects of an economic policy with potentially important gender implications. It draws specific conclusions about the reform program implemented by the government of Vietnam for reducing the number of employees at state-owned enterprises.

Vietnam's reform program does not appear likely to hurt women disproportionately, as did the massive downsizing of the early 1990s. In fact, labor redundancy in Vietnam in the twenty-first century appears to have become more of a male problem.

Employment in state-owned enterprises has been shaped by a decade of increased exposure to market competition. In sectors of activity in which Vietnam has a comparative advantage—especially in light industries, such as footwear, leather, textile, and garments—female employment is dominant and overstaffing is not prevalent. In the sectors of activity that had been favored by central planning, such as transportation and mining, only a small fraction of workers are female. In these sectors overstaffing is most prevalent.

The nature of the contracts used in different sectors reflects the relatively high demand for female workers. Short-term and temporary contracts are more common in those sectors where female employment is dominant, whereas long-term and open-ended contracts characterize the sectors in which male employment is dominant.

The assistance programs currently in place to help redundant workers are not strongly biased against women. Measured as a multiple of labor earnings, the net transfer of resources from the current early retirement program is similar for men and women. It is higher for men when measured in value terms, but this does not necessarily mean that women are penalized. The claim that early retirement is detrimental to female workers because it prevents them from reaching the upper echelons of their enterprise is not supported by the only survey available on the issue. Although a large fraction of female respondents agree that early retirement diminishes the social status of women, an absolute majority of them say that it is economically beneficial. Vocational training programs are also geared appropriately toward female workers.

Whether severance packages treat women fairly depends on the compensation formula used. Simulations indicate that the acceptance rate for some standard packages could differ systematically for men and women. Severance packages based on a multiple of current earnings would be preferred by men, whereas packages based on a lump-sum payment would be preferred by women. Packages defined in months of salary per year of service occupy an intermediate position, but they would be more expensive from the government's perspective. These simulations suggest that including a large lump-sum component in the formula of the severance package is key to ensuring that displaced female workers are not penalized relative to displaced male workers.

Making displacement voluntary would also safeguard against gender discrimination. In Vietnam redundant workers who qualify for early retirement can decide whether they want to take it or not. Given the government's willingness to cushion the social impact of its reforms, displacement of many workers who are not eligible for early retirement will be made voluntary as well. Given a generous compensation package, the number of workers willing to resign could be large enough to deal with most of the labor redundancy problem. It is possible that men would benefit more from voluntary severance than women. Making the program voluntary, however, ensures

that on average the well-being of redundant female state-owned enterprise workers is not reduced.

Vietnam's reform program may also improve the well-being of women who do not lose their jobs as a result of public sector downsizing. During the 1990s the reform program was associated with a substantial reduction in the unexplained gap in earnings between men and women in both state-owned enterprises and the private sector. Moreover, a reduction in the size of the state sector should be associated with an expansion of employment in the private sector. Data on large establishments reveals that the highest proportion of female workers can be found in the private sector and the lowest in state-owned enterprises. Vietnam's reform program could thus increase the opportunities for women to become salaried workers.

Note

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