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Labor Market in Postwar Bosnia and Herzegovina
How to Encourage Businesses to Create Jobs and Increase Worker Mobility

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ACRONYMS AND ABBREVIATIONS

BAC	Business Environment Adjustment Credit
BiH	Bosnia and Herzegovina
EU	European Union
FBiH	Federation of Bosnia and Herzegovina
FIAS	Framework Investment Advisory Service
FIRE	Finanace, Insurance and Real Estate
FPDF	Federation Pension and Disability Fund
GDP	Gross Domestic Product
ILO	International Labor Organization
KM	Konvertible Marka
LSMS	Living Standards Measurement Survey
OECD	Organization for Economic Co-operation and Development
OSCE	Organization for Security and Cooperation in Europe
RS	Republika Srpska
SDK	Agency for Social Accounting
SME	Small and Medium-Size Enterprises

Vice President:	Johannes F. Linn
Country Director	Christiaan J. Poortman
Sector Manager	Michal J. Rutkowski
Task Team Leader	Milan Vodopivec

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This report was prepared by Milan Vodopivec, Senior Economist (HDNSP), based on background papers and contributions prepared by Ilijas Bosnjovic, Fikret Causovic, Boris Divjak, Asim Ibrahimagic, Nedim Jaganjac, Andrej Rus, Rajko Tomas, and Esad Vilogorac.

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EXECUTIVE SUMMARY

A. Background

1. *The need for a labor market study.* Given the critical importance of employment generation to both macroeconomic performance and household welfare, a thorough analysis of the BiH labor market and its links with the economy has become increasingly important. BiH has already started to experience declining assistance from the international community, a process likely to accelerate in the next few years. Moreover, it seems that the country will accelerate implementation of comprehensive structural reforms, including fiscal reform, financial sector reform, and an accelerated privatization of public enterprises. These factors will have direct and indirect implications for the labor market. Of particular concern, given the present high unemployment, are possible layoffs produced by the privatization of public enterprises. A comprehensive understanding of the working of the labor market and its links to other segments of the economy is therefore necessary to support structural reforms, and understand the likely welfare implications for households.

2. *Postwar economic trends.* In December 1995, the Dayton Peace Agreement brought a halt to a three year conflict in Bosnia and Herzegovina (BiH). Owing to massive reconstruction assistance and humanitarian aid from the international donor community, economic growth was given a jump-start. Annual economic growth well exceeded 10 percent per year in real terms between 1996 and 2001. Despite this, economic output is still far below its prewar levels, and in 2000 BiH's GDP *per capita* amounted to only 48 percent of its prewar level. Moreover, postwar employment is significantly lower than its prewar level, a large share of employment has moved into the informal sector, and unemployment has remained very high. As a consequence, labor force participation has been very low by international standards, and even lower than in other Balkan countries, particularly among women. All this is reflected in living conditions and poverty – Living Standard Measurement Survey (LSMS) estimates put the poverty rate in BiH in 2001 at 19 percent, with the Federation of BiH (FBiH) rate at 16 percent, and the rate in Republika Srpska (RS) significantly higher at 25 percent.

3. *Tremendous devastation of the war.* During the war years, enormous migration took place in BiH, producing substantially more homogeneous territorial units. During the war period as many as 2.3 million people were expelled, exiled abroad, killed, declared missing, or died prematurely. In the postwar years, the previous trends have been reversed and some refugees and displaced persons have returned to their homes. Overall, however, to date these flows fall far short of restoring the original balance. These migration flows provide an important context for understanding postwar labor market trends and outcomes (such as labor market discrimination and lack of internal worker mobility).

4. *Accumulated imbalances.* There are a range of challenges which the postwar Bosnian labor market has to accommodate. First, the devastation of the war brought a huge destruction of productive assets of many firms, and enormous human casualties. Second, the Bosnian labor market is yet to absorb systemic changes associated with the transition to market, the transition which is bound to profoundly affect the institutional and price-setting framework. Third, political and economic changes in neighboring countries resulted in the loss of traditional business partners and markets, thereby severing many trade and other links. And fourth, technological changes require an ongoing adjustment, making old technology obsolete and prompting adjustment of the size and the mix of the workers. Because of these factors, many firms have become non-viable in the post-war period, and even in those which have retained their viability, many jobs which existed in the prewar economy were destroyed or made non-productive. Efficient postwar adjustment of the Bosnian

economy thus inevitably calls for large worker redeployment, which will involve both significant job creation but also job destruction to generate the net employment increases which the Bosnian population desperately needs.

B. Objectives and key issues

5. Given the "jobless" growth which occurred in the postwar period and the accumulated imbalances which put tremendous pressures on firms to adapt, the overarching question tackled by this report is how to increase job creation and labor mobility in BiH. The positive equity and efficiency consequences of a dynamic labor market are considerable, but have yet to be felt in BH to date. They include:

- *Efficiency considerations*. In a dynamic, flexible labor market, workers are able to switch among jobs relatively quickly, thus facilitating the opening of more productive jobs and the disappearance of less productive ones. It has been shown that in developed market economies, quick labor redeployment significantly contributes to aggregate productivity growth. For example, for the U.S. manufacturing sector, roughly half of productivity growth over the course of a decade can be accounted for by the reallocation of outputs and inputs away from less productive to more productive businesses. Moreover, dynamic labor markets encourage businesses to create jobs and contribute to higher employment-population ratios. In contrast, large barriers to formal employment push workers into less productive informal sector jobs – jobs which also offer them fewer rights and expose them to undue health and safety hazards.

- *Equity considerations*. Beside efficiency, there are also equity considerations which speak in favor of a dynamic labor market adjustment. Low worker flows produced by labor market rigidities contribute to the emergence of dual labor markets, where well protected formal sector workers (who tend to be predominantly prime-age males) are contrasted by much less protected informal sector workers and the unemployed. Such labor market duality can be produced by inappropriate employment protection legislation, e.g. high firing costs, which disproportionately affect the chances of being hired for marginal workers. Moreover, strict employment protection legislation and the resulting static labor market reduces employment among prime age women and youths, and increases the incidence of long-term unemployment. In sum, by reducing inflows into employment, a static labor market militates against young workers, labor market re-entrants (who are often women), and the unemployed.

6. Having in mind the above efficiency and equity considerations, the report focuses on the following key questions and issues: [1]

- How many jobs have been created, and how many destroyed, in the postwar period? Have more jobs been created in small, private, and service oriented firms? How does the job creation and destruction process compare to the one in other transition countries?
- What has been the relative fate of different demographic groups? In particular, have high hiring and separation costs and the lack of job creation hindered access to jobs for young workers? Have women also experienced more difficulties in accessing jobs? And has the position of the less educated deteriorated, showing the presence of a skills gap?

[1] While other issues with substantial impacts on economic growth, such as the investment climate and general business environment, are also critical to generating employment, they are dealt with in more detail elsewhere, including in the FIAS study "BH: Commercial Legal Framework and Administrative Barriers to Investment" (2002) and the President's Report on Business Environment Adjustment Credit (BAC) (Report No. P7530, April 24, 2002).

- How have institutions affected labor market outcomes? In particular, has low worker mobility and insufficient job creation been produced by an excessively structured wage setting process, rigidities in the employment legislation, and the lack of incentives to leave unemployment?
- Reductions of employment by privatized enterprises are widely anticipated and feared – what evidence on this phenomenon do we have so far?
- How much faith can we have in SMEs as an engine of growth, and the growth of employment in particular?

C. Summary of analysis and main findings

7. Based on extensive institutional and empirical analysis, the report pictures the Bosnian labor market as a rather static one, unable to accommodate looming imbalances in the economy which has only emerged from the war and still has to face the legacy of the socialist system. Bosnian postwar employment has been reduced, as new jobs have only been slowly created. The formal sector workforce has become much older and many workers, particularly the young and unskilled, were pushed into the informal sector. Worker and job flows have been rather low, lagging behind flows in other transition economies during intense restructuring periods, with the lag of RS being particularly pronounced. In both entities, one of the important barriers to labor mobility and job creation – extremely restrictive employment protection legislation – was removed in 2000 and replaced by a modern legislation, better attuned to the needs of economy. However, the highly structured and formalized wage setting system is still in place, imposing important rigidities that stand in the way of mobility and job creation in the formal sector. The main findings of the report are further elaborated below.

8. **Finding no. 1: The formal sector workforce has become considerably older, and young workers have been denied access to formal sector jobs**. The average age of formal workers increased from 36.6 years at the beginning of 1991 to 40.0 years by 2000 (in the Federation; no comparable data exist for RS). The share of workers younger than 35 decreased strongly in comparison to prewar years. Particularly worrying is the fact that, while the postwar years reversed the trend for some age groups, the share of 25-34 year old ones has continued to decrease. In 2000, the employment share of this group was 23 percent, in comparison to 37 percent in 1990. Consistent with the above, the share of workers with less than 10 years of experience dropped from 46 percent in 1990 to 36 percent in 2000, and in the same period, the group with 21-30 years of experience increased their share by 10 percentage points. Recent LSMS data confirm that some of the younger workers "missing" from the formal sector are employed in the informal sector. For example, in 2001 around 18 percent of workers employed informally were younger than 25 years, to be contrasted with the 7 percent share of this group in formal employment. However, the overall reduction in share of younger workers is robust to the inclusion of the informal sector. In sum, new formal employment has brought little fresh blood – the postwar formal sector workforce largely consists of the same pool of workers, who are becoming gradually older and who exit the workforce at pensionable age.

9. **Finding no. 2: There is low labor force participation, and female labor force participation is among the lowest in the region. A large shares of labor force participants is unemployed or employed in the informal sector.** A recent LSMS survey allows for the first time to measure the participation in the Bosnian labor force in internationally comparable fashion. According to the survey, in 2001 the labor force participation rate was at a low 48 percent, with male participation rate at 62 percent and women participation rate at only 28 percent, which extremely low by international standards. Moreover, the unemployment rate according to the survey was a high 16.4 percent, and it was somewhat higher for women. Unfavorable labor market conditions were reflected also in a large share of jobs in the informal sector, which amounted to more than one third of total employment.

10. **Finding no. 3: Data on registered unemployment vastly exaggerate true prevalence of unemployment.** According to the 2001 labor force survey, out of 498,000 registered unemployed in Bosnia and Herzegovina, only slightly less than a quarter (122,000) qualified as unemployed under the standard ILO-OECD definition. The rest were either employed (another quarter, or 124,000) or inactive (51 percent, or 252,000). True, 69,000 unemployed workers did not register with employment offices. The survey thus shows Total number of unemployed workers in 2001, according to the survey, is thus 191,000, which is less than 40 percent of the number of registered unemployed. The main reason for unemployment registration thus appears to be free access to health services, obtained upon registration.

11. **Finding no. 4: There is a large informal sector.** According to survey data, in 2001 there were 362,000 workers in the informal sector, or 36 percent of total employment. The survey results also showed that:

- most informal employment takes place in agriculture (47 percent), in construction (17 percent), and in manufacturing (9 percent);
- the majority of informal workers are employed by private employers, 28 percent are self-employed, and about one fifth are contributing family members,
- the groups which are particularly over-represented in the informal sector are the young and the unskilled (but not women), with high barriers to entry into the formal sector may have contributed to the high share of informal employment of both the young and the unskilled.

12. **Finding no. 5: Job creation and reallocation of jobs has been low, with the situation markedly worse in RS.** A powerful way of studying labor market dynamism is to examine data on creation and destruction of jobs.[2] The report shows that during 1997-99, the job flow rate (the number of jobs created or destroyed during the year per 100 existing jobs at the beginning of the year) in Bosnian enterprises with more than 10 workers was rather modest. On average, expanding firms annually created 4.2 new jobs, and contracting firms destroyed 5.3 jobs per hundred existing jobs. Moreover, the measures of enterprise restructuring (reflecting the shift of employment positions from one firm to another while leaving the overall number of employment positions intact) were also quite low. Job flow rates were even lower for enterprises with more than 100 workers, for which comparable data exist in other transition economies (the comparison group consists of Bulgaria, Estonia, Poland, Romania, and Slovenia). In all dimensions of job flows, the average for these countries exceeds the numbers for Bosnia. If one takes into account the extraordinary conditions imposed on the Bosnian economy by the war devastation, the low job dynamics in Bosnia and Herzegovina in the first postwar years becomes even more obvious; of the two entities, Republika Srpska is the obvious laggard. Such a low intensity of creating new, more productive jobs; of closing down unproductive jobs; and of shifting jobs from less productive to more productive jobs undoubtedly reduced the productivity growth and growth potential in general, including the growth of employment.

13. Similar to results in other transitional countries, other results on job flows show that sector and enterprise characteristics matter – above all, in both entities private enterprises created and destroyed more jobs, per number of existing jobs, than public enterprises. The intensity of job flow also varied by sector and enterprise size. Interestingly, job flow intensity of loss-makers did not lag much behind the job flow intensity of profitable enterprises.

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[2] Job creation is defined as the sum of employment increases in firms which expanded, and job destruction as a sum of employment losses in firms which contracted, in a particular period, with net employment growth equal to the difference between job creation and destruction.

14. **Finding no. 6: Worker mobility has been modest.** Despite both war- and system-induced imbalances in the economy, the Bosnian labor market has been remarkably static. In 1996, both accession and separation rates dramatically increased, but in recent years they have fallen back, and in 2000 both rates were 18 percent, only just above the pre-war socialist era rates (data relate to the Federation only, because comparable data for RS were not available). These figures are significantly below worker flows during the intense restructuring phase of other transition economies, and were much lower than long-term worker mobility rates in mature market economies. For example, the Federation's post war separation rates have been below 20 percent in every year – much below separations rates in Bulgaria and Hungary during their early 1990s restructuring, and below Poland's average for the entire 1990s.

15. The report also shows that the position of women has not deteriorated substantially. In the postwar period, women were less likely to switch jobs, but they were no more likely than men to experience separation from job to non-employment (inactivity or unemployment), and faced no more difficulties in accessing jobs from non-employment than men. However, the report finds that the gap between male and female participation in the labor force is easily the highest in the region, with female participation only just over half the male rate. While the relative position of women has therefore not deteriorated markedly, the starting position for female labor force participation was very low by regional standards and has not improved since the war.

16. In terms of age, in comparison to the prewar period older workers were less likely to separate from employment. This finding is consistent with deteriorating labor market conditions, but may also reflect "waiting effects" – workers deciding not to quit in expectation of the compensation for involuntary separation. Corroborating the waiting effects is also the finding that in contrast to the prewar period, workers in medium and large firms were less likely to change jobs as well as to leave jobs to non-employment other than retirement. Consistent with the results in other transition countries, the better educated are found to have higher chances of exit from employment to another job, and lower chances of exit to non-employment, including retirement – the result suggesting the presence of a skills gap in the Bosnian economy (that is, the presence of a large mismatch between the skills demanded by firms, and the skills offered by labor force participants).

17. There are several other aspects of the Bosnian labor market that have strongly affected worker mobility and flexibility. First, the phenomenon of wait-listed workers is gradually disappearing from BiH, though more slowly than hoped, particularly in the RS. This is a significant improvement, as workers – instead of being trapped in low productivity jobs in loss-making enterprises, many at the same time being pushed to informal employment – are more likely to move on to other jobs. At the same time, relieved from the counterproductive subsidization of loss-makers, firms have better chances to create more jobs. Second, young and unskilled workers (but not women) are over-represented in informal employment, as well as in unemployment. A high tax wedge imposed on wages, together with binding minimum wages may have contributed to these high shares; the high share of unskilled workers also suggests the presence of a skills gap in the Bosnian economy. And third, employment discrimination, particularly along ethnic lines, has been strongly present also in the postwar period, and constitutes an important impediment for worker mobility and economic efficiency in general.

18. **Finding no. 7: After the 2000 changes, labor legislation and the unemployment support system have been better attuned to the needs of a market economy.** To identify sources of the above-established lack of mobility and job creation, the report investigates institutional and legislative features of the Bosnian labor market. It found that the new Entity Labor Codes of 2000 are better attuned to the needs of the economy, as they provide more modern solutions, increasingly embraced also in Western Europe. In contrast to the previous, extremely restrictive labor legislation – which undoubtedly contributed to low worker and job mobility – the new labor legislation does

not unduly impede job creation and worker mobility. Moreover, the revised unemployment insurance program introduced in 2000 provides a modest, affordable income compensation to the unemployed, which is comparable with other transition countries in terms of replacement rate and duration of benefits. There have been very few recipients of unemployment benefits in recent years, but the system is capable of providing valuable income support to an increased number of unemployed workers in the future. If coupled with an appropriate monitoring and enforcement regime, it is unlikely to distort incentives of the unemployed, and should not significantly contribute to "sclerotic" labor markets and reduced capacity for job creation.

19. **Finding no. 8: A rigid Bosnian wage determination system stands in the way of job creation and worker mobility.** Despite the positive developments in new Labor Laws in both Entities, several features of the new labor relations framework have not fed into the real economy yet, largely due to the retention of socialist era features in collective agreements. This is a result of a bargaining system which retains most of its socialist era characteristics, with government and trade unions essentially bargaining without effective employer representative in a highly centralized and overly politicized manner. The effects can be seen in the wage structure for the formal sector: collective agreements in both Entities determine not only minimum wages but also wage floors for nine categories of workers, the components of wages, the fringe benefits of workers, and automatic pay increases for work experience. They also prescribe rules and mechanisms for adjusting wages to inflation. The report shows that these rigidities continue to strongly affect wage formation in BiH in the following ways:

- Minimum wages in the Federation imposed a binding constraint (i.e. there was a clear presence of "bunching of wages" at the prescribed minimum wages), raising the pay of the least skilled workers employed in the formal sector and compressing wage distribution (there were much larger wage differences in the informal than in the formal sector).
- In the formal sector, the male-female wage gap was lower than in the informal sector, suggesting the enforcement of formal rules.
- Wages of formal sector workers with a long work experience commanded a premium unmatched by wages of similar workers in the informal sector and with no demonstrated link to worker productivity.

20. By imposing such rigidities, the wage determination system introduced various barriers to labor mobility. For example, for some categories of workers it was difficult to move from the informal to the formal sector – for young and unskilled workers, in particular (indeed, these were the two groups which were over-represented among informal sector workers) – and possibly for women (with this problem particularly acute in the Federation). Relatively high wages could also have slowed down outflows from unemployment into employment, particularly into formal employment. Moreover, a mandatory premium attached to work experience hindered the mobility of older workers, as these workers were unable to compete for new jobs with more productive younger workers, whose mandated pay was lower.

21. **Finding no. 9: Firms are under-reporting their wages.** The study presents evidence that suggests that firms under-reported wages so as to avoid or minimize payment of social security contributions. Under-reporting was detected by comparing formal sector wages as reported to the pension authorities with data obtained from the recent LSMS survey (due to data limitations, the comparison applies to the Federation only). The officially reported data had a large spike at the officially mandated minimum wage, followed by a large dip, suggesting employer reporting of higher-paid workers in lower-wage categories. Reported wages thus exaggerated the number of workers who were paid the minimum wage. Comparisons from administrative and survey data suggest that under-reporting was particularly prevalent in small, private firms. Enterprise surveys confirm that high payroll tax rates provide a strong incentive for under-reporting.

22. **Finding no. 10: Despite the overall context of a stagnant labor market, private firms have been much more dynamic in all aspects of job flows, including net employment growth.** In every category except for job destruction, the highest job flows are produced by private firms. They by far exceed the other types of firms not only by job creation, but also by gross reallocation, and net employment growth. Private firms were the only category in 1997-1999 with positive net employment growth. Private firms show much higher vitality both with respect to their ability to create more jobs as well as to "reshuffle" jobs (employment positions) within the firms in the sector, as suggested by their higher excess job reallocation. Job flow patterns in respect to ownership are remarkably uniform across the two entities.

23. **Finding no. 11: Newly privatized firms reduced their workforces, but not dramatically. This suggests that fears of a dramatic social impact of privatization have not been borne out to date in BiH.** The report shows that firms which were privatized in the initial period of privatization reduced their employment only slightly more than firms which remained state-owned (the Federation only due to data availability). A year and a half after privatization, the level of employment in newly privatized firms was 4 to 6 percent lower than at the date of privatization – so for this group, the fear that privatization would lead to large reductions of employment did not materialize. However, the actual reduction of employment in privatized firms stands in sharp contrast to the sizeable planned increase of employment. Other results show that these firms recorded higher worker flows, suggesting that worker-employer matching process was more intense in privatized firms than in state-owned firms. Interestingly, women increased their employment share following the privatization; older workers were more likely to leave the privatized firms, and so were, surprisingly, the highly educated. As expected, profitable firms retained a higher share of their original workforces than did loss-makers, and so did large firms in comparison to small firms.

24. **Finding no. 12: High taxes, difficult access to credits, and lack of trust hinder SME development.** SMEs are typically a sector which account for a high share of total employment and high rates of employment growth in other parts of Western and Eastern Europe. However, formal sector SME growth has been constrained in BiH to date. According to BiH's entrepreneurs, the lack of trust in business partners and the system in general is placed among the main barriers to SME development – beside the high level of taxes and the lack of affordable bank finance. The report also shows that the level of both interpersonal and systemic trust is particularly low in BiH (e.g. lower than in Macedonia and Slovenia). The lack of trust hurts SME development because it constrains business opportunities and raises transaction costs. Interestingly, the concerns of Bosnian entrepreneurs with administrative barriers, labor market legislation, and labor costs are placed much lower on the list of impediments. This is consistent with a greater latitude of small firms in setting their wages, as discussed above; presumably, small firms are also more able to minimize costs imposed by restrictive labor legislation and administrative procedures (as shown by FIAS and others, administrative barriers in general are very significant in BiH).

D. Recommendations

25. The main challenge of Bosnian policymakers is to encourage businesses to create more jobs, as well as to promote an efficient and equitable reallocation of labor – a formidable task under the present circumstances of high unemployment, significant share of informal employment, and barriers to job creation and labor mobility. To do this effectively will require stronger incentives for formal sector participation among the large share of firms and workers currently working in the informal sector.

26. The main message of the report is that the remaining rigidities in the formal sector labor market need to be further reduced if BiH is to discontinue the trend of an aging formal sector labor force, and generate sufficient jobs for young workers, the unemployed, and other groups. Reducing the rigidities in the formal sector will not only improve labor mobility (including by attracting workers from the informal to the formal sector), but will also create an environment conducive to job growth. The present system involves substantial costs from the large informal sector in BiH: both efficiency costs in terms of reduced productivity, as well as equity costs, in terms of uncertainty of the receipt of wages, and violations of health and safety regulations. To help reduce the size of the informal sector and stimulate formal sector job growth, the best strategy for BiH is therefore to keep liberalizing the legislative and institutional framework so as to promote a labor market which offers a scope of regulations and rights which is acceptable but also enforceable, and minimizes disincentives for informal sector employers to move into the formal sector over time.

27. Overall, a key recommendation of the report is that expanding labor market regulation is a counterproductive way to stimulate job creation, and that job subsidization programs can only be of marginal importance, and should be strictly targeted. In order to help the government to formulate effective economic and labor market policies, the reports offers also the following specific policy recommendations:

i. *Strengthen business environment.* Low worker and job flows are primarily produced by the lack of job creation capacity of the Bosnian economy. While the issue of job creation is extremely complex – among others, it calls for political stability and an appropriate macro environment – it is clear that sustained growth cannot be achieved without a vibrant private sector. The government should therefore speed up the privatization process and deepen the liberalization of the business environment supported under the BAC agenda. Moreover, the results of a survey of Bosnian entrepreneurs suggest that Bosnian SME development is faced by a host of barriers which include high taxation of both wages and profits, too much bureaucracy, and a lack of systemic trust. The government should thus promote the growth of businesses by simplifying the red tape and increasing the trust in the system. Moreover, the possibilities of reducing taxation rates, including the taxation of labor – without jeopardizing fiscal balance – should be explored: this calls, above all, for improving tax collection, as well as examining the level and structure of public expenditures. Reducing high labor costs may also attract more workers in the formal sector.

ii. *Overhaul the bargaining system for determination of terms and conditions in the formal sector, in particular encouraging effective employer participation in bargaining process and encouraging more decentralized bargaining where appropriate. In particular, the aim should be to liberalize the wage determination framework.* A less rigid system would stimulate mobility and improve access to jobs of some groups of workers who are greatly suffering under the present system. The prime case in point are young workers, whose access to formal sector jobs has been severely curtailed and who suffer from high unemployment rates, are extensively engaged in the informal sector, and lack the necessary experience and financial assets to start their own businesses. In order to stimulate more flexible wage determination, bargaining over employment terms and conditions needs to be decentralized to the level where those involved in the bargaining process are directly affected by the outcomes of their decisions. Even within the current overly centralized bargaining system, there are many options for improvements in the way wages are set which should stimulate labor demand. To this end, policymakers should consider introducing a less binding minimum wage (and possibly a separate youth minimum wage); abolishing determination of wage floors for various categories of workers; and dropping the stipulation which mandates specific and automatic returns to work experience which are not related to

productivity. Moreover, the wage determination process would also benefit from strengthened representation of businesses through an independent employer association.

iii. *Reduce labor market discrimination*. To curb widespread ethnic discrimination at the workplace, a program to monitor discriminatory labor practices, particularly by large employers, could help in reducing the most obvious cases. The transparency of administrative and court procedures should also be sought, and the role of ombudsmen strengthened.

iv. *Approach the area of social policy in a more comprehensive way*. While the demands on social policy – ranging from health care to active and passive labor market programs to social assistance – are very diverse and the funding possibilities extremely limited, the whole area need to be viewed in a more holistic way. Among other things, this means that fiscal allocations among different areas should be carefully evaluated, and cross-subsidization avoided. For example, the availability of health insurance upon registration at employment offices needs to be reviewed, as it not only redirects resources from the unemployment to the health care area, but it also creates perverse incentives for registration and unnecessary clogs the capacity of employment offices.

v. *Reorient active labor programs while continuing basic unemployment insurance*. The current implementation of active labor market programs prioritizes interventions which are not cost-effective (e.g. credits/grants for starting self-employment of the unemployed) and have often proven non-transparent and subject to political manipulation. Therefore, current labor market policies need to be carefully reviewed and priorities in active programs reassessed. For the most part, this will require a greater emphasis on basic job search and job brokerage/information services by the public sector. In addition, the above established skills gap needs to be addressed, and efforts should be made to offer labor market training to the unemployed with low education (and to increase enrollment in post-elementary education). In terms of unemployment benefits, the unemployment insurance system as amended in 2000 is unlikely to distort incentives of the unemployed, but it is important to carry out strong monitoring of benefit recipients, to enforce the system's rules, and to resist pressure for increasing benefit levels and duration, either of which would lower incentives for the unemployed to return to work.

vi. *Help the young, particularly the unemployed young, accessing jobs*. Young workers have been disproportionately hurt in the postwar BiH's labor market. They are also the group who are most likely to leave BH altogether in the absence of better employment opportunities than current policies and practices provide. Less constrained wage determination, as recommended above, would improve the labor market prospects of young workers, but in view of the harmful long-term effects of unemployment, the authorities are advised also to consider the introduction of special programs – perhaps in the form of job subsidies – for specific youth groups (such as refugees, orphans, school drop-outs). A more inclusive program could be one which would waive, for a limited period, the payment of social security contributions for young workers in their first job However, in order to make such programs effective and fiscally affordable, they need to be clearly targeted, and implemented in a strictly timebound manner and with greater transparency than has been exhibited in implementation of active labor market programs to date in BiH.

vii. *Increase systemic trust*, i.e. confidence in the economic and political system, by improving the impartiality, reliability, and efficiency of BiH institutions (such actions include anti-corruption campaigns and improvements of the functioning of independent courts – foreign agencies could help significantly in this task). By promoting business opportunities and

reducing transaction costs, such measures would help the SME development and improve business environment in general.

Postscript: Data sources and methods for this report

The empirical analysis presented in the report is based on a multitude of data sources on both individuals and enterprises. The scope of the analysis and its analytical rigor was greatly enhanced by the use of rich administrative datasets on both enterprises and individuals, so far untapped for labor market analysis. Common identifiers were used to produce matched firm-worker panel datasets. The acquired individual-level data on formal sector workers consisted of administrative records of their wages and employment spells (for the Federation only, comparable data for Republika Srpska was not available); the acquired data on enterprises consisted of selected accounting information, and the information of the number of workers. For the purpose of this study, information on newly privatized firms was also collected, needed for the analysis of the employment effects of privatization. Moreover, by complementing administrative data in many respects, data from 2001 Bosnian Living Standard Measurement Survey importantly extended the possibilities of analysis. In addition, the report relied on data collected by a special survey of the SME sector in Bosnia, Slovenia, and Macedonia.

Beside institutional and comparative analysis, the report uses the following methods:

- worker and job flows are analyzed via accession and separation, job creation and destruction, and worker and job reallocation rates; moreover, a multinomial logit estimation was used to analyze worker separations and accessions; and
- wages are analyzed via the estimation of earnings functions, the calculation of summary measures of wage inequality, and the comparison of wage distributions.

1. INTRODUCTION

1. In December 1995 the Dayton Peace Agreement brought a halt to a three year civil war in Bosnia and Herzegovina. Owing to massive reconstruction assistance and humanitarian aid from the international donor community, economic growth was given a jump-start. For example, industrial production of the Federation nearly doubled in 1996, the first postwar year, and more than doubled again by 2001. Despite this, economic output still lags strongly behind its prewar levels, and in 2000 Bosnia and Herzegovina's GDP *per capita* amounted to only 48 percent of its prewar level. Moreover, the postwar employment lags strongly behind its prewar level, a large share of employment has moved into the informal sector, and unemployment has been very high. As a consequence, labor force participation has been very low by international standards and has been even lower than in other Balkan countries, particularly among women. All this is reflected in living conditions and poverty – estimates put the poverty rate in the Federation in 1997 at 22 percent, and in Republika Srpska at even much higher, 52 percent rate (Bisogno and Chong, 2000).

2. Given the above worrying facts, a thorough analysis of the labor market and its links with the economy has become increasingly important. The recovery has been driven primarily by donor assistance, and undoubtedly Bosnia and Herzegovina must prepare for an era of declining assistance from the international community. Moreover, it seems that the country will embark on a set of comprehensive structural reforms, including fiscal reform, financial sector reform, and an accelerated privatization of public enterprises. Each of these actions will have direct and indirect implications on the labor market. Of particular concern, given the present high unemployment, are possible layoffs produced by the privatization of state enterprises. A comprehensive understanding of the working of the labor market and its links to other segments of the economy is therefore necessary to support structural reforms.

3. The need for a labor market study is underscored also by enormous accumulated imbalances which the postwar Bosnian labor market has to accommodate. There are several sources of such imbalances. First, the devastation of the war brought a huge destruction of production assets of many firms, and enormous human casualties. Second, the Bosnian labor market is yet to absorb systemic changes associated with the transition to market, the transition which is bound to profoundly affect the institutional and price-setting framework. Third, political and economic changes in neighboring countries resulted in the loss of traditional business partners and markets, thereby severing many trade and other links. And fourth, technological changes require an ongoing adjustment, making old technology obsolete and prompting adjustment of the size and the mix of the workers. Because of these factors, many firms have become non-viable in the post-war period, and even in those which have retained their viability, many jobs which existed in the prewar economy were destroyed or made non-productive. Efficient postwar adjustment of the Bosnian economy thus inevitably calls for large worker redeployment – as well as job creation and destruction.

4. Having in mind the tremendous imbalances and resulting pressures on firms to adapt, and given the "jobless" growth which occurred in the postwar period, the overarching question tackled by this report is how to increase labor mobility and job creation. In doing so, it investigates the following issues:

- What has been the level and intensity of worker and job flows in the postwar period, and how do they compare to flows in other transition countries? Are more jobs created in small, private, and service-oriented firms?

- What has been the relative fate of different demographic groups? For example, have young workers and women experienced difficulties in accessing jobs? Has the position of the less educated deteriorated, showing the presence of a skills gap?
- How have institutions affected labor market outcomes? In particular, has low worker mobility and insufficient job creation been produced by an excessively structured wage setting process, rigidities in the employment legislation, and the lack of incentives to leave unemployment?
- Reductions of employment by privatized enterprises are widely anticipated and feared – what evidence on this phenomenon do we have so far? and
- How much faith can we have in SMEs as an engine of growth, and the growth of employment in particular?

5. It has to be emphasized that the analytical rigor of the study was enhanced by the possibility of using rich administrative data sets on both enterprises and individuals (matched firm-worker panel data), so far untapped for labor market analysis, which was enriched by some data collected for the purpose of this study (the information on privatized firms, for example). Moreover, by complementing administrative data in many respects, data from 2001 Bosnian Living Standard Measurement Survey also importantly extended the possibilities of analysis.

6. The report is structured as follows. It starts with an overview of the Bosnian labor market: it reviews the main trends and outcomes, presents, as important background information, migration flows which occurred during and after the war, and compares the Bosnian labor market with the one in other Balkan countries. Chapter 3, the first of the two core chapters, measures and analyzes worker and job flows, pointing out how inflexible the postwar labor market in Bosnia and Herzegovina has been. To explore whether the "sclerosis" of the labor market has been produced by the institutional setup, Chapter 4 reviews and empirically analyzes wage determination framework, employment legislation and practices, and policies and programs for the unemployed. Among others, it examines the determinants and the evolution of wage structure, and analyses the structure of wait-listed workers, informally employed workers, and the unemployed. The next two chapters are devoted to two specific topics: one investigates the employment effects of privatization, and the other barriers to SME growth. The last chapter provides conclusions and recommendations.

2. OVERVIEW OF THE BOSNIAN LABOR MARKET

7. To identify the main problems and provide a broader context for the study, this chapter provides an overview of trends and outcomes in the Bosnian labor market. It describes trends in economic activity and aggregate labor market outcomes as well as changes in the structure of employment and unemployment. Because of its importance as background information for analyzing the labor market, it also presents migration flows during the war, and also in the postwar period. It also compares the Bosnian labor market with those in other Balkan countries. Based on the overview, the concluding section poses questions to be answered in the reminder of the study.

2.1. Trends in economic activity

8. The postwar economic growth has been solid, but not spectacular. Over the 1997-2000 period, GDP grew at an average of 13.6 percent, with a declining trend of growth (Table 2.1).

Table 2.1: Key trends in economic activity, 1990 and 1997-2001

	1990	1997	1998	1999	2000	2001
A. GDP (US$ million)	10,633	3,423	4,169	4,540	4,252	4,796
B. Real GDP growth						
Bosnia and Herzegovina	n.a	36.6	9.9	9.9	5.9	5.6
Federation	n.a.	36.2	8.2	9.5	7.0	7.0
Republika Srpska	n.a	37.9	15.8	11.3	2.6	1.9
C. Industrial production growth						
Federation	n.a	36.0	24.0	11.0	9.0	12.0
Republika Srpska	n.a	27.0	23.0	2.0	6.0	-13.0
D. Per capita GDP (in current US$)						
Bosnia and Herzegovina	2,429	816	1,042	1,135	1,093	1,222
Federation	n.a.	1,167	1,418	1,458	1,373	1,453
Republika Srpska	n.a.	733	704	821	806	873

Source : Official data, World Bank and IMF estimates (data for 2000 and 2001 are preliminary).

Similar, declining trend has been in industrial production (particularly in Republika Srpska, where industrial production contracted in 2001). The solid growth notwithstanding, economic output of the country still lagged strongly behind its prewar level: in 2001, Bosnia and Herzegovina's GDP stood at 45 percent of its 1990 level.).

9. With a GDP per capita of (US$1,222) in 2001, Bosnia and Herzegovina belongs to the lower middle-income countries. The GDP per capita of the Republika Srpska lagged behind the one of the Federation by 40 percent, with the gap since 1999 somewhat narrowing.

2.2 Trends and outcomes in the Bosnian labor market in the 1990s

10. To obtain a dynamic, encompassing picture of the Bosnian labor market, one would like to observe trends in labor force participation, employment and unemployment rates, as well as trends of stocks of the main labor market states – employment, unemployment, and inactivity. Unfortunately,

due to limited data sources, data covering longer periods exist mostly on employment and wages in the formal sector – there are no such data available on unemployment (except on registered unemployment, which is shown in the report to be an unreliable indicator of real unemployment as defined by ILO criteria), informal employment and inactivity. With such lacunae in the data, by far the best summary of the Bosnian labor market is provided by the recent Bosnian Living Standard Measurement Survey (LSMS). In trying to provide a comprehensive summary of the Bosnian labor market, the report thus uses survey data and complements them with data on formal employment from other sources.

2.2.1 Employment, unemployment, and labor force participation in 2001

11. There are three striking features about aggregate labor market stocks and participation rates in Bosnia and Herzegovina in 2001:

- Labor force participation is very low – 48 percent, with the male participation rate at 62 percent and female participation rate at only 28 percent (Table 2.2). By international standards, these numbers are very low, particularly for women (they are also lower than in other Balkan countries – see below). Participation rates are somewhat greater in Republika Srpska.

Table 2.2: Employment, unemployment, and labor force participation, by entity, 2001

	BiH	Federation	Republika Srpska
A. Employment			
(i) Total	999.5	551.3	448.2
Men	648.7	356.9	291.8
Women	350.8	194.4	156.4
(ii) Formal employment - total	638.0	375.5	262.5
Men	418.3	247.3	171.0
Women	219.7	128.2	91.5
(iii) Informal employment – total*	361.5	175.8	185.7
Men	230.4	109.6	120.8
Women	131.1	66.2	64.9
B. Unemployment			
Total	190.7	111.0	79.7
Men	115.0	67.7	47.4
Women	75.6	43.3	32.3
C. Activity rates**			
Employment rate - total	40.1	36.7	45.5
Men	52.8	48.9	58.6
Women	27.7	25.2	31.9
Unemployment rate - total	16.4	16.9	15.8
Men	15.4	16.1	14.5
Women	18.3	18.4	18.1
Labor force participation rate - total	48.0	44.2	54.0

	BiH	Federation	Republika Srpska
Men	62.4	58.3	68.6
Women	33.9	30.9	38.9
Memorandum item			
Working age population (15-64) - total	2,390.6	1,475.1	915.4
Men	1,180.2	714.7	465.6
Women	1,210.4	760.5	449.9

Sources: Bosnian 2001 LSMS.
Notes:
* See Appendix 1for the definition of informal employment.
**To enhance international comparability, only individuals 15 to 64 years of age are taken into account when computing activity and unemployment rates.

- Unemployment rate is at a very high 16.4 percent, with somewhat higher rates for women, and in the Federation in comparison to Republika Srpska.
- Employment rates are very low, and the share of employment in the informal sector is extremely high. More than one third of employment is in the informal sector; the proportion of women in informal employment is about the same as their share in total employment. The share of informal employment in the Federation is 32 percent, and is even higher in the Republika Srpska, at 41 percent.

(a) Aggregate employment

12. In the absence of data on the informal sector, we concentrate below on the evolution of employment in the formal sector. In comparison to its prewar level, postwar employment in the formal sector in Bosnia and Herzegovina has been drastically reduced. In 1997 it was 575,000, or only 59 percent of the comparable 1991 level (the reduction was equally strong in both entities – see Table 2.3).

Table 2.3: Formal employment by sector of activity, 1991 and 1997-2000
(in thousands)*

	1991	1997	1998	1999	2000	2001
A. Bosnia and Herzegovina						
Total	976	575	639	628	641	627
Agriculture	36	n.a.	n.a.	21	21	21
Manufacturing	498	n.a.	n.a.	256	255	247
Services	441	n.a.	n.a.	351	365	359
B. Federation						
Total	638	373	395	408	413	407
Agriculture	21	n.a.	10	10	10	11
Manufacturing	325	n.a.	161	161	161	156
Services	292	n.a.	224	237	241	241
C. Republika Srpska						
Total	338	202	244	221	228	220
Agriculture	15	n.a.	n.a.	11	10	10
Manufacturing	173	n.a.	n.a.	96	94	92
Services	149	n.a.	n.a.	114	123	118

Source of data : Statistical Yearbook 2001, Federal Office of Statistics, Sarajevo; Statistical Yearbook of the Republic of BiH 1992, Federal Office of Statistics, Sarajevo; Republic of Srpska Institute of Statistics, Banja Luka, 2000.
Notes: *Classification of sectors:
Agriculture - agriculture and forestry, and fishing;
Manufacturing: mining, manufacturing, electricity, gas and water supply, and construction;
Services: trade, hotels and restaurants, transport and telecommunication, financial services, business services, education, health, public administration, and other services.

After 1997, the growth in formal employment has been very anemic; in the Federation, it has been slowly increasing and in 2001 it exceeded its 1997 level by 9 percent; while its 2001 level also exceeded the 1997 level by the same percent, formal sector employment in Republika Srpska actually fell after 1998. In 2001, 407,000 or 65 percent of workers were employed in the Federation, and 220,000 or 35 percent in Republika Srpska.[3] .

13. Without knowing the level of informal employment in the 1990s, we cannot say precisely by how much total employment in 2001 was reduced from its prewar level. The LSMS estimate of total employment (the sum of formal and informal employment) in 2001 is precisely 1 million, which is similar to the number of workers in 1991 in the formal sector alone (the latter was 976,000), and thus the reduction of total employment from 1991 to 2001 roughly corresponds to the number of workers in the informal employment in 1991. Although this reduction is likely less than 361,500, that is, the size of the informal employment in 2001, it is undoubtedly still quite large.[4]

(b) Structure of formal employment

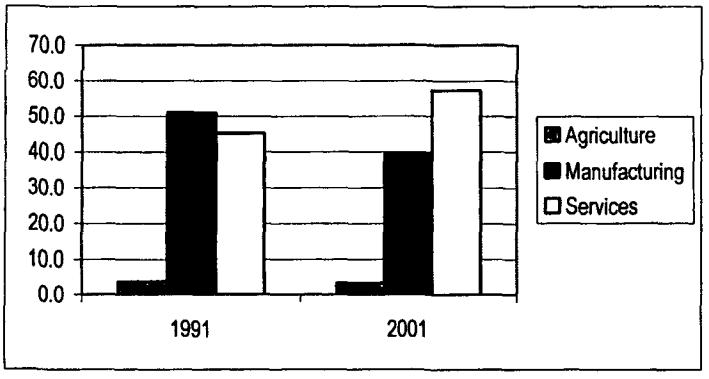
14. Under the harsh postwar labor market conditions, not only was formal sector employment drastically reduced, but it also underwent some equally dramatic changes in its structure. Above all, the postwar workforce has received little fresh blood and has become, on average, significantly older. Moreover, a strong reduction in absolute terms hurt much more the less educated workers, so their share in employment substantially shrank; in contrast, the share of women remained remarkably unchanged. There has also been a shift away from manufacturing to service sectors (as in other transition countries), particularly trade.

15. *Sectoral structure.* In comparison to prewar years, employment shifted away from manufacturing. In contrast to other sectors, employment in manufacturing fell in absolute terms also in the postwar period, so in comparison to 1991, the share of manufacturing in total employment was reduced by 12 percentage points by 2001. With agriculture stagnating, employment in services commensurately increased (see Figure 2.1 and Table 2.3). In comparison to Federation, in 2001 Republika Srpska had a higher share of workers employed in manufacturing (3.5 percentage points more), and in agriculture (1.7 percentage more). The reduction of the employment share of manufacturing in the 1990s is similar to the one in Bulgaria and Romania, but it exceeds its reduction in Croatia, Macedonia and Yugoslavia (WIIW, 2000).

[3] Note that the estimates of formal employment in 2001 reported in Table 2.2, which were generated by 2001 LSMS, differ somewhat from the numbers obtained by other statistical data collection.

[4] In all likelihood, the participation rate in the informal economy has increased in the postwar period . Assuming that the participation rate in the informal economy doubled from 1991to 2001 (which may be an overestimate), the estimate of the 1991 informal sector employment is 181,000. Based on this estimate, total employment in 1991 was 1,157,000, and thus the estimate of the reduction in total employment between1991-2001 is 157,000.

Figure 2.1: Structure of formal employment in Bosnia in Herzegovina, 1991and 2001
(in percent)



Source: Table 2.3.

16. Given the dearth of data covering long periods, the report below exploits rich data on employment in the formal sector of the Bosniak part of the Federation – which cover not only the postwar period but also prewar and even war years – to analyze the structure employment along some important dimensions: age, gender, and education. It seems that the results are of general nature, given the common factors which prevailed in both entities. The main features to note are the following:

17. *Gender.* Despite the strong reduction in absolute numbers, the share of women in formal employment has stayed remarkably stable: it was 34.6 in 1990, and after slightly increasing in the postwar years, reached 36.3 percent in 2000 (Table 2.4, panel A); according to 2001 LSMS data, it was 34.2 in 2001.[5]

[5] Note that in contrast to administrative data covering 1990-2001 period, the source of 2001 data is the Bosnian LSMS. It is striking how closely data from the two sources are matched, not only for gender and age employment shares; the match for some categories of education is worse (see Table 2.4), because the LSMS classification scheme differs from the administrative one.

Table 2.4: Structure of formal employment, Federation, 1990-2001
(as of January 1, in percent)*

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001**
A. Gender												
Women - FPDF data	34.6	35.4	35.4	32.8	33.1	34.1	35.0	35.0	35.5	35.9	36.3	34.2
B. Age												
16-19	0.5	0.3	0.2	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.8
20-24	7.8	6.6	5.2	3.9	3.2	2.9	3.2	4.4	4.9	5.0	4.7	6.0
25-34	37.3	36.6	35.2	33.0	30.4	28.1	25.8	25.0	24.5	24.2	23.1	22.2
35-44	30.5	32.9	35.0	36.3	37.3	38.1	38.6	38.3	38.2	37.8	37.3	35.2
45-54	17.2	17.3	18.0	20.0	21.4	22.4	23.2	23.7	24.6	25.9	27.3	27.7
55-64	6.7	6.1	6.2	6.4	7.4	8.1	8.7	8.1	7.3	6.6	7.1	7.7
65 +	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.4
C. Work experience												
Less 2	6.5	5.4	4.3	2.8	3.4	4.4	5.9	10.2	12.3	11.4	9.8	n.a.
2-5	18.3	17.0	14.5	11.0	8.5	7.1	6.8	7.8	9.5	13.3	15.7	n.a.
6-10	21.6	21.7	21.9	21.9	20.9	19.5	17.4	14.8	12.5	11.0	10.3	n.a.
11-20	32.7	35.2	37.5	38.4	38.7	38.6	37.8	36.4	35.8	34.9	33.6	n.a.
21-30	14.3	14.9	16.2	19.2	21.0	22.6	24.0	23.7	23.6	23.8	24.6	n.a.
31-40	6.3	5.5	5.4	6.4	7.2	7.5	7.7	6.7	5.9	5.2	5.7	n.a.
Above 40	0.3	0.2	0.3	0.2	0.2	0.3	0.4	0.4	0.4	0.3	0.3	n.a.
D. Structure by education												
Unfinished element.	19.2	18.1	17.2	16.8	16.4	16.2	15.8	14.9	14.1	13.4	13.1	3.8
Elementary	19.0	19.1	18.9	19.5	19.2	19.3	19.0	18.7	18.5	18.0	17.7	14.0
Vocational	30.1	30.2	30.2	30.9	30.7	30.4	30.2	30.2	30.4	30.5	30.4	41.7
High school	20.2	20.8	21.4	20.5	21.1	21.8	22.7	23.7	24.6	25.4	25.9	23.4
University (2y)	3.7	3.7	3.7	3.5	3.6	3.6	3.6	3.6	3.6	3.6	3.6	7.2
University (4 y)	7.8	8.0	8.4	8.7	8.9	8.8	8.8	8.8	8.9	9.1	9.2	9.8

Source: own computations, based on Federation Pension and Disability Fund (FPDF) data.
Notes: *The FPDF data reflect the number of active participants which were covered by the Sarajevo FPDF office (it excludes participants which were covered the Mostar FDPF office). ** Data for 2001 are based on 2001 LSMS survey (refer to complete formal sector employment of the Federation).

18. *Age and experience.* The formal workforce has become considerably older. Its average age increased from 36.6 years at the beginning of 1991 to 40.2 years at the beginning of 1996, and was only slightly reduced – to 40.0 years – by 2000.[6] The share of workers younger than 24 and particularly of 25-34 year old ones decreased strongly in comparison to prewar years, and the share of workers older than 35 years commensurately increased. Particularly worrying is the fact that, while the postwar years reversed the trend for some age groups, the share of 25-34 year olds in employment has continued to decrease. In 2000, the share of this group in total employment was 23 percent, in comparison to 37 percent in 1990 (Table 2.4, panel B). Consistent with the above, the share of workers with less than 10 years of experience dropped from 46 percent in 1990 to 36 percent in 2000, and in the same period, a group with 21-30 years of experience increased their share by 10 percentage points (Table 2.4, panel C). The average length of experience of the workforce thus increased from 12.7 years in 1991 to 15.9 years in 1996, and only dropped to 14.2 years by 2000. This suggests that new employment – to the extent happening at all – has brought little fresh blood, and thus the postwar workforce has been comprised of the same pool of workers who are becoming gradually older and who exit the workforce at pensionable age.

19. *Education.* In comparison to prewar years, relatively fewer workers with low education and more workers with high school and university education have been employed. The share of workers with unfinished elementary education decreased from 19 percent in 1990 to 13 percent in 2000; in the same period, the share of workers with high school education increased from 20 to 26 percent, and those with a 4-year university degree from 7.8 to 9.2 percent (Table 2.4, panel D).

2.2.2 Strong growth of wages and pronounced structure of wages

20. Since 1997, average wages in Bosnia and Herzegovina have been quite strongly increasing in nominal and real terms (Table 2.5).

Table 2.5: Average monthly wages, 1997-2001
(in KM)

	1997	1998	1999	2000	2001
Bosnia and Herzegovina*					
Net wages	210	273	319	365	396
Gross wages	319	418	468	529	579
Growth – net wages (percent)	n.a.	30.0	16.7	14.4	8.6
Growth – gross wages (percent)	n.a.	31.2	11.8	13.2	9.4
Federation of BIH					
Net wages	263	329	375	412	443
Gross wages	398	506	551	606	652
Growth – net wages (percent)	n.a.	25.0	13.8	10.1	7.5
Growth – gross wages (percent)	n.a.	27.4	8.8	10.1	7.5
Republic of Srpska					
Net wages	112	170	216	277	309
Gross wages	174	256	314	387	444
Growth – net wages (percent)	n.a.	51.8	27.1	28.2	11.6

[6] This is computed from the shares of employment by age groups presented in Table 2.4, by assigning the mid-bracket age to all workers of a particular bracket (and the age of 65 to those in the highest category).

	1997	1998	1999	2000	2001
Growth – gross wages (percent)	n.a.	47.1	22.7	23.2	14.7
Memorandum items					
CPI - Federation (1997=100)	100.0	101.8	100.8	104.8	108.1
CPI – Republika Srpska (1997=100)	100.0	105.6	120.4	135.1	142.6

* Estimate obtained by attributing 64.9 percent of employment to the Federation, and 35.1percent to Republika Srpska.
Source of data : Statistical yearbook 2001, Federal Office of Statistics, Sarajevo; Republika Srpska, Institute of Statistics, Banja Luka (internal material)

In the Federation, average net monthly wages increased from KM263 in 1997 to KM443 in 2001, or by 88 percent, and in Republika Srpska from KM112 in 1997 to KM309 in 2001, or by 176 percent. These increases by far exceed the increase of the consumer price index, which in the same period increased by about 8 percent, in the Federation, and by 43 percent, in Republika Srpska. In 2001, average net wages in the Federation exceeded those in Republika Srpska by 44 percent (trends and comparisons based on gross wages were similar to those of net wages). Below the structure of wages by personal and firm characteristics is analyzed, as well as postwar changes in the structure of wages (again relying mostly on Federation individual-level data).

21. *Gender.* The gender wage gap – which was rather small in 1990 – became even smaller in the two postwar years for which there are data (1998-99, see Table S2.1). In 1999, the average women's wage was nearly equal to the average men's wage – the gap was only 1.2 percent. Note that this is a comparison of raw wage data (unadjusted for skills and other personal and job characteristics), but it is important to note that such a low gap is highly unusual in both transition and OECD countries. A possible explanatory factor may be the very low participation rate of women, with greater than usual self-selection of higher skilled women into the workforce.

22. *Age and experience.* Wages in the formal sector in the Federation reflect a strong correlation with age: old people earn more than young. In 1990, each year of age was associated with one additional percentage point of average wages, and even more in the postwar years. A noteworthy feature is that the advantage associated with age does not diminish, in relative terms, at the age of over 50. That is, it seems that the relationship between the age and wages is linear and not of the inverse U shape, as usually found for market economies. Similar conclusions apply to the link between cumulative work experience and wages. As discussed in Chapter 4, this is in large part a function of wage determination mechanisms in BiH which are overly rigid and linked to seniority and not productivity.

23. *Education.* The better educated earn higher wages: in 1990, those with unfinished elementary earned 71 percent, and those with a 4-year university degree 181 percent of the of average wage in the economy. The postwar structure of wages by educational levels stayed remarkably similar to the prewar one, with the raw data suggesting a reduction of returns only to the group of 4-year university graduates.

24. *Ownership and sectoral structure.* Interestingly, average pay in the formal private sector is substantially below the formal state sector -- in 1999, the average of (officially declared) private sector wages was 75 percent of the average wage in the economy (Table S2.1, panel E). As for the sectoral structure of wages, the highest net wages in the Federation are in financial services (KM 924) and electricity supply (KM 770). While in Republika Srpska these two sectors are also among the highest paid, the first place is taken by the public administration (KM 485). While relative positions of individual sectors are similar in the two entities (see Table S2.2), wage differences as measured by the coefficient of variation are smaller in Republika Srpska, particular after a large increase in wage inequality in the Federation in 2001.

2.3 Demographic trends and migration in the 1990s

25. Traumatic events of the 1990s dramatically affected demographic trends and migration flows in BiH. The population residing in BiH has been substantially reduced, as many people were displaced, exiled, and killed, and ethnic cleansing produced ethnically much more homogeneous territorial units. Officially, the reduction of permanent population has been modest – it shrank from 4.38 million in 1991(population census data) to 4.26 million in 2000 (see Table 2.8).[7] Out of people counted as permanent residents, however, more than 500,000 are displaced people and refugees who have in fact not been living on the territory of BiH (in 2000, there were 489,000 such persons in the Federation; there is no data for the Republika Srpska). Below we present the demographic changes which occurred in the 1990s, by ethnically controlled areas and nationality, in greater detail; this represents important background information necessary for understanding of the post-war BiH labor market.

26. During the war years, enormous migration – driven by ethnic cleansing – took place in BiH, producing vastly more homogeneous territorial units. As can be seen from Table S2.4, in 2000, over 91 percent of the population from the territory which used to be under Serbian military control was Serbian, 81 percent of the population of the territory which used to be under Croat military control was Croatian, and 83 percent of the population of the territory which used to be under the Bosniak military control were Bosniak.[8] This represents a huge increase from 1992, when the corresponding percentages were 55, 60, and 61, respectively.

27. Net changes of population presented in Table S2.4 were produced by huge migration inflows and outflows. We summarize these flows in Table S2.5, where we distinguish the ethnicity, ethnic control of the origin and destination, and type of flows. Predominant among these flows were large inflows of ethnic groups to the territories controlled by the respective groups. During the war period as many as 2.3 million people departed, were expelled, exiled abroad, or were killed, declared missing, or died prematurely – and all three ethnic groups were heavily affected (Figure 2.2). Overall, 714,000 thousand people who departed and were expelled remained within Bosnia), 1.3 million were exiled abroad, and 270,000 people were killed or are missing.

28. In the postwar years, the previous trends have been reversed and some refugees and displaced people have returned to their homes (see Figure 2.3). Overall, however, these flows fall far short of restoring the original balance (during 1996-2000, the total inflow exceeded the total outflow by 440,000 people), and as mentioned above, by 2000, territorial units were ethnically much more homogeneous than they were at the start of the war.

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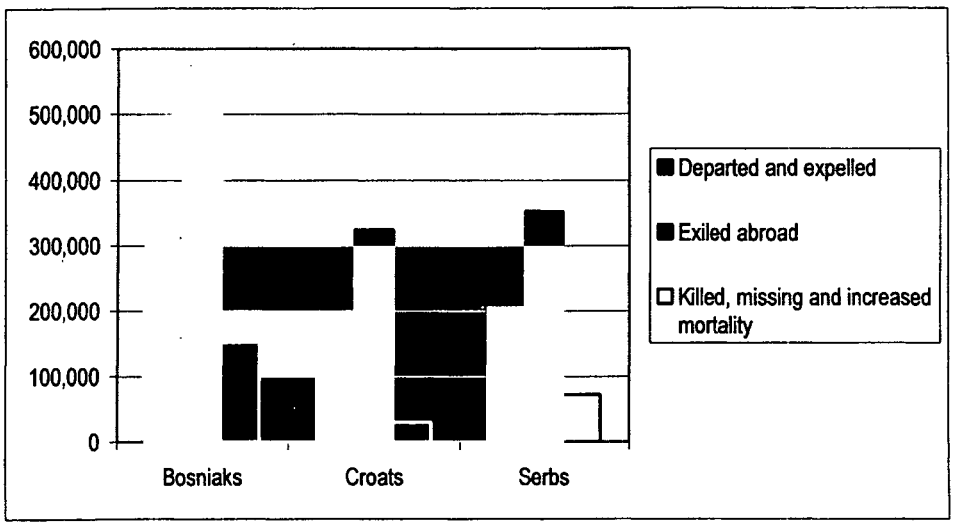
[7] However, there has been no post-war census to date and official data should be treated with considerable caution.

[8] The analysis below is based on estimates of population stocks and flows, produced by Professor Ilijas Bosnjovic (Institute of Economics, Sarajevo) in his background report for this study. Note that his estimate of Bosnia and Herzegovina's total population for 2000 is lower than the official estimate by about 420,000.

Figure 2.2: Migration outflows from Bosnia and Herzegovina, 1992-2000



Source: Bosnjanovic (2001).

2.4 Comparison with other Balkan countries

29. Bosnia and Herzegovina's official population of 4.2 million is comparable in size to Croatia's, twice as big as Macedonia's, and about half of Yugoslavia's population (Table 2.6 - insert).

Table 2.6: Comparison of labor market outcomes, Bosnia and Herzegovina and other Balkan countries
(late 1990s or 2000s)

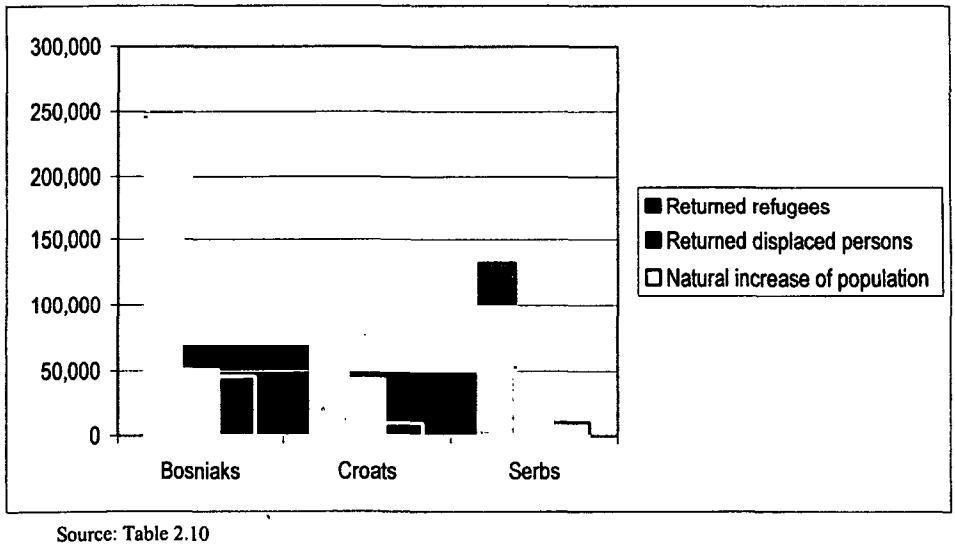
	Bosnia and Herzegovina	Bulgaria	Croatia	Macedonia	Romania	Yugoslavia
A. Population (in thousand)	4,236	8,170	4,381	2,030	22,443	8,380
B. Labor force participation (survey data)						
Total	48.5	48.8	50.4	52.9	62.6	57.5
Male	63.2	54.0	57.8	64.4	70.7	65.9
Female	34.2	44.0	43.8	41.7	56.8	49.2
C. Structure of employment by activities (survey data)						
Agriculture	18.8	26.6	9.0	22.3	42.8	22.5
Manufacturing	36.2	29.0	31.3	33.5	26.2	26.4
Services	45.0	44.4	59.4	44.2	31.0	51.2
D. Unemployment						
Unemployment rate - LFS	16.4	16.9	15.1	32.2	7.7	12.6
Unemployment rate – registered unemployment	38.0 (Fed) 40.1 (RS)	17.9	22.4	n.a.	10.8	26.8
Long-term unemployment (more than one year, in percent of total unemployment)	76.2 (Fed)	58.9	52.1	83.3	48.1	81.7
Percent of young among the unemployed	29.8 (Fed)	21.6	n.a.	27.8	n.a.	34.5
Structure of unemployed by educational attainment						
• Primary or less	51.2 (Fed) 34.3 (RS)	n.a.	n.a.	41.8	n.a.	23.9
• Secondary	48.0 (Fed) 62.6 (RS)	n.a.	n.a.	51.0	n.a.	68.3
• University (2 years)	0.3 (Fed) 1.9 (RS)	n.a.	n.a.	3.2	n.a.	4.3
• University (4 years)	0.4 (Fed) 1.2 (RS)	n.a.	n.a.	4.0	n.a.	3.5

Source: for Bosnia and Herzegovina : Statistical offices Sarajevo and Banja Luka , LSMS 2001. For other countries, WIIW data base.

30. As noted above, the labor force participation rate of 48 percent in Bosnia and Herzegovina is extremely low. Among other Balkan countries, Bulgaria, Croatia, and Macedonia also have very low rates (49, 50, and 53 percent, respectively), while the rates in other Balkan countries are somewhat higher (in Romania, for example, it is 63 percent). Bosnian female participation rates lag even further behind the rate in other Balkan countries. As a result, the gap between male and female participation in the labor force is easily the highest in the region, with female participation only just over half the male rate.

31. The sectoral structure of employment reveals that Bosnia and Herzegovina has the highest share of employment in manufacturing among the Balkan countries (36 percent), and that apart from Croatia, it has the smallest share of agricultural workers (19 percent).

Figure 2.3: Migration inflows to Bosnia and Herzegovina, 1992-2000



Source: Table 2.10

32. The Bosnian unemployment rate of 16.4 percent is much higher than those of Romania and Yugoslavia, is on the level of the Croatian and Bulgarian rates, and is much below the Macedonian rate, which is the highest in the region with 32 percent. In contrast, the Bosnian registered unemployment rate is extremely high (the average across entities is 39 percent), much higher than in the comparison countries. As discussed below, this difference reflects differences in incentives to enroll at employment offices (most importantly, registration with employment offices in Bosnia and Herzegovina brings the access to health insurance). Unemployment registers in Bosnia and Herzegovina also show a very high proportion of long-term unemployed, and a low proportion of young. As in other countries, the share of unskilled unemployed vastly exceeds the share of skilled unemployed.

2.5 Concluding remarks

33. The above evidence shows that despite a strong economic recovery in the aftermath of the war, the level of overall employment was strongly reduced in comparison to its prewar level, and the unemployment rate is very high. Moreover, in 2001 more than one third of employment is taking place in the informal sector – a significant increase, most likely, over the level in the prewar period.

Labor force participation is very low by international standards and even lower than in other Balkan countries, particularly among women. Interestingly, at the same time there has been strong increase in both nominal and real wages throughout the postwar period.

34. The above findings raise several important issues and questions which require further investigation. Above all, given "the jobless" growth which occurred in the postwar period, how can one increase the job creation capacity of the economy? Moreover, assuming that addressing imbalances in the Bosnian economy arising from both the war and transition to market is central for productivity increases, how intense has the worker mobility in the postwar period been? These questions also prompt an investigation into the role of institutions in the postwar labor market in Bosnia and Herzegovina: has the labor relations and particularly the wage-setting framework stimulated job creation and worker mobility? Moreover, are employment policies and practices conducive to mobility and growth? And how productive were policies aimed at helping the unemployed? These questions are dealt with in the two chapters which follow.

3. LABOR MOBILITY AND JOB CREATION

35. The overview of the Bosnian labor market presented in the previous chapter focused on labor market stocks and their trends. While undoubtedly informative, such an analysis ignores several important dimensions of an adjustment which takes place in the labor market: gross worker and job flows. Namely, the scale of net employment changes is not a good proxy for the scale of worker and job flows. For example, for a given reduction in employment, a flexible labor market produces high worker – and also job – flows, while an inflexible one may accommodate only modest flows. And both equity and efficiency consequences of a dynamic labor market can be markedly different from those of a static one.

36. In a dynamic labor market – the one characterized by high worker and job flows – workers are able to switch among jobs relatively quickly, thus facilitating the opening of more productive jobs and the disappearance of less productive ones. In developed market economies, quick labor redeployment significantly contributes to aggregate productivity growth. For example, for the U.S. manufacturing sector, roughly half of total factor productivity growth over the course of a decade can be accounted for by the reallocation of outputs and inputs away from less productive to more productive businesses. [9]

37. Beside efficiency, there are also equity considerations which speak in favor of dynamic labor market adjustment. Low worker flows produced by labor market rigidities contribute to the emergence of dual labor markets, with well protected formal sector workers (who tend to be predominantly prime-age males) contrasted by much less protected informal sector workers and the unemployed, particularly the young unemployed. This is characteristic of overly regulated labor markets, as cross-country evidence in Box 3.1 below shows.

Box 3.1: Equity implications of labor market rigidities

By reducing inflows into employment, static labor market militates against labor market entrants – that is, young workers, re-entrants (who are frequently women), and unemployed. For example, Blanchard (1998) shows that large firing costs lead to high unemployment of marginal groups of workers because of their inferior access to jobs. Productivity of these workers before hiring is not easily revealed and therefore their probability of being hired in the presence of large firing costs is lower. Moreover, OECD (1999) finds that strict employment protection legislation and the resulting static labor market reduces employment among prime age women and youths, thus rendering them more susceptible to unemployment risk. Similarly, Kugler and Saint-Paul (2000) show that larger firing costs increase discrimination against unemployed workers, because they increase the costs associated with hiring a bad worker, and may militate against young workers, because they increase the likelihood that the employer lays off young workers so as to avoid paying the severance pay.

38. The need for labor redeployment and job creation in Bosnia and Herzegovina is heightened by enormous accumulated imbalances which the postwar Bosnian labor market has to accommodate. As mentioned above, these imbalances have been created by: (i) a huge destruction of productive assets and enormous human casualties during the war; (ii) initial transition reforms, bringing profound systemic changes; (iii) political and economic changes in neighboring countries; and (iv) ongoing technological changes. Because the list of imbalances in Bosnia and Herzegovina

[9] For a recent review of evidence on the connection between aggregate and micro productivity growth, see Davis and Haltiwanger, 1999.

exceeds the similar list in other transition economies (because of the consequences of the war, and changes in the relationship with the neighboring countries), an efficient postwar adjustment of the Bosnian labor market calls for a worker redeployment which by intensity and level exceeds the redeployment in other transition economies. The previous chapter demonstrates that such changes have yet to occur.

39. While the above factors have created pressures on firms to adapt to the changed circumstances, Bosnian enterprises have faced formidable barriers in doing so. With national resources drained by the war and the reluctance of foreigners to invest in Bosnia, there has clearly been a dearth of resources available for investment. But there have been other limitations as well, not the least important of them being the lack of investment opportunities themselves, due to a non-conducive climate for the growth of businesses. In the area of employment, there were severe rigidities in employment legislation until the change of labor market legislation in the fall of 2000 which, coupled with paternalistic attitudes of managers, militated against dynamic adjustment and job creation.

Main issues to be examined

40. Being caught between the tremendous pressures of accumulated imbalances and formidable barriers which hinder adjustment, how flexible has the postwar labor market in Bosnia and Herzegovina been? The purpose of this chapter is to analyze the process of worker reallocation and job creation in postwar Bosnia and Herzegovina, seeking answers to the following questions:

- What has been the level of worker flows in and out of employment? How do these flows differ across the two entities, and how do they compare to worker flows in other transition countries? In particular, can we find support for the hypothesis that these flows have been extremely low because of the lack of job creation, rigidities of the employment protection legislation, and the prevailing corporate culture which shunned layoffs? Moreover, is there any evidence that the September 2000 changes of the labor code have been effective in reducing the numbers of workers on waiting lists and removing redundant workers from enterprises?
- What has been the relative fate of different demographic groups? In particular, have high hiring and separation costs and the lack of job creation prevented access to jobs of young workers? Have women also experienced more difficulties in accessing jobs? Moreover, has the position of the less educated deteriorated, as has been the experience in other transition economies?
- What has been the intensity of job flows – both job creation and destruction flows – in the Bosnian economy? How do these flows differ across the two entities, and how do they compare to job flows in other transition countries?
- How do job flows differ across sectors and by enterprise ownership, size, and profitability? In particular, are more jobs created in small, private, service oriented, profitable firms?

41. By examining the above questions, the analysis will tackle several policy issues. These include the importance of a flexible labor code regarding the hiring and firing of workers, the wage setting framework and its relationship to labor and job flows, possible measures to increase job creation (particularly in the SME sector) and to reduce incentives to engage in the informal economy; and policies and programs to help the groups that have been disproportionately hurt (for example, special programs for youth).

42. The chapter consists of two sections, one on worker and one on job flows. Each section starts with presentation of the methodology and data sources, and proceeds with the discussion of aggregate worker (job) flows, and flows disaggregated by personal and firm characteristics (worker flows), and sectoral and firm characteristics (job flows). International comparison of both worker

and job flows is also provided. The chapter concludes by summarizing the evidence and posing further questions to be answered in subsequent chapters.

3.1 Worker mobility

43. This section analyzes the evolution of aggregate worker flows, as well as examines the relative fate of different demographic groups in the Bosnian labor market. Due to the lack of availability of data for other parts of BiH, the analysis of labor mobility is limited to the Bosniak part of the Federation. However, due to the similar circumstances which prevail in other parts of the country, it seems reasonable to assume that the findings have general application across BiH. The analysis concentrates on the pre- and postwar years of the 1990s (though the administrative data also cover the war years). To place the analysis in a broader perspective, this section concludes by comparing worker flows in Bosnia with those in other countries.

3.1.1. Methodology and data sources

44. In analyzing labor mobility, we decided to measure worker flows (accessions and separations) on an annual basis, which allows convenient comparisons of the evolution of flows in time, as well as international comparisons. The accession rate is defined as the annual number of accessions per 100 employees as of the start of the year; the separation rate is defined as the annual number of separations per 100 employees as of end of the year. Besides simple tabulations of theses rates through time, the analysis also uses multivariate (multinomial logit) analysis to discern determinants of worker flows.

45. The analysis below rests on two data sources – work history of individual workers provided by the Federation Pension and Disability Fund (FPDF), and enterprise data provided by the Federation Social Accounting Service. Based on employer identification numbers, records of workers were linked to data of their employers. Besides individual level data, the FPDF also provided aggregate data on the number of workers in the formal sector and their structure by personal and some firm and sector characteristics, for 1990-2000. Appendix 1 provides more details on data sources, and explains important steps in processing of data (in particular, treatment of organizational and other changes in data).

3.1.2 How dynamic are worker flows in the Bosnian economy?

46. This section first discusses aggregate worker flows, and proceeds with the examination of the relative fate of different demographic groups in the Bosnian labor market.

Table 3.1: Accession and separation rates, 1990-2000
(for the area of the present Federation, in percent)*

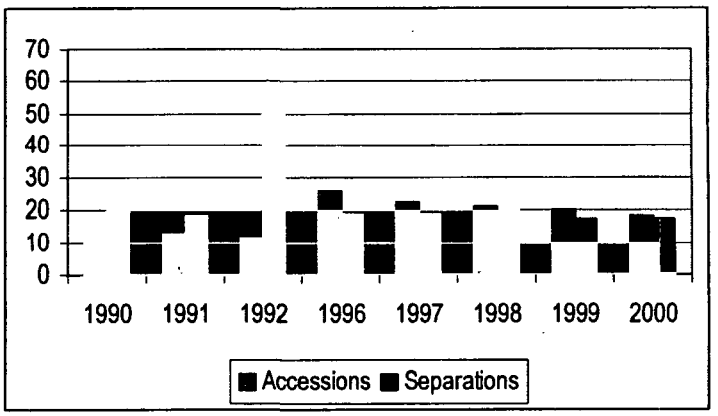
	1990**	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
A. Accessions											
Total	16.0	12.8	11.3	7.2	9.0	11.4	25.7	22.5	20.8	20.2	18.1
Of which job-to-job changes	13.2	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	9.8	9.7	n.a.
B. Separations											
Total	19.8	18.1	57.9	17.4	13.8	11.4	18.7	18.9	19.8	17.2	17.5
Of which job-to-job changes	12.9	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	9.8	9.7	n.a.
Of which exits to retirement	4.1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	3.4	1.5	n.a.

Source: own computations, based on Federal Pension and Disability Fund (FPDF) data.
*Accession rate is defined as the annual number of accessions per 100 employees as of the start of the year; separation rate is defined as the annual number of separations per 100 employees as of end of the year. The FPDF data reflect the number of active participants which were covered by the Sarajevo FPDFoffice (it excludes participants which were covered the Mostar FDPF office).
**To account for organizational changes of enterprise – which were purged from aggregate data on accession and separations but not from individual data from which components of separations and accessions are calculated – total accession and separation rates calculated from individual data for 1990 were reduced so as to match total accession and separation rates obtained from aggregate data, respectively (job-to-job changes were also reduced commensurately).

(a) Aggregate worker flows

47. In the 1990s, worker flows have shown wide variations (Table 3.1). The postwar aggregate accession rates slightly exceed the prewar ones, and the post-war separation rates are somewhat lower than the prewar ones. About half of these flows are direct job-to-job changes (note that due to under-representation of young workers in the sample, the direct job changes are most likely biased downward). There was a tremendous increase of separations at the beginning of the war, caused by the well-known circumstances. During 1992, more than half of all workers (58 percent) left the jobs which they held at the beginning of 1992, and only a few workers took a new job (the accession rate was just 7 percent). The Bosnian labor market has yet to recover from this catastrophe, as the postwar employment gains so far have fallen short of restoring the prewar level of employment. Both separations and particularly accessions were rather low during the war In 1996, the first post-war year, both rates, but particularly the accession rate, dramatically increased – the accession rate was 26 percent, and separation rate was 19 percent. In recent years, there has been a decreasing trend of both rates, with the gap between them narrowing (in 2000, both rates were 18 percent – see Figure 3.1).[10]

Figure 3.1: Accessions and separations, 1990-02 and post-war period



Source: own computations based on FPDF data.

(b) Worker flows and personal and firm/sector characteristics

48. How do the flows of different groups of workers deviate from the aggregate ones? For various reasons, both war-related and transition-related factors can differently affect different groups. Some groups of workers (for example, younger and less educated workers) may face lower chances of (re)employment; other groups (for example, workers of non-majority ethnic background, perhaps also women) may be particularly vulnerable to job loss. This subsection examines these questions by: (i) univariate analysis – simple tabulations of separation and accession rates by gender, age, and firm/sector of work, and (ii) multivariate analysis, identifying the determinants of labor market transitions "other things equal," and analyzing how their influence changed in the postwar period.

[10] It seems that recent changes of the labor code have contributed to the clearing of the situation of wait-listed workers. For example, in field research in 2001, one of the enterprises reported that it had no workers left on the waiting list, with a few workers quitting after being offered a job and the rest – 35 of them – being laid off with a severance pay amounting from 1000 KM to 1300 KM (but it also reported that the claims of workers who worked in the firm in 1991and left when the war started are still unresolved).

Univariate analysis of accession and separation rates

49. Below, the intensity of workers flows into and out of employment in the prewar period (1990) is compared with a postwar period (1998-99). Separations are distinguished by the destination (direct job-to-job changes; exit to retirement; other exit), and accessions by origin of the hired worker (direct job-to-job changes; entry from non-employment).

50. *Gender.* In the postwar period, the mobility of women was similar to that of men, and in some dimensions more favorable. With overall separation rates being nearly identical, women's rate of direct job changes in 1998-99 was slightly higher than men's, and their retirement rate was lower (Table S3.1, panel A). Moreover, women's accession rates in 1998-99 were higher than men's (Table S3.2, panel A), thus pushing up the employment share of women in the formal sector (due to more intense separations at the beginning of the war, the women's share in employment was strongly reduced at the beginning of the war, as seen in Table 3). Notably, job-to-job transition rates of women appear to be larger than men's, and in the postwar period, so are their transition rates from non-employment to employment.

51. *Age.* In the postwar period, young workers (those below 35 years) have enjoyed somewhat higher accession rates than older workers, due to a higher probability of entering a job from non-employment (job-to-job transition rates are strikingly similar across age groups – see Table S3.1, panel B). On the other hand, young workers have also been more likely to leave formal employment – a possible destination being also informal employment (Table S3.1, panel B). The net result was a stagnation of the employment share of the youngest workers (those below 20 years of age) during 1998-2000 at 0.2 percent, a modest increase of the employment share of workers in the 20-24 year group (from 3.2 in 1996 to 4.7 percent in 2000), and a decrease of the employment share of workers in the 25-34 year group (from 25.8 in 1996 to 23.1 percent in 2000, see Table 2.4, panel B).

52. *Education.* For the postwar period, the data reveal a strong advantage of the more educated: with rare exceptions, the accession rates have been monotonically increasing for each successive group with higher education, for each postwar year under consideration (Table 3.2, panel C). Separation rates have not differed much across education groups (Table 3.1, panel C), so the overall structure, as shown above, has shifted significantly in favor of the more educated. The advantage of the more educated consists of both higher accession rates from non-employment and particularly of higher job-to-job rates.

Multivariate analysis: determinants of transitions

53. The above discussion of labor mobility focuses on one personal characteristic at the time. It is possible, however, that some of these characteristics are correlated and thus attributing the whole observed effect to one of those may be misleading. For example, the finding that women's accession rate was higher than men's may be the consequence of women having higher education; if so, this advantage of women will disappear once other characteristics are also taken into account in a multivariate analysis. The analysis is a based on individual level data; as described above, these data include records which reflect organizational changes of employers, and so overall level of mobility (which is reflected in the analysis below as a "baseline" mobility) is above the level of mobility shown by the aggregate data (where organizational changes of employers are not reflected in the data)..

54. The results of multinomial regressions of separation and accession data are presented in Tables S3.3 and 3.4. While they mostly corroborate the findings of univariate analysis, they also deviate in some respects.

55. *Gender.* In contrast to univariate analysis, multivariate results on separations show that in the postwar period – once the influence of correlation among variables is controlled for – women are less likely to leave a job and take another right away. This result may signal that in the postwar period it is more difficult for women to find reemployment than for men. Several other findings, however, suggest that in the postwar period women do not face more constraints on their mobility than men. First, women are no more likely than men to leave a job to other destinations (these include inactivity and possibly also unemployment).[11] Second, women face no more difficulties in accessing jobs from non-employment than men.

56. *Age.* Multivariate results about entry and exit probabilities show that in contrast to the prewar period, in the postwar period older workers are less likely to change a job, as well as to leave a job to other destinations (the probability of leaving to other destinations was higher in the prewar period). This is consistent with deteriorating labor market conditions, but may also reflect "waiting effects." Namely, in the postwar period workers expected that they would be compensated for involuntary separations once new labor legislation was put in place, so some may have decided not to quit a job, particularly if formal jobs allowed engagement in the informal economy (such was the case with workers being placed on waiting lists). Harsher conditions of entry to jobs are evident from the lower probability of entry by older workers, which was not the case before the war (see Table S3.4).

57. *Education.* The results obtained in the univariate analysis carry over to multivariate analysis. In the postwar period, more educated are more likely to exit to another job, and less likely to exit to non- employment, including retirement (see Table S3.3). Interestingly, the results on entry to jobs show that the more educated are more likely to change jobs than the less educated, but they do not face higher probability to access jobs from non-employment.

58. *Firm and sector characteristics.* The separation probability results also offer some firm and sector effects. First, private sector workers are significantly less inclined to change jobs (in the prewar period, this can partly be attributed to job-to-job transitions caused by organizational changes of the public sector firms). Second, in contrast to the prewar period, workers in medium and large firms (those with more than 100 and more than 400 workers, respectively) are less likely to change jobs as well as to leave jobs to non-employment (other than retirement). Third, workers in profitable firms are more likely to change jobs – a puzzling result difficult to explain (except that it may be a consequence of more intense organizational changes of profitable firms). And fourth, job-to-job transitions varied greatly across sectors of activity. In the postwar period, more intense direct job changes involved separations from trade and construction sectors (in some other sectors – health and government – such transitions may again be attributed to organizational changes of firms).

3.1.3 International comparison of worker mobility

59. To put the above results in a broader perspective, we below compare worker mobility in the Federation to worker mobility in other transition countries, as well in OECD countries.

60. Despite both war- and system-induced imbalances in the economy, the postwar dynamics in the Federation's labor market – judged by international standards – has been rather modest. Except for the exceptional, war- induced record separation rate of 58 percent in the year when the war started, worker flows in the Federation have been on a low side among those in transition economies – and lag strongly behind long-term rates in mature market economies (Table 3.2).

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[11] Although firms had been formally prevented from laying off workers till the adoption of the Labor Code in 1999, they could resort to non-payment of wages to those workers who were considered redundant, thus forcing them to leave the firm.

Table 3.2: International Comparison of Accession and Separation Rates*

	Accession rate	Separation rate
Transition countries (average for selected years)		
Federation: 1990-91	14.4	18.9
1992	11.3	57.9
1996-99	22.3	18.7
2000	18.1	17.5
Bulgaria (1991, state firms)	12.9	31.5
Czech Republic (1994-1998)	n.a.	9.0
Estonia : 1989-91	15.5	16.2
1992-94	27.3	29.3
1995-97	19.3	19.0
Hungary (1991, state firms)	20.6	30.5
Poland (1991-2000)	21.3	22.2
Slovenia (1997-98)	16.2	15.3
OECD countries (average for selected years between 1971 and 1984)		
Unweighted average of the countries presented below	25.5	26.1
Finland	37.0	35.5
France	18.6	18.3
Germany	28.0	28.9
Italy	16.7	17.5
Japan	15.7	15.6
Sweden (manufacturing only)	18.4	18.3
United Kingdom (manufacturing only)	22.1	25.6
United States (manufacturing only)	47.8	49.4

Notes: *Accession rate (separation rate) is defined as number of persons newly entering (leaving) an enterprise as a percentage of total employment.

Sources: For the Federation, table 3.1; for Bulgaria, and Hungary, Boeri (1998); for Czech Republic, Sorm and Terrell (1999); for Poland, Kucharski (2002); for Slovenia, Haltiwanger and Vodopivec (2002a); for Estonia, Vodopivec (2002); for OECD countries, OECD (1994).

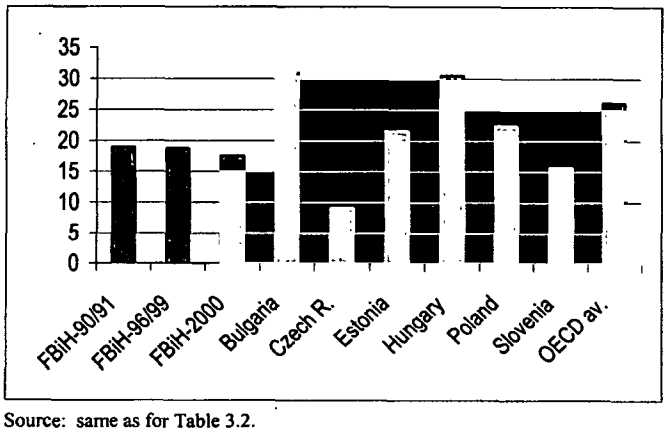
61. While the Federation's average accession rate during the first three postwar years exceeds other transition economies, given the exceptional circumstances these rates seem rather modest – e.g., the accession rate of Estonia at the height of its restructuring phase in the early 1990s was much higher. Moreover, the Federation's post war separation rates have been below 20 percent in every year – much below separations rates in Bulgaria, Hungary and Poland in the early 1990s (note that the late 1990 brought even more intense restructuring to these economies), comparable to the separation rate in Slovenia in the early and mid-1990s, and exceeding only the separation rate in the Czech Republic, a country well known for its slow restructuring pace. Moreover, in each postwar year, both accession and separation rates of the Federation lag considerably behind the comparable rates of mature market economies, obtained as averages over long period of time (and thus covering complete business cycles).

62. How do the results on determinants of labor market transition compare with the evidence from other transition economies? Because of demanding data requirements, such evidence is less

documented that the one, for example, on determinants of the wage structure – nonetheless, studies on Estonia, Czech Republic, and Slovenia allow the comparison. [12]

63. In many aspects, the Bosnian results are consistent with the ones from other studies. For example, all studies mentioned above find that the advantage of more educated workers during transition has increased (for example, the better educated are more likely to avoid exits from employment to non-employment and have better access to jobs). Similar to other studies, the present study finds that women have been less likely to switch jobs and that they have been no more likely to exit jobs to non-employment.

Figure 3.2: International comparison of worker separation rates



Source: same as for Table 3.2.

64. It is also interesting to compare the evolution of employment shares of different age groups across different countries in the 1990s. The share of younger workers (less than 34 years) decreased by far the most in the Federation.[13] In Estonia, employment shares of those younger than 30 years stayed pretty stable throughout the transition; in Slovenia, employment shares of those younger than 30 years also declined strongly, but the enrollment of students increased very strongly, thus accounting for a decline of the employment share by about 5 percentage points.

3.1.4 Summary of worker mobility

65. The above results show that worker mobility in the postwar Federation was rather modest. Aggregate separation and accession rates somewhat exceeded the prewar rates, but they lagged behind the worker flows during the intense restructuring phase of other transition economies, and were much lower than long-term worker mobility rates in mature market economies. Other results showed that women were less likely to switch jobs, but they were no more likely than men to experience separation from job to non-employment (inactivity or unemployment), and faced no more difficulties in accessing jobs from non-employment than men. In comparison to the prewar period, older workers were less likely to separate from employment. This finding is consistent with deteriorating labor market conditions, but may also reflect "waiting effects" – workers deciding not to quit in expectation of the compensation for involuntary separation. Corroborating the waiting effects is also the finding that in contrast to the prewar period, workers in medium and large firms were less likely to change jobs as well as to leave jobs to non-employment other than retirement. And consistent with the results in other

[12] See Vodopivec (2002) for the evidence on Estonia; Sorm and Terrell (1998) on the Czech Republic; and Abraham and Vodopivec (1993) on Slovenia.
[13] (Vodopivec, 2001).

transition countries, the better educated are found to have higher chances of exit from employment to another job, and lower chances of exit to non-employment, including retirement.

3.2 Creation and reallocation of jobs

66. Given the large accumulated imbalances, how responsive and adaptive has been the economy of BiH – and labor market in particular – in the postwar period? In this section, we provide another look on this question by examining job flows in the Bosnian economy. We start with an introduction to this topic, providing basic definitions and explaining how we computed them in the case of BiH. Due to data limitations and to enable international comparisons, we focus our analysis on the sector of medium and large enterprises. We proceed with the presentation of the results. The main finding is that job flows have been very modest in BiH – both job destruction and job creation rates are among the smallest among transition economies. We also present sectoral results, by each entity. We conclude with the summary of findings.

3.2.1 Methodology and data sources

67. Since the early 1990s, literature on job flows has been rapidly growing and it has produced interesting insights, among others, into the contribution of job mobility to productivity growth. In contrast to worker flows, job flows reflect the appearance and disappearance of jobs – employment positions. Of course, worker flows are the only vehicle of bringing about the job flows, so job flows cannot happen in the absence of worker flows. But singling out a particular subset of worker flows – the one which shows the flows of *employment positions* – has shown to be a powerful tool of the analysis of labor reallocation, bringing out interesting insights into the process of job creation and destruction, as well as of productivity growth. [14]

68. There are two ways of **measuring job flows**: they can be calculated from labor force surveys, if voluntary and involuntary separations are distinguished, or from enterprise data (knowing successive employment levels). In this analysis, the second source was used. Job creation is thus defined as the sum of increases in employment in all firms which expanded in a particular year, and job destruction as a sum of employment losses in firms which contacted in the particular year (see Box 3.1). For all variables, job flow rates are obtained by dividing job flows by the stock of employment at the beginning of the period of observation.[15] Note that net employment growth is equal to the difference between job creation and destruction. As a summary measure of job reallocation one can take the sum of creation and job destruction – which is called "gross job reallocation rate" – or the excess job reallocation rate, defined as the difference between the gross reallocation rate and the net employment growth. The latter measure is particularly interesting in this case, because it can be taken as a measure of the intensity of enterprise restructuring (note that it measures the extent of job flows over and above what is needed to accommodate a needed change in net employment).

Data sources

69. Data used in the analysis below were provided by the Federation Agency for Social Accounting (SDK), for the Federation, and by the Statistical Office of Republika Srpska for the years of 1997, 1998, and 1999. Data contained the information on the number of workers by enterprise (yearly average of the end-of-the-month number of workers) and sector of activity, type of ownership, total income, profit/loss, payroll, and social contributions (see Appendix 1). All firms of the incorporated sector report their income statements to the collection agencies; due to non-compliance and processing errors, the coverage is not complete (see below).

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[14] See Davis and Haltiwanger (1999)for review article on job creation and destruction.

[15] This definition deviates from the one often used in the job flow analysis (instead of employment stock at the beginning of the period, the average of the stocks at the beginning and end of the period is often used).

Box 3.1: Definition of job flows

The (gross) job creation rate between time t-1 and t equals employment gains summed over all plants that expand between t-1 and t, divided by the total employment at time t-1.

The (gross) job destruction rate between time t-1 and t equals employment losses summed over all plants that contract between t-1 and t, divided by the total employment at time t-1.

The net employment rate at between time t-1 and t is the difference between employment at time t and employment at time t-1, divided by the total employment at time t-1.

The (gross) job reallocation rate between time t-1 and t is the sum of all plant-level employment gains and losses that occur between t-1 and t, divided by the total employment at time t-1.

The excess job reallocation rate between time t-1 and t equals the difference between (gross) job reallocation and the absolute value of net employment change, divided by the total employment at time t-1. This is an indicator of the intensity of restructuring.

70. In order to ensure comparability with results from other transition economies, and because of the noisy nature of the data, the analysis concentrates on the sector of more "traditional firms." Many such firms were particularly strongly confronted with the need to adjust their workforces, due to inherited problems from the previous system and additional ones brought by the war. This sector thus merits particular attention on its own; in addition, the inability to distinguish between true and false births and deaths of firms also limited the focus of the analysis. The analysis thus excludes job creation and destruction in very small firms (those with less than 10 workers in the first year of the observation period), and firms with large changes in employment (see details in Appendix 1).

71. The final sample of firms consists of 2,774 firms, for the 1997/98 period, and 3,580, for the 1998/99 period. Basic summary statistics on both samples (number of firms and average employment, by ownership type, sector, firm size, and profitability) are provided Table S3.5. As can be seen from the table, both samples are well balanced in terms of covering sectors and firm types.

3.2.2 How dynamic are job flows in the Bosnian economy?

(a) Aggregate job rates

72. The analysis of the selected group of enterprises shows that in the postwar period, job flows in the Bosnian economy were rather modest (to gain international perspective on job flows, see below). During 1997-99, a slight reduction in net employment was produced by a job creation rate of 4.2 percent and a job destruction rate of 5.3 percent (because the selected enterprises tended to be more mature firms, a slight contraction is quite an expected result). The resulting gross job reallocation rate (the sum of jobs which disappeared in shrinking firms and those which were generated in expanding firms) was 9.6, and excess job reallocation rate (a measure of the "job turnover") was 7.8 (see Figure 3.3).

73. The results by entities show that the dynamics of job flows in Republika Srpska is particularly low (see Table 3.3).

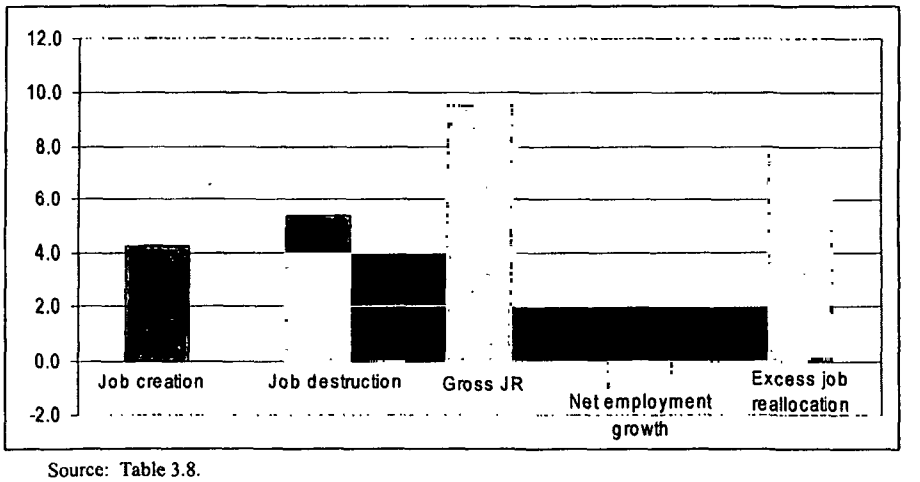
Table 3.3: Annual net and gross job flows

	Job creation	Job destruction	Gross job reallocation	Net employment growth	Excess job reallocation
Bosnia and Herzegovina					
1997/98	5.1	4.4	9.6	0.7	9.0
1998/99	3.3	6.2	9.6	-2.9	6.7
Average*	4.2	5.3	9.6	-1.1	7.8
Federacija BiH					
1997/98	5.5	5.5	11.1	0	11.1
1998/99	3.6	9.0	12.6	-5.4	7.2
Average*	4.6	7.3	11.9	-2.7	9.2
Republika Srpska					
1997/98	4.7	3.3	8.0	1.4	6.6
1998/99	3.1	3.7	6.8	-0.6	6.2
Average*	3.9	3.5	7.4	0.4	6.4

Source: own calculations.
* Using averages, job flow rate definitions do not hold exactly.

74. Especially job destruction rates of the entity lag behind the ones in the Federation, pulling down both the Republika Srpska gross- and excess job reallocation rates. This suggests that the labor market in Republika Srpska is distinguished with even more inflexibility and that the adjustment process is proceeding at a slower pace.

Figure 3.3: Job flows in the Bosnian economy, 1997-99



Source: Table 3.8.

(b) Job flows by firm characteristics and sector

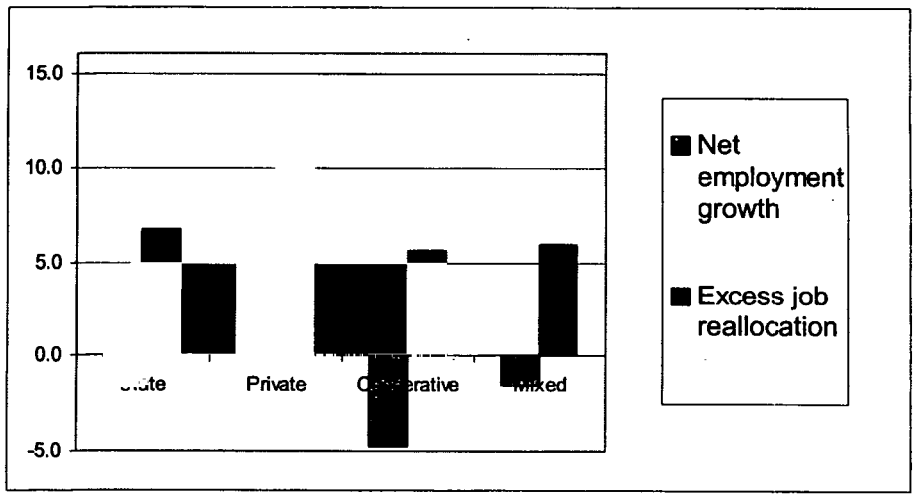
75. Further insights into the dynamics of job flows are provided by the breakdown of firms by sector, ownership, size, and profitability.

76. *Ownership*. Extremely interesting insights are produced the breakdown of jobs by ownership. **In every category except for job destruction, the highest job flows are produced by private firms.** They by far exceed the other types of firms not only by job creation, but also

by gross- and excess job reallocation – and also net employment growth (see Figure 3.4). Private firms thus show much higher vitality both with respect to their ability to create more jobs as well as to "reshuffle" the jobs (employment positions) within the firms in the sector, as suggested by their higher excess job reallocation. Job flow patterns in respect to ownership are remarkably uniform across the two entities (Table S3.6).

77. *Sectoral job flows*. As shown in Figure 3.5, job flows vary tremendously by sectors, with trade, construction, and, surprisingly, finance, insurance, and real estate having the largest excess job reallocation rates (suggesting intensive restructuring), and social services, transport and communications and also manufacturing being on the other end. In general, both job creation and

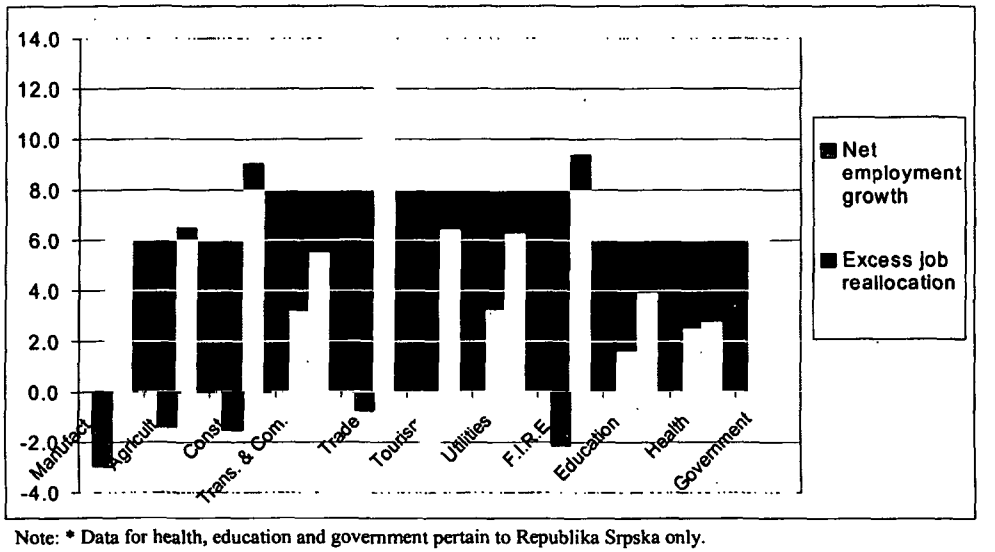
Figure 3.4: Job flows by ownership type, 1997-1999



Source: Author's computation based on Bosnian enterprise data.

job destruction rates do not differ dramatically across sector, although, as noted in the previous chapter, there is a notable shift from manufacturing to services in terms of net employment growth (see Table S3.7). Interestingly, the sector with the highest job creation and also the one which contributed most intensely to gross job reallocation is – government (this pertains to Republika Srpska, data on the government sector only was available from this entity).

Figure 3.5: Job flows by sector, 1997-1999*

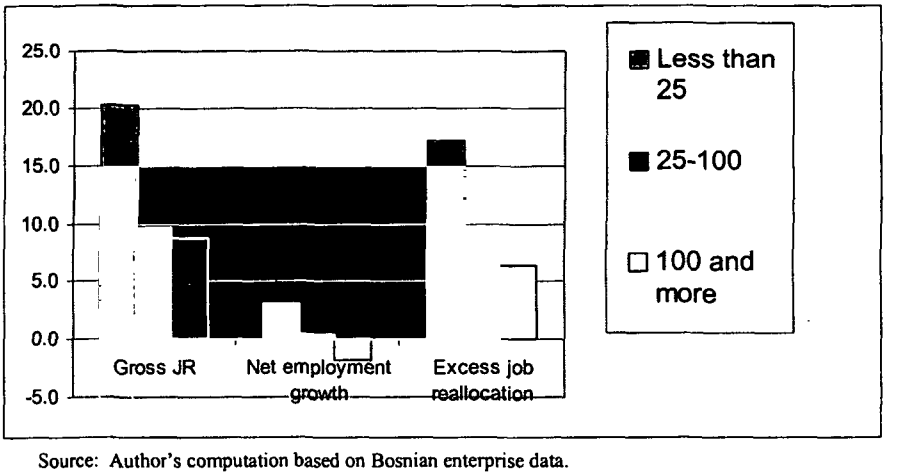


Note: * Data for health, education and government pertain to Republika Srpska only.

78. On the entity level, significant differences in job flows occurred only in a few sectors. Notable is much faster job destruction in the Federation manufacturing sector; with the same job creation rate in both entities, manufacturing of BiH is also reducing its net employment. On the other hand, the transport and communications sector of the Federation created jobs more intensely than that of Republika Srpska, and, in contrast to the latter, also increased its net employment.

79. *Enterprise size.* Similar to ownership, the size of the enterprise is also strongly connected with job flows dynamics. Smaller firms (those below 25 workers) exhibit much more dynamism that larger firms, with firms in the largest size class (100 or more) having the lowest dynamics (Figure 3.6 and Table S3.8). Small firms exceed larger firms not only by their job creation intensity, but also

Figure 3.6: Job flows by enterprise size, 1997-1999



Source: Author's computation based on Bosnian enterprise data.

by their "job turnover" capacity (measured by gross- and excess job reallocation rates). But jobs in small enterprises also disappear at high rate, as witnessed by their high job destruction rate. The results by entities conform completely to the pattern for the whole country.

80. *Enterprise profitability.* Job flows dynamics is also influenced by the financial standing of the enterprise. Unsurprisingly, profitable firms create more jobs and destroy fewer – what is more surprising is the fact that the differences between profitable enterprises and loss-makers are quite small (Figure 3.7 and Table S3.9). This is particularly true for Republika Srpska, where the intensity of restructuring of loss-makers is barely higher than the one of profitable enterprises (judged by both gross- and excess job reallocation rate).

3.2.3 International comparison of job flows

81. To put the above results in perspective, they were compared to job flows in other transition economies for which comparable data were available (to ensure comparability, the sample of Bosnian firms was restricted to those with more than 100 workers). The comparison group consists of Bulgaria, Estonia, Poland, Romania, and Slovenia, and their data refer to mid-1990s, that is, the period starting 3-5 years into the transition. In all dimensions of gross job flows, the average of the mentioned group of countries exceeds the numbers for Bosnia (Table 3.4, Figure 3.8).

Table 3.4: Annual net and gross job flows, BiH and transition countries*

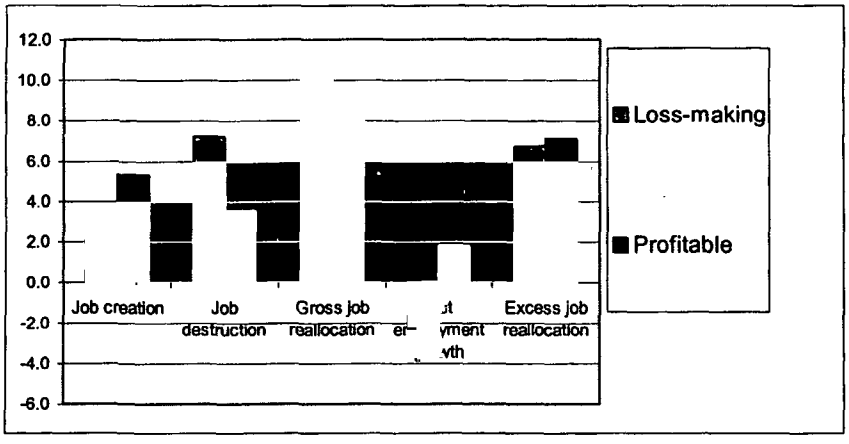
	Job creation	Job destruction	Gross job reallocation	Net employment growth	Excess job reallocation
A. BiH - restricted sample (100 workers or more)					
BiH	3.4	5.3	8.7	-1.9	6.4
Federation	3.6	7.3	10.9	-3.7	7.2
Republika Srpska	3.2	3.3	6.5	-0.1	5.4
B. Transition countries					
Average	4.4	6.7	11.0	-2.3	8.2
Poland	3.2	5.4	8.5	-2.2	6.3
Estonia	7.9	8.1	16.0	-0.3	13.5
Slovenia	4.3	5.2	9.5	-0.9	8.6
Bulgaria	2.4	5.7	8.1	-3.3	4.8
Romania	4.0	9.0	13.0	-5.0	8.0

Source: for Bosnia, own calculations; for other countries, Faggio and Konings (1999).
*Figures refer to average over the years of 1997-99 for BiH, Federation and Repulika Srpska, 1994-1997 for Poland, Estonia, Slovenia and Bulgaria, and 1995-1997 for Romania. Using averages, job flow rate definitions do not hold exactly.

82. Moreover, the intensity of flows of the most intense reformer, Estonia, strongly surpasses the intensity of job flows in other countries (note that the period refers to a later period of the transition, when the most intense period of Estonian restructuring was over).[16] The conclusion that emerges is that the job dynamics in Bosnia in the first post-war years has been rather low – particularly if one takes into account the extraordinary conditions imposed on the economy by the war devastation. Of the two entities, Republika Srpska is the obvious laggard.

[16] As shown by Haltiwanger and Vodopivec (2002b), the intensity of job flows in Estonia peaked in 1992 and 1993, the period which was not taken into account in the data presented here.

Figure 3.7: Job flows by enterprise profitability, 1997-1999



Source: own computation based on Bosnian enterprise data.

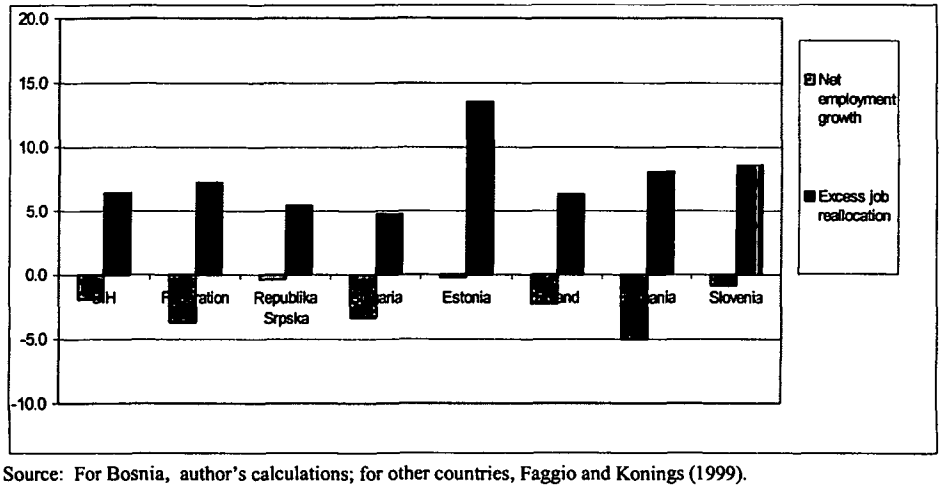
83. The Bosnian results by sector and enterprise characteristics are quite similar to those in the above transitional countries. Studies also report higher job flows in private than state firms in Bulgaria, Poland, and Romania, and Estonia, although the advantage of private firms in these countries, is generally smaller.[17] The above result that small firms in Bosnia have a higher job creation rate than large firms, but also higher job destruction rate, is a very well established fact in the job flow literature.[18]

3.2.4 Summary of job flows

84. The above results show that during 1997-99, job flow intensity in larger Bosnian enterprises (those with more than 10 workers) was very modest. Overall job creation rate was 4.2 percent, job destruction rate 5.3 percent, and measures of enterprise restructuring were also quite low – gross job reallocation rate was 9.6 percent and excess job reallocation rate 7.8 percent. These rates were even smaller for a group of enterprises larger than 100 workers, thus putting Bosnia behind other transition economies in job flow dynamics. Job flows in the two entities largely conformed to the above pattern, although the dynamics of job flows in Republika Srpska was in general lagging behind the one in the Federation. Sector and enterprise characteristics matter – above all, in both entities job dynamics of private enterprises was much higher than the one of state enterprises. The job flow dynamics also varied by sector and enterprise size. Interestingly, although smaller, job flow intensity of loss-makers did not deviate much from the one of profitable enterprises.

[17] See Faggio and Konings (1999), and Haltiwanger and Vodopivec (2002).
[18] See, for example, Davis, Haltiwanger and Schuh, 1996 for evidence on U.S., and Faggio and Konings, 1999, for evidence on transition countries.

Figure 3.8: Job flows, BiH and transition economies (late 1990s)



Source: For Bosnia, author's calculations; for other countries, Faggio and Konings (1999).

3.3 Concluding remarks

85. The results presented above picture the Bosnian labor market as a rather static one, unable to accommodate looming imbalances in the economy which has only emerged from the war and still has to face the legacy of the socialist system. Overcoming the dramatic employment fall in 1992 in particular requires a flexible and dynamic labor market, which has simply not been evident in BiH in the post-war period. In comparison to the prewar period, postwar employment is far lower, as new jobs have only been slowly created, and net employment growth has almost stopped after a brief post-war "bounce". Worker and job flows have been rather low, lagging behind flows in other transition economies during intense restructuring periods, with the lag of Republika Srpska being particularly pronounced. In spite of the tremendous need for labor reallocation due to huge accumulated imbalances, barriers to mobility proved to be very important, reducing labor mobility and ultimately hindering job creation, too.

86. Under such circumstances, the formal sector workforce has become considerably older, and a large toll is being paid by the young, who have been denied access to formal sector jobs. The results also show that, similar to other transition economies, the advantage of more educated people increased. It also seems that women have faced no more difficulties than men, as far as mobility from and within the formal sector is concerned – they have retained their relative share in formal employment and have had similar patterns of mobility to men.

87. Low worker and job flows are primarily produced by the lack of job creation capacity of the Bosnian economy – a complex problem the solution of which requires addressing a host of issues, ranging from political and macroeconomic ones to ensuring labor market and other institutions conducive to job creation. Having the overarching need to enhance labor mobility and job creation in mind, the rest of the report investigates further some labor market and related areas which may offer explanation – and possible solutions – for this problem. The next chapter explores the institutional setup of the labor market (regarding wage determination, employment legislation and practices, and the policies and programs for the unemployed), as low worker mobility may well be accounted for in significant measure by an overly structured wage setting process, rigidities in employment legislation and/or collective agreements, and lack of incentives to leave unemployment.

4. THE IMPACT OF LABOR MARKET INSTITUTIONS ON WORKER MOBILITY AND JOB CREATION

88. The previous two chapters portrayed the Bosnian labor market as a rather static and inflexible one, unable to create enough jobs to restore the prewar level of employment, and allowing only modest labor market flows incapable of effectively addressing large accumulated imbalances. How much are labor market institutions themselves contributing to such unsatisfactory performance? This chapter seeks to answer this question by investigating the area of wage determination, employment legislation and practices, and institutional support for the unemployed. Specifically, it addresses the following issues:

- In ***wage determination***, interesting issues include the following: Has a rigidly structured wage setting framework embedded in collective agreements, together with a relatively high minimum wage, stood in the way of worker mobility and job creation? What happened in the postwar period to wage inequality, and how does wage formation in the informal sector deviate from the formal sector? Specifically, do we find any evidence of wages being under-reported and workers being pressured to engage in the informal sector?
- Regarding ***employment legislation***, the key issue is certainly the strictness of employment protection legislation and its influence on labor market flows. As mentioned earlier, strict employment protection has been shown to be associated with "sclerotic" labor markets, high shares of long-term unemployed and high youth unemployment – is there any evidence of such effects also in Bosnia and Herzegovina?
- In designing ***institutional support for the unemployed***, a careful balance must be struck between providing the right incentives for the unemployed to move out of unemployment, and providing adequate – and fiscally affordable – income support. Difficult dilemmas are also posed in attempting to provide the unemployed with effective and efficient active labor market programs.[19] Has such a balance been struck in Bosnia and Herzegovina?

89. In each of the three areas, the report will first review and evaluate the institutional and legislative framework, and then present empirical analysis of specific issues. These include analysis of the determinants and evolution of wage structure, under the wage setting framework; analysis of wait-listed and informal sector workers, as well as employment discrimination, under employment legislation; and analysis of the structure of unemployed and measurement of unemployment, under the institutional support to the unemployed.

4.1 Rigidly structured wages hamper labor adjustment

90. Under the self-management system, elaborate schemes were used to guide determination of wages – a product of both centralized policies and worker engagement on the plant level – and the resulting wage determination certainly did not promote labor mobility. How has this tradition changed in the postwar Bosnia and Herzegovina? In continuation, this section first describes the wage determination system, and then proceeds with the empirical analysis of wages in the postwar period.

4.1.1 Wage determination system

91. Systemic changes introduced in the postwar period included reforms in the area of wage determination. This section reviews the main institutional features which shaped the wage setting

[19] For an extensive survey of issues and options in the design of income support systems, see Vodopivec and Raju (2002).

process under the self-managed system, and the legislative and bargaining framework which has been put in place with its demise. Payroll taxation is also discussed.

(a) Institutional and bargaining framework

92. Under the self-management system, the absence of explicit property rights dictated a specific wage setting mechanism. Both the government and workers had clearly delineated roles. The government set the firm's wage bill (called a "socially warranted" wage bill), with the objective of evening out differences in pay among firms -- an objective achieved by massive inter-firm income redistribution.[20] Within the government determined boundaries, the workers' role was to set individual wages within the firm. The wage scale was determined by a referendum of employees. Not surprisingly, firms Yugoslav firms had extremely compressed wage scales in comparison to firms in capitalist countries. For example, in an enterprise with several thousand workers, the pay of the highest paid manager was 4.54 times that of the lowest paid worker.[21]

93. The 1988 Yugoslav Law on Enterprises transferred decision-making rights from workers to equity owners, thus formally ending the era of self-management. Important changes occurred both in employment and wage policies. The major novelty in the area of employment was the right of the employer to lay off a worker (although this option was extremely costly for the employer). On the wage setting front, the self-managed mechanism was replaced by a system with three components: the Labor Code, collective bargaining, and incomes policy.

94. Both the Yugoslav and entity Labor Codes removed administrative constraints and collective decision-making, leaving wage determination as a managerial responsibility – and subject to collective bargaining.[22] According to Entity Labor Codes, the government, representative trade unions, and representative employer associations sign the General Collective Agreement (until they gain reputation, entity or cantonal governments replace employer associations in the Federation).[23] The outcomes of collective bargaining are obligatory for employers who were represented in the bargaining process; in special circumstances, in both entities the Ministries of Labor have the authority to impose collective agreements on other enterprises as well. The Labor Law also sets a range of minimum entitlements - e.g. for severance pay and notice periods - which can not be reduced by collective bargaining at any level. In the Federation, only state-owned enterprises (those in which the state owns more than 50 percent of shares) have participated in bargaining; for private enterprises, collective bargaining agreements have been non-binding since the 2000 legislation. Separate collective agreements have been accepted on the cantonal, branch, and enterprise level. The latter ones tend to follow the general collective agreement, but may specify more detailed and often generous conditions, as deemed appropriate for their specific areas (general agreements stipulate that lower level agreements cannot reduce the level of worker rights and obligations). The influence of trade unions also extends into other areas besides collective bargaining – they participate in management boards of enterprises and their works councils, as stipulated by law.

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[20] Kraft and Vodopivec (1992) quantified redistributive flows among Yugoslav firms and showed that Bosnian manufacturing firms – belonging to one of the less developed regions of Yugoslavia – were heavily subsidized: in 1986, they received net subsidies amounting to 43 percent of their value added.

[21] See further details on wage determination in Vodopivec (1993).

[22] A Yugoslav Labor Code, accepted in October 1989, was applied till the acceptance of entity laws in 1999 in the Federation, and in 1993 in Republika Srpska (several war decrees were also relevant).

[23] Trade unions are quite influential, which can be seen also from their participation in management boards of enterprises and their works councils, as stipulated by law.

95. Collective agreements importantly affect determination of wages, as they set permissible ranges of wages. Collective agreements determine the lowest base wage (set in nominal terms by branch collective agreements) and the "coefficient of complexity" pertaining to each of the nine categories to which every workers is classified. The base wage of each category is obtained by multiplying the lowest base wage with the coefficient of complexity of a certain category. Collective agreements also prescribe how base wages are adjusted to inflation, and how much the base wage of the individual worker can be increased on the basis of: (i) seniority (an increase of 0.6 percent of the base wage in the Federation with the maximum of 20 percent, and 0.5 percent of base wage per year of work experience in Republika Srpska); (ii) difficult working conditions; and (iii) supplement for individual successfulness and an "income sharing" component, paid on the basis of individual and enterprise successfulness.[24] Collective agreements also specify that firms in bad financial standing (a term not precisely defined) can reduce the pay of their workers.[25]

96. The classification of workers into nine categories is based on the level of education and -- formal and on-the-job – training, or "professional qualification." The base wage for the highest category is a 5-6 times higher than that of the lowest category. For illustration, a basic wage scale, as mandated by the collective agreement, is presented in Table S4.1 for one of the industries in each entity.

97. General Collective Agreements also entitle workers to a series of fringe benefits. These include paid vacation, maternity leave, reimbursement of transportation costs of commuting, and provision of a warm meal at work, among others. It is estimated that the value of the reimbursement of transportation costs and provision of the warm meal at work ranges about one-third of the average net wage.[26]

(b) Minimum wage

98. In the Federation, the minimum wage is determined by the General Collective Agreement of 2000 as 55 percent of the average wage in the economy (branch agreements may exceed this number).[27] In Republika Srpska, the General Collective Agreement authorizes the social partners to determine its level on a monthly basis, but refrains from specifying the methodology for its determination. The following minimum wages were in place since 1997 (their ratios to average net wages are also reported):

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[24] General Collective Agreement of the Federation, *Official Gazette of the Federation BiH, No. 19/00;* General Collective Agreement of the Republika Srpska, *Official Gazette of the RS, No.* 21/01.

[25] Every element described above is also used as a part of the wage setting apparatus in Slovenia, where the basic framework was introduced in 1991.

[26] For example, in January 2001, the value of a monthly city transportation ticket in Sarajevo Canton was 44 KM. Moreover, if a warm meal is not provided directly, employees are compensated at a rate no lower than 25 percent of the last published average net salary.

[27] General Collective Agreement of the Federation BiH in 2000, *Official Gazette of the Federation BiH, No. 19/00, art. 5.*

Table 4.1: Minimum wages in the Federation and Republika Srpska, 1997-2002

Year	Federation of BiH		Republika Srpska	
	Amount (in KM)	Ratio of minimum to average net wage	Amount (in KM)	Ratio of minimum to average net wage
1997	85	32.3	55*	49.1
1998	85	25.8	60*	35.3
1999	200	53.4	60	27.8
2000	200	48.5	80 (68)**	28.8 (24.5)**
2001	220	49.6	80 (68)**	25.9 (22.0)**
2002	251	n.a.	n.a.	n.a.

Sources: for Federation: for 2000-2002: General Collective Agreement of the Federation, *Official Gazette of the Federation, No. 19/00, art. 5;* for 1998-99: in *Official Gazette of the Federation BiH, No.* 13/98; for 1997: Resolution of the war government of the Federation. For Republika Srpska, General Collective Agreement, *Official Gazette of RS, No.* 6/97, 29/97, 29/97, 13/98, 39/99, 26/00, and 21/01.

* Computed on the basis of conversion from Yugoslav dinar.

** The number in parentheses refers to budget-financed employers, and the other to the non-budget financed employers.

99. As evident from the table, the minimum wage is set at a relatively high level in the Federation, and at a low level in Republika Srpska.[28] For comparison, the ratios of minimum to average wages for developed countries range from 0.71 in Italy, to over 0.6 in Austria and Norway, and to below 0.45 in Spain, United Kingdom, Canada, and United States.[29] Most significantly, for all countries for which data were reported, there was a very small percentage of workers paid at or near the minimum wage.

(c) Taxation of wages

100. After the 2001 changes in the contribution and taxation rates, total contribution rate (including payroll tax) on gross wages is 46.9 percent in the Federation, and it is 52.0 percent in Republika Srpska (Table 4.2).

Table 4.2: Contributions and taxes imposed on wages, 2001*

	Federation		Republika Srpska
	Contribution rate on gross wages	Contribution rate on net wages	Contribution rate on net wages**
1. Employer contributions			
Pension fund	7.0	10.3	24.0
Health insurance	4.0	5.9	15.0
Unemployment insurance	0.5	0.7	1.0
Child care	--	--	2.0
Total employer contributions	11.5	16.9	42.0
2. Employee contributions			

[28] In reality, the ratio of minimum to average wage may deviate from the one stipulated by law. This deviation arises because the stipulated ratio is based on the average wage reported at the time of the acceptance of the collective agreement, and the actual ratio is based on the average wage for the whole calendar year.

[29] See Nickell and Layard (1999).

	Federation		Republika Srpska
	Contribution rate on gross wages	Contribution rate on net wages	Contribution rate on net wages**
Pension fund	17.0	25.0	0
Health insurance	13.0	19.1	0
Unemployment insurance	2.0	2.9	0
Child care			0
Total employee contributions	32.0	47.0	0
3. Payroll tax	3.4	5.0	10.0
Total contribution	46.9	68.9	52.0

Source: for the Federation: Law on Changes of Law on Contributions, Official Journal of the Federation, May 2001; Law on Changes of Law on Wage Tax; Official Journal of the Federation, May 2001; for Republika Srpska; Law on Contributions, Official Gazette of RS, No. 51, October 2001.
Notes:
* Gross wages are defined as the sum net wages (workers' take-home wages) and social security contributions paid by the worker.
**Because all contributions are levied on employer, gross wages equal net wages.

101. However, because in Republika Srpska contributions and taxes are levied exclusively on employers, a better comparison is the taxation rate expressed in percentage of net wages (workers' take-home pay). This comparison shows that for each KM 100 of take-home pay, the employer has to bear an additional cost of KM 68.9 in the Federation, and only KM 52.0 in Republika Srpska, of social security contributions and taxes. Workers take-home pay is further reduced by income taxes, which are paid by employers who withhold income tax. The tax burden of Bosnia and Herzegovina is comparable to that of other transition economies – the burden which is much higher than the one of developed economies.[30] It seems that Republika Srpska has last year embarked on an important taxation reform (before October 2001, the taxation rate of net wages for Republika Srpka was a much higher 72.6 percent) and according to some analysts, the total tax relief of employers is estimated to be 10 percent.[31]

4.1.2 Empirical analysis of wages

102. From the above description, it is clear that wages in Bosnia and Herzegovina are determined by a rigidly structured, formal system. To what extent is such a system responsive to market forces? In particular, one could hypothesize that wage policies which set minimum pay, index wages to inflation, and fix the allowable range of pay within firms tend to compress wages. Below the working of the system is investigated empirically, starting with a formulation of hypotheses about the expected wage structure changes in an economy undergoing transition to market.

(a) Expected impact of transition on wages

103. During the transition from a socialist to a market economy, one can hypothesize that the wage structure is influenced by numerous forces. First, and arguably most important, there are forces associated with the correction of distortions created by systemic constraints on the labor market – and wage structure in particular – under socialism. Second, there are both short- and

[30] See the comparison of payroll taxation rates in Riboud et al (2002).

[31] Tomas (2002). Note that together with a reduction of tax rates, Republika Srpska broadened the tax base (according to the new law, it includes, besides wages, also the reimbursement of the costs of transportation to and from work, the value of meals provided by the employer, one-time compensation for vacation and seasonal purchase of certain food items, subsidy for heating, reimbursement of costs for the use of own vehicle, and reimbursement for increased living expenses for field work, to name the most important ones.

long-term changes in the structure of production that may affect the structure of wages. Third, there are short-term forces associated with disequilibrium and uncertainty, created by the transition itself. Because these forces came into play simultaneously, it is difficult to isolate the impact of any single factor.

104. *Correction of distortions created by systemic constraints on labor market.* Under socialism, egalitarian pay policies tended to limit pay to skilled labor relative to the pay of unskilled labor, thus reducing gains from schooling, particularly for university education. Particularly with rising demand for skilled labor, the returns to education would be expected to increase during the transition.[32] Another consequence of transition relates to the labor market position of women. If a formalized wage system under self-management contributed to a more equal treatment of the sexes, removal of these institutions might be expected to reduce relative earnings for women. The removal of systemic constraints is also expected to increase wage inequality.

105. *Effects of changes in the structure of production.* Transition caused both short- and long-term changes in the composition of final demand for products in Bosnia and Herzegovina, and these changes may have different effects on workers with different skills. In the long term, because socialist economies placed particular emphasis on manufacturing and, within manufacturing, on heavy industries such as metallurgy, the shift away from manufacturing to services caused a permanent reduction in demand for labor in manufacturing and an increase in demand for labor in service industries. Note that the sectors adversely affected by changes in production were predominantly male, whereas the expanding sectors were relatively female intensive. Thus the shifts in the composition of final demand are likely to favor the more educated workers and women. The main short-term changes in the composition of labor demand are war-related, reflecting the shift in trading patterns in the immediate post-war period.

106. *Forces associated with disequilibrium and uncertainty created by the transition.* Additional short-term shifts in relative labor demand toward more educated workers are due to the process of transition itself. Disequilibrium and uncertainty create an increased need for entrepreneurial skills – skills that were less needed under the socialist system. If entrepreneurial ability is complementary with education and skills in general, then relative wages and employment of the most educated groups should rise in the newly emerging market economies relative to pre-transition returns.

107. In summary, several factors may cause the premium associated with skilled labor to increase during the transition. Corrections of previous distortions, and particularly changes in the composition of final demand and the existence of disequilibrium, all point toward shifts in relative demand toward skilled workers. Returns to experience, to the extent experience reflects the accumulation of skills, may also increase, but in a market environment one can expect an inverse U shape of returns (that is, a reduction of returns for certain years before retirement). Women might be disadvantaged because of the dismantling of egalitarian policies which allowed them to fare relatively well under socialism -- but favorable relative demands for female intensive sectors may have countered these forces.

(b) Methodology and data sources

108. To analyze how the earnings structure in Bosnia and Herzegovina changed during the 1990s and in 2000-01, we applied the standard, Mincerian earnings function approach. The dependent variable is the natural logarithm of monthly wages. The vector of independent variables includes several sets of dummy variables. These included the following personal and

[32] On the increase of enrollment in tertiary education, see Kraft and Vodopivec (2002).

job characteristics: gender, level of formal education, years of tenure (that is, employment with the same firm), work experience (a cumulative period of employment, which may be spent with different employers), whether a person entered a firm within the past year (distinguishing between another job or non-employment as the origin of the move), whether he/she is on the waiting list, and whether he/she has a second job. Moreover, the following firm characteristics were also included: size, profitability, and sector of activity of the firm. Beside analyzing determinants of wages via the earnings function approach, we also investigate the evolution of wage inequality by inspection of earnings distributions and by calculating summary measures of wage inequality.

109. Empirical analysis of wages rests on two sets of data: the administrative data on wages of formal sector workers in the Federation, and on Bosnian 2001 LSMS data covering the whole country (see Appendix 1 for description of data sources).[33] In the latter case, weighted regression estimation was used (weights coming from the sampling procedure). Administrative wage data cover both the prewar and postwar periods.

(c) Results of earnings function estimation

110. Below we present the results of the earnings functions estimated separately for formal and informal sector workers, and for each entity.

111. *Male-female wage gap.* Above we observed that the male-female wage gap was small for the Federation. To what extent is this favorable outcome a result of the failure to account for systematic differences in skill characteristics among the sexes, and in jobs they held? To learn that, we below investigate the male-female wage gap by explicitly taking into consideration differences among men and women in their skill and job characteristics.. The results show that, once this correction is accounted for, the male-female gap is indeed considerably higher. In the Federation, it amounted to 19 percent in 1990, and was reduced to 11 percent in 1999, according to administrative data, and to 16 percent in 2001, according to survey data (Table S4.2, panel A). A much stronger wage gap is present in the informal sector of the Federation – in 2001, women earned 32 percent less than man. The situation in Republika Srpska was similar, where in 2001 there was a gap of 17 percent in the formal sector, and of 26 percent in the informal one. International evidence (see below), as well as a much larger difference between formal and informal wage gap, suggests that the highly formalized wage system helped to reduce the women's pay gap in Bosnia and Herzegovina – an undoubtedly positive outcome (if employment was not adversely affected).

112. *Education.* In comparison to 1990, returns to education in 1999 modestly increased for more educated groups (Table S4.2, panel B). Estimates from LSMS also show positive returns to education. Interestingly, comparison of returns in formal and informal sectors suggests that in 2001, the only group which received significantly different returns in the two sectors (not shown in the table) was the group with elementary education in the Federation: when employed in the informal sector, this group received 41 percent lower pay than the comparable group in the formal sector, other things being equal. Such an overpayment – most likely a consequence of rigidly structured wage determination – may increase the likelihood of this category of workers to take a job in the informal sector.

[33] Earnings reported to the Federation Pension and Disability Fund were obtained from employment spells of different lengths, and were earned in different months of the year. To control for the wage inflation over the reported spell, monthly dummy variables were also used in regression based on this type of data.

113. *Returns to work experience and tenure.* In contrast to most transition economies, estimates show that work experience in the Federation formal sector commands a large premium: in 1999, in comparison to workers with 2-5 years of experience, a 10 percent premium was attached to experience from 11 to 20 years, a 18 percent premium to experience from 21 to 30 years, and even a 35 and 58 percent premium to experience to the group of 31 to 40, and over 40 years, respectively (see Table S4.2, panel C). Estimates from the survey data for 2001 are consistent with these results. What is more, the results for the informal sector wages show no premium associated with experience of less than 30 years – and a negative return on work experience of over 30 years. In fact, a joint estimation of both formal and informal sector wages shows that workers with experience of 30 to 40 years earn 43 percent less in the informal sector and workers with over 40 years of experience even 92 percent less in the informal sector as compared to formal sector workers, other things equal. Both by the pattern (the fact that the premium *increases* for workers with over 30 years of experience), as well as by its size, the experience premium deviates from most other transition economies.[34] This practice seems to be a relic from the past (indeed, returns to experience in 1999 resemble closely those in 1990), and is obviously not in line with falling productivity of older workers. Rising returns to work experience are a direct consequence of collective agreements' requirement that wages are to increase by 0.6 percent for each year of work experience (see above), and prove a heavy influence of institutional set-up on wages. Interestingly, although present, these effects are much milder in Republika Srpska. Viewed from the perspective of labor mobility, these results suggest that it is difficult for older workers to change jobs, as they are not only competing with more productive younger workers, but also that their wages are mandated to be higher than those of younger workers.

114. Tenure seems not to be a factor in wage determination, except in the informal sector, where keeping the same job for more than 20 years shows positive returns. The fact that in the formal sector, firm-specific skills – which show up as returns to tenure – are valued less than general skills acquired by work experience, is a surprising one. Again, a strong regulative environment, which mandates the returns to experience, is a probable explanation.

115. *Returns to job, firm, and sector characteristics.* One of most interesting results pertains to the difference in wages between state and private firms. On the one hand, the analysis of administrative data from the Federation suggests that in 1999, wages in private firms were 11 percent lower than in state/public firms (this difference was even larger in the prewar period – see Table S4.2, panel E). On the other hand, earnings function estimates based on survey data show *a premium* – other things equal – associated with working in the formal private sector of 23 percent in Federation and 56 percent in Republika Srpska, and an additional premium, only in the Federation, of 48 percent, for working in the informal private sector. These results suggest that a large portion of wages in the private sector is paid "off the books" and thus remains unrecorded.[35] The earnings function estimates based on survey data also convincingly show that pay in the private sector exceeds pay in the state/social sector. The results are perhaps not surprising given the high tax burden on firms and ongoing weaknesses in tax administration.

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[34] See Rutkowski, 2001.

[35] Wages paid over and above officially reported amounts are financed through the non-invoiced sale of goods and services. According to the owners of licensed private agencies performing the accounting and auditing of firms, total revenues of small enterprises as reported in the financial accounts are merely 50 percent of their actual revenues (Causevic, 2001). For example, in a one-off survey done in February and March 2001, only 12 percent of small private shops, restaurants and craftsmen issued a bill to their customers (Causevic, 2001).

116. There are also other interesting firm and sector effects. First, in the postwar period, profitable firms in the Federation pay 26 percent higher wages than non-profitable; interestingly, there was no such effect in 1990. Second, in the formal sector, medium-size and large firms also pay substantially higher wages, 23 and 43 percent, respectively. Third, unsurprisingly the results obtained from survey data show that wages of workers on the waiting list are lower by 40 percent in Federation, and by 15 percent in Republika Srpska; there are no significant effects in the first job' wages associated with a holding a second job at the same time. And fourth, other things equal, some sectors pay higher wages (transportation and communications, finance and insurance, and government), and some lower (construction and trade – see Table S4.2, panel F). Note that some of the firm/sector effects differ according to the source of data – for example, the pay advantage of large firms, and of some industries, is present only in regressions based on officially reported wages and this advantage disappears in the regressions based on the survey data. Apparently, under-reporting of data – which can be done much more easily by small firms – is the explanation.

117. *Wages and worker mobility.* Earnings function analysis allow us to shed additional light on the mobility of workers. As shown above, wages of more experienced workers are automatically increased, and the link to the stipulation of collective agreements requiring such an automatically increase is obvious. This arrangement may also well be responsible for low labor mobility among more experienced workers; as mentioned above, a new employer may be unwilling to accept an old worker, because much of an experience premium may be tied to job-specific skills which are lost upon the transfer.

118. Two other results obtained from the analysis of the Federation formal sector wages, however, suggest a moderate degree of flexibility in wage setting associated with labor mobility. First, previously non-employed workers are paid 17 percent less than otherwise identical workers (there was no such difference before the war, see Table S4.2, panel E). Second, those job switchers who hold their current jobs for less than a year are also paid less than otherwise identical workers, but their cut is smaller, amounting to 7 percent (in contrast, before the war there was a 4 percent premium associated with a job change). The fact that these results differ from the prewar period when wages were not sensitive to a mode or time of entry to the job shows that in the postwar period the wage formation has been influenced by market forces (and may reflect harsher postwar labor market conditions). It is interesting to note that the incentives for job changes must have changed: instead of a bringing a wage premium as they did in the prewar period, job-to-job changes in the postwar period are associated with wage losses, suggesting that they probably have been initiated by the desire to prevent job losses, that is, by job security considerations. Overall then, there appear to be the beginnings of some market characteristics in the wage structure of workers in BiH, though some of it is only captured in survey and not administrative data.

119. *International comparison.* How do the above results on determinants of wage structure compare to those of other economies?

- Judged by international standards, the male-female wage gap in the formal sector of Bosnia and Herzegovina is on the low side (for example, in the late 1990s the gap was 29 percent in Bulgaria, 24 percent in Hungary, 25 percent in Macedonia, and 31 percent in Poland).
- Studies in other transition countries have found similar returns to education as the ones found here.[36]
- Some other findings – for example, that larger firms pay higher wages – also conform to the international experience.

[36] See Rutkowski, 2001.

- The results on the returns to experience, however, contrast to those of most other studies. Both by the pattern (the fact that the premium continues to *increase* for workers with over 30 years of experience), as well as by its size, the established pattern of the experience premium in Bosnia and Herzegovina deviates from the one in most other transition economies (and is indeed similar to the one found for Slovenia, a country with a very similar institutional setting).[37] This appears to confirm the conclusion above that socialist-era wage determination mechanisms still prevail in the formal sector in practice, distorting the earnings profile seen in market and more advanced transition economies.

(d) Wage inequality

120. Given the egalitarian wage distribution under the self-managed system, has the dismantling of the socialist controls increased wage inequality? The answer obviously depends on the wage setting framework which replaced the socialist one. Below this question is investigated by analyzing differences in the wage distribution between the prewar and postwar period. Moreover, differences in wage distribution between the formal and informal sector are also investigated.

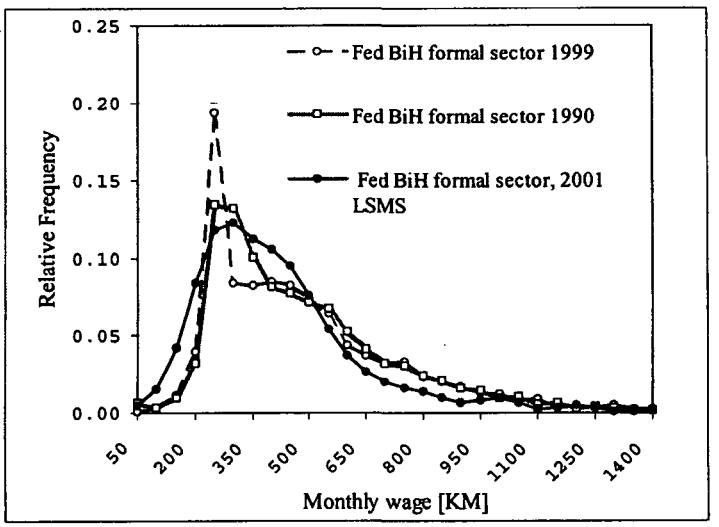
121. Figure 4.1 shows the distribution of wages in the formal sector of the Federation in 1990, 1999 and 2001 (the first two are based on administrative data, and the last on survey data). To ease the comparison of distributions, the 1990 and 1999 distributions were corrected by the ratio of median wages in 2001 to median wages in 1990 and 1999, respectively. The three distributions are strikingly different. Although the 1990 and 1999 distributions are very similar at both tails, the 1999 distribution has by far a higher mode, occurring just above KM200 – that is, just above the officially mandated minimum wage of 200 KM. This result suggests "bunching of wages" due to minimum wage regulation, as well as under-reporting of wages to reduce payment of social security contributions and taxes (firms pay officially only the minimal salary of KM 200, and pay an extra amount "off the books," thus reducing the of taxation base, as discussed above).

122. The under-reporting of wages is suggested also by two other facts. First, there is a large dip in the 1999 distribution wages (in comparison with 1990 distribution) in the range of KM 250-400, showing that many of the workers in that price range "are missing" – that is, that they moved to a lower wage category due to under-reporting. Second, in comparison with 1999 wage distributions, the 2001 distribution has a much smaller mode and resembles much more the log-normal distribution. The 2001 distribution also pertains to the formal sector, but is obtained from survey data which included not only the officially reported wages, but also their "off-the books" part.[38] This finding shows that in the formal sector, the reported wages exaggerated the number of workers who are paid just the minimum wages. (Note that under-reporting of wages – which presumably takes place predominantly in small, private firms – is consistent with earnings functions estimates obtained from officially reported data showing that pay in private firms is lower, other things equal, than in state firms. This contrasts with survey data findings of a wage premium in small private firms

[37] See Orazem and Vodopivec, 1995.

[38] Interestingly, Gini coefficient shows that in comparison to 1990, the inequality of the 1999 formal sector wages has decreased because of the bunching of wages at the mandated minimum wage (Gini coefficient of the 1999 distribution is 0.29, and of the 1990 is 0.314). Note, however, that this paradoxical result is produced via the wage under-reporting effect (workers higher in the wage distribution seemingly migrating to the minimum wage), and not by the direct effect of the minimum wage on wages of low paid workers.

Figure 4.1: Distribution of wages in the Federation formal sector 1990, 1999, and 2001

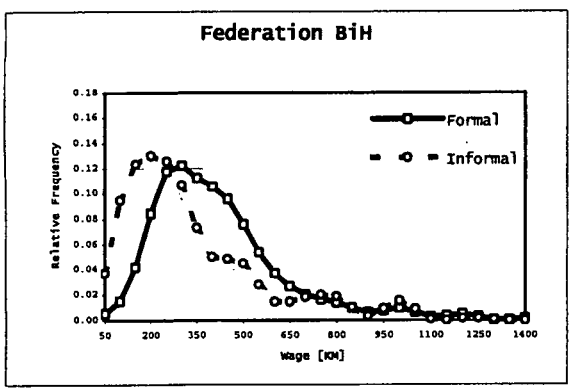


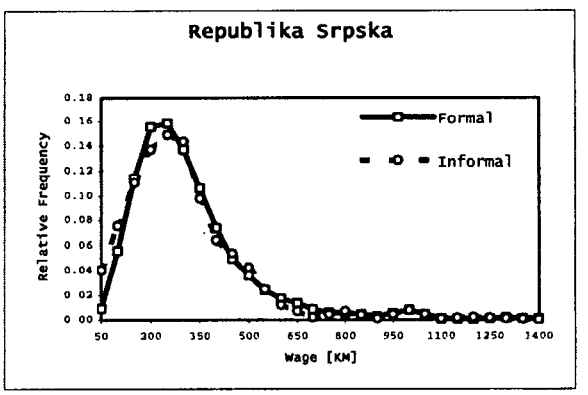
Source: Author computation based on FPDF data (1990 and 1999), and Bosnian 2001 LSMS (2001).

123. Figure 4.2 shows the difference in wage distribution between formal and informal sectors in 2001. In the Federation, the two distributions are very different, with the mode for the informal sector occurring at a considerably lower wage, but with its upper tail coinciding with the formal sector distribution. Consequently, wage inequality is much larger in the informal sector: the Gini coefficient of the formal sector distribution is 0.31, and the informal sector one is 0.40. This is consistent with the relatively high, binding minimum wage which is enforced in the formal, but not in the informal sector in the Federation. This finding suggests that the minimum wage may well have an employment-reducing effect in the formal sector, and that some workers may be forced to look for a job in the informal sector. The two wage distributions in Republika Srpska are virtually identical, consistent with the minimum wage set at a very low level in this entity (see above).

Figure 4.2: Wage distribution in formal and informal sectors, 2001

Mely, please align the two figures in the final set-up.





Source: Author computation based Bosnian 2001LSMS.

4.1.3 Summary

124. The description of the Bosnian wage determination framework made it clear that the system introduced in the postwar period is very formal, structured, and rigid. It determines not only minimum wages, but also prescribes base wage floors for nine categories of workers, indexation rules and mechanisms, other components of pay and fringe benefits, and automatic pay increases connected to seniority. Despite the positive developments in new Labor Laws in both Entities (see below), a bargaining system has thus retained most of its socialist era characteristics, with government and trade unions essentially bargaining without effective employer representative in a highly centralized and overly politicized manner. Unsurprisingly, the empirical analysis confirmed the heavy influence of institutional forces on wage determination. It found that:

- Minimum wages in the Federation imposed a binding constraint in the formal sector (there was a clear presence of "bunching of wages" at the prescribed minimum wages), raising the pay of the least skilled workers employed in the formal sector and compressing wage distribution (there were much larger wage differences in the informal than in the formal sector);
- In the formal sector, the male-female wage gap was lower than in the informal sector, suggesting the enforcement of formal rules;
- Wages of formal sector workers with long work experience commanded a premium unmatched by wages of similar workers in the informal sector and inconsistent with patterns in market and advanced transition economies.

125. Two other results are also very important:

- There is large under-reporting of wages, particularly of small, private firms in certain industries which manipulate invoices etc. and use cash payments to make direct, unrecorded payments to workers so as to avoid payment of social security contributions.
- There are also signs that in the postwar period, wage formation has been increasingly influenced by market forces, though there is still a considerable way to go: more profitable firms pay higher wages, and wages associated with worker mobility have reflected differences in the expected future income streams in different jobs.

4.2 Do employment policies hinder labor mobility and job creation?

126. Below we review the main aspects of the labor legislation in Bosnia and Herzegovina, and discuss some employment practices which importantly affect the functioning of the labor market: the phenomenon of the "waitlisted workers," informal work, and labor market discrimination.

4.2.1 Employment legislation

127. How much are the above-established low worker mobility and slow job creation associated with rigid labor market legislation? Below we describe the evolution of Bosnian employment protection legislation and compare it to the legislation in other market economies.[39]

128. In the former Yugoslavia, workers were constitutionally protected from the job loss. Together with other Yugoslav workers, Bosnian workers were thus much more protected from job loss than workers in market economies and even more than workers in other socialist countries. Although already Yugoslav transition reforms crossed the Rubicon of job security and gave

[39] Labor market legislation in Bosnia and Herzegovina is adopted at the entity or cantonal level but has been significantly harmonized. The laws include The Labor Code, The Law on Job-Placement and Social Security of the Unemployed, Law on Strikes, Law on Health Funds / Insurance, Law on Payroll Tax and Social Contribution, Law on Labor Inspection, Law on Work's Council.

employers the right to lay off workers, the change was taken cautiously, by imposing large costs on employers. The Yugoslav Labor Code of 1989 allowed layoffs – but only at extremely high costs for employers, essentially forcing them to keep the redundant workers on the payroll for 24 months after the notification of redundancy.

129. During the postwar period, until the current legislation was accepted in the Fall 2000, "waiting lists" existed in both entities. Workers on "waiting lists" were formally employed (and thus entitled to reduced pay and other work-related fringe benefits), while in fact often not working for a prolonged period of time. Art. 143 of the Federation 1999 Labor Code called for large compensation for waitlisted workers (and added such rights to some other categories of worker as well);[40] similarly, significant "waiting list" rights were granted by Republika Srpska 1998 Labor Code (art. 64). Adding to the arguments for large compensation of the laid off workers was the fear that privatization would prompt large reductions of enterprise workforces.

130. Changes in the core labor market legislation in the Fall of 2000 – the adoption of the Law on Changes and Additions to Law on Labor in the Federation, and of the Labor Code of the Reblika Srpska – introduced modern employment legislation and did away with the notion of waiting lists.[41] Current Bosnian employment protection legislation, as well as regulations of fixed-term contracts, is quite comparable to – and in some instances more liberal than – the legislation and regulations in Slovenia and developed market economies, and thus does not represent a significant barrier to labor reallocation. First, Bosnian employers face smaller procedural inconveniences and bear similar if not smaller firing costs in terms of both duration of notice period and severance pay (Table S4.3). Second, also quite liberal is the regulation of the use of fixed-term contracts (Table S4.4). Although the Federation permits fixed-term contracts only in "objective" – but rather broad - cases defined by law (for renewals), it does not limit the number of successive contracts nor the maximum cumulated duration of fixed-term contracts. Republika Srpska, on the other hand, does not limit fixed-term contracts by defining "objective" cases and it does not limit the number of successive contracts, but it does impose an overall limit of 2 years on the overall duration of the fixed-term appointment.

131. In sum, while the pre-2000 legislation imposed horrendous costs on employers when laying off workers, new legislation in both entities represents a major improvement. It aligns Bosnian job security legislation with the European one, and in all likelihood it is not standing in the way of worker mobility and job creation.

132. In stark contrast with the positive developments in new Labor Laws in both Entities stand the collective agreements, which remain highly prescriptive and command-oriented, imposing many socialist era regulations on the labor market. As described above, collective agreements not only determine the lowest base wage and wage levels of different categories to which workers are classified, but also prescribe how the base wage is to increase with seniority, difficult working conditions, and individual successfulness. While the new Labor Laws are stimulating flexible labor market adjustment, highly prescriptive collective agreements continue to impose rigidities and hinder job creation, and are thus largely responsible that several features of the new labor relations framework have not fed into the real economy yet.

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[40] Workers were entitled to severance in the amount of roughly ½ month of the average wage for each year of employment (including time spent on the waiting list), with the minimum severance payment for those with less than 6 years of employment being 3 months of the average wage, producing an estimate of the average entitlement of about 4,000 KM. See Causevic (2001).

[41] Official Gazette of the Federation BiH, No. 32/00, and Official Gazette of the Republika Srpska, No. 38/00.

4.2.2 Employment practices and labor mobility and job creation

133. Legislation, especially if it deviates substantially from the prevailing norms and customs, may only have a modest and delayed effects. Moreover, there are some labor market aspects which are very difficult to regulate by fiat – labor market discrimination is certainly among them. This section examines three specific aspects of Bosnian employment: waitlisted workers, informal sector employment, and labor market discrimination.

(a) Waitlisted workers

134. As mentioned above, the notion of "waiting lists" in both entities was officially abolished in the Fall 2000, and enterprises were given an opportunity to lay-off redundant workers at much lower costs than previously. What implications has had this change on number of waitlisted workers?

135. In the Federation (for Republika Srpska, there are no time series data on wait-listed workers), the number of workers on waiting has been steadily decreasing, from 87,781 in 1997 to 31,752 in 2001 (Table S4.5). It also seems that the new legislation has indeed helped to reduce the number of workers on the waiting lists, as the falling trend has intensified in the last two years (for example, in 2001, the reduction of 20 percent was achieved already by July 2001). Interestingly, about one third of wait-listed workers are women, the number which corresponds to their share in the workforce, and by far the highest share are employed in manufacturing.

136. According to the information from the Bosnian 2001 LSMS, in October 2001 there was only 8,800 wait-listed workers in the Federation and 26,500 in Republika Srpska.

(b) Informal work

137. Above we presented the evidence of under-reporting of wages, whereby the amount of wages is reduced for reporting purposes so as to reduce the payment of taxes and contributions. But workers and employers have also an incentive not to declare an ongoing work relationship at all and thus avoid the payment of taxes and contributions completely; they may thus enter the informal employment relationship. Of course, many workers, particularly in agriculture, have little choice but to work in the informal sector.

138. Anecdotal evidence suggests that private firms often employ workers informally, recruiting them primarily from workers of the state-owned enterprises who are placed on the waiting list, those who are working short hours or are not receiving salary for prolonged period, and the registered unemployed. Note that these workers – via their attachment to the formal employer, or registration at employment offices – are entitled to certain social services and fringe benefits (health insurance is probably the most important), so that their willingness to enter into an informal relationship is larger. Due to the nature of work, some industries seem particularly attractive: construction, retail trade, tourism and catering, and agriculture. Anecdotal evidence suggests that frequently, small firms register only one, two or three workers, and employ the rest of their workers informally.[42]

139. The 2001 LSMS data allow us to analyze the informal sector in more detail. In particular, below evidence is presented on how many workers are in the informal sector, their personal characteristics and employment status, and the sectors in which they work. For the purpose of the present study, the informal sector is defined as comprising of two groups: (i) unpaid supporting family members, farmers on own farm, and workers engaged in other activity,

[42] Causevic (2001).

such as sale of agricultural products; and (ii) those workers not employed by public enterprises (or state sector) for which their pension contributions were not paid (see Appendix 1 for details).

140. According to the LSMS data, in 2001 there were 362,000 workers in the informal sector (36 percent of total employment). What are their characteristics? The share of women is about the same as the share of women in formal employment, so women are not disproportionally employed in the informal sector.

- In contrast to women, young workers are disproportionally employed in the informal sector – a finding providing a partial answer about where "the missing young" are. Chapter 2 noted that in comparison to the prewar, the postwar formal sector workforce is considerably older, with a particularly noticeable gap in employment of young workers.

Table 4.3: Informal employment by personal characteristics, employment status, and sector, 2001

	Bosnia and Herzegovina		Federation		Republika Srpska	
	Number (in thousand)	Percent	Number (in thousand)	Percent	Number (in thousand)	Percent
A. Total	361.5	100.0	175.8	100.0	185.7	100.0
B. Gender						
Men	230.4	63.7	109.6	62.4	120.8	65.0
Women	131.1	36.3	66.2	37.6	64.9	35.0
C. Age						
15-19	14.3	4.0	5.9	3.3	8.5	4.6
20-24	49.9	13.8	26.8	15.2	23.1	12.4
25-34	81.4	22.5	43.5	24.7	37.9	20.4
35-44	77.4	21.4	43.7	24.9	33.7	18.2
45-54	72.0	19.9	39.2	22.3	32.9	17.7
55-64	38.8	10.7	12.3	7.0	26.5	14.3
64+	27.7	7.7	4.5	2.6	23.1	12.5
D. Education						
Unfinished elem.	78.6	21.7	32.0	18.2	46.6	25.1
Elementary	102.2	28.3	42.7	24.3	59.5	32.0
Vocational	122.2	33.8	69.3	39.4	52.9	28.5
High school	49.1	13.6	26.0	14.8	23.1	12.4
University (2y)	4.7	1.3	1.9	1.1	2.7	1.5
University (4y)	4.8	1.3	3.8	2.2	0.9	0.5
E. Employment status						
Private sector employee	165.6	45.8	88.8	50.5	76.8	41.3
Employer	2.9	0.8	1.0	0.6	1.9	1.0
Self-employed	102.2	28.3	46.0	26.2	56.2	30.3
Contributing family member	70.5	19.5	25.3	14.4	45.2	24.3
Other	20.3	5.6	14.7	8.3	5.7	3.1
F. Sector of activity of the current job						

	Bosnia and Herzegovina		Federation		Republika Srpska	
	Number (in thousand)	Percent	Number (in thousand)	Percent	Number (in thousand)	Percent
Agriculture	170.1	47.1	66.4	37.8	103.7	55.9
Manufacturing	32.6	9.0	16.0	9.1	16.6	8.9
Utilities	0.5	0.2	0.1	0.1	0.4	0.2
Construction	60.4	16.7	36.0	20.5	24.3	13.1
Trade	31.2	8.6	18.1	10.3	13.2	7.1
Hotels and rest.	19.2	5.3	9.8	5.6	9.3	5.0
Transport and com.	14.3	4.0	11.4	6.5	2.9	1.6
FIRE	1.4	0.4	1.2	0.7	0.2	0.1
Other	31.8	8.7	16.7	9.5	15.0	8.1

Source: Bosnian 2001 LSMS.

As shown in Table 4.3, the 17.8 percent informal employment share of workers younger than 25 years strongly exceeds the share of this group in formal employment, which was 4.9 percent in1999, according to administrative data, and 6.8 percent in 2001, according to survey data. While some of the young may have emigrated after the war, the above evidence suggests that they are "missing from the formal sector" also because they are employed in the informal sector. Suggestive is also the fact that the young – in contrast to the prewar period – are more likely to leave formal employment, with informal employment certainly being one possible destination.

- Table 4.3 also shows that informal sector employs disproportionate share of low-skilled workers.
- As for the employment status, the majority of informal workers are employed by private employers, 28 percent are self-employed, and about one fifth are contributing family members.
- And finally, most informal employment takes place in agriculture (47 percent), in construction (17 percent), and in manufacturing (9 percent). The share of informal employment in agriculture is particularly high in Republika Srpska, and the share of informal employment in construction in the Federation.

(c) Labor market discrimination

141. In spite of recent legislation which prohibits any form of discrimination in the workplace, there is little doubt that workplace discrimination exists in Bosnia and Herzegovina, with serious consequences for individuals and society in general. Access to employment largely determines the well-being of a person, and also profoundly affects the decision of the displaced to return to their prewar homes. And employment discrimination is a major source of economic inefficiency, because it prevents economically superior employment matches.

142. In the virtual absence of any microlevel postwar labor market data which includes information on ethnicity, it is impossible to investigate this topic with rigor.[43] This report thus summarizes a report by OSCE on employment discrimination, based on a systematic gathering of

[43] Let us mention that for a limited sample of the Federation formal sector data, we estimated a wage regression with ethnicity being one of the explanatory variables. Interestingly, the estimated coefficient of the ethnicity was insignificant, suggesting no wage discrimination. It has to be borne in mind, however, that this result is obtained on a 'truncated" sample, that is, it is conditional on observing individual's wages – obviously, we cannot extrapolate this result outside the sample, that is, to other persons who may have profound reasons not to be present in a certain environment.

evidence by OSCE Human Rights officers.[44] It has to be emphasized that the report is based on the alleged cases of discrimination – many of these cases were not brought to court, and the outcomes of those which were are not reported.

143. Summarizing the evidence, the report claims that there has been (OSCE, p.2):

- widespread firing of persecuted ethnic groups and political opposition members;
- recruitment of workers from the majority ethnic group while minority employees remain on the waiting list;
- dismissals of opposition party members from key positions after elections;
- exclusion of women from new vacancies by a system giving priority to ex-soldiers; and
- extensive discrimination against teachers from minority groups.

144. The OSCE report documents numerous cases of workplace discrimination – victims of which were individuals from all three major ethnic groups. The majority of cases reported arose during the war, mirroring the lines of conflict. These cases included: dismissal of workers "on the other side," putting workers on "waiting-lists" along ethnic lines, unlawful reason or no reason given for dismissal, and dismissal for absence related to the war.

145. In the postwar period, methods of discrimination have become more subtle and varied, and the cases concerned, among others, discrimination based on ethnicity, political affiliation, gender, trade union activity, as well as cases where undue priority was given to demobilized soldiers. The majority of reported cases of alleged ethnic discrimination, for example: members of ethnic minority complaining that there is no more work for them, workers being dismissed for not "speaking the language," or workers being fired for an alleged failure to meet qualification requirement, only to be replaced by less qualified persons of other ethnic group. Political discrimination has happened mostly after elections, when the winning political parties in some cases removed supporters of the other political parties from prominent posts. Gender discrimination was also reported, mostly because the recruitment priority was given to demobilized soldiers.

4.2.3 Summary

146. The review of Bosnian employment protection legislation showed that the entity labor codes which were in place before the Fall 2000 were much more restrictive and in all likelihood contributed to low worker and job mobility. However, new legislation introduced in the Fall of 2000 in both entities aligns Bosnian job security legislation with the European one. It is much more liberal than the previous one and it is unlikely that it represents a significant barrier to labor mobility and job creation. However, command-oriented collective bargaining framework – with government and trade unions bargaining without effective employer representative in a highly centralized and overly politicized manner – stand in stark contrast with the modern labor codes and continue to impose rigidities in the labor market.

147. The chapter also discussed some of the aspects of the Bosnian labor market that are difficult to regulate and formally analyze, but that strongly affect worker mobility and the flexibility of the labor market in general. First, the chapter showed that the phenomenon of wait-listed workers is gradually disappearing from Bosnia and Herzegovina (but it seems that it is still more firmly rooted in Republika Srpska). This is a significant improvement, as workers – instead of being trapped in low productivity jobs in loss-making enterprises, many at the same time being pushed to the informal employment – are more likely to move on to other jobs. At the same time, firms – relieved from counterproductive subsidization of loss-makers – will have better chances to create more jobs. Second, it showed that the young and the unskilled (but not women) are

[44] OSCE, 1999.

over-represented in informal employment, and that most of such jobs are in agriculture, construction, and manufacturing. High barriers to entry into the formal sector may have contributed to the high share of informal employment of both the young and the unskilled. And third, the chapter summarized the findings of OSCE report, showing that employment discrimination in Bosnia and Herzegovina in the postwar period has been strongly present, and constitutes an important impediment for worker mobility and economic efficiency in general.

4.3 Unemployment and mobility

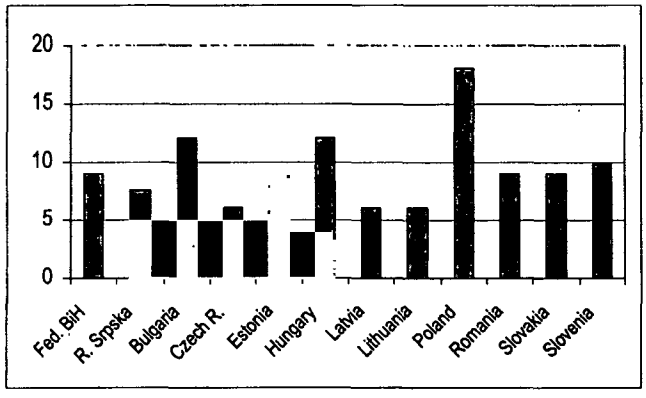
148. The unemployment rate in the postwar Bosnia and Herzegovina has been very high, particularly among youth. Suggestive of labor market problems is also the exceedingly high number of registered unemployed, which in 2001 was equal to about two thirds of formally employed workers. Have labor market policies, and in particular policies and programs focused on the unemployed, been put to a productive use – that is, have they helped the unemployed find jobs and compensated them for the loss of income due to unemployment? Because of the traumatic events during the war, are certain groups of workers kept from engagement in the labor market, so that the survey unemployment may be underestimated? Moreover, what do we know about the unemployed – what population groups are particularly hard hit? There is a large discrepancy between the unemployed according to the standard definition and the registered unemployed, so who are the workers who register with employment offices – how many are truly unemployed, and how many are employed or inactive and register for other reasons than seeking employment? These are the questions which are discussed below.

4.3.1 Labor market policies and programs for the unemployed

149. Both entities adopted new unemployment insurance systems in Fall 2000.[45] Both systems are quite similar and provide a modest, affordable system of income support to the unemployed. Eligibility is limited to workers with paid contributions who have not quit a job nor been dismissed for specific causes. Duration of potential eligibility depends on the years of work experience and ranges from 6 to 12 months, in the Federation, and from 3 to 12 months, in Republika Srpska. The replacement rate ranges from 30 to 40 percent in the Federation, and from 35 to 40 percent in Republika Srpska (see details in Table S4.6). There are no ceilings or floors imposed on the benefits. In comparison to other transition economies, the generosity of the benefit system is on the lower side, consistent with the lower financial possibilities (see Figures 4.3 and 4.4). Average benefit duration is in the general range of neighboring countries.

[45] The Decision on Job Placement and Social Security of the Unemployed, Official Gazette of the Federation BiH, No. 55/2000. This was confirmed by Parliament in September 2001; Job Placement Law, Official Gazette of Republika Srpska, No. 38/2000.

Figure 4.3: Duration of unemployment benefits, transition countries, late1990s/00s*



Source: Table 4.8.
Note: *In countries with varying maximum length for different categories, a simple average across the categories is presented.

150. There is a vast number of registered unemployed in Bosnia and Herzegovina who are, in principle, eligible to participate in both active and passive labor market programs. Yet in the postwar period, there have been very few participants in such programs. In the Federation, the number of recipients of unemployment benefits (workers who received the benefits at least for a month) varied from 27,000 to 36,000 in the 1998-2001 period; there were even fewer beneficiaries in Republika Srpska (less than 2000 per year; see Table 4.4).

Table 4.4 : Number of beneficiaries of unemployment insurance program

	1997	1998	1999	2000	2001
A. Unemployment benefit recipients (in thousand)					
Bosnia and Herzegovina	n.a.	n.a.	n.a.	n.a.	n.a.
Federation (annually)	14.0	29.4	34.0	27.4	36.2
Federation (end year)	2.0	4.0	2.3	2.9	3.3
Republika Srpska (end year)	n.a.	n.a.	n.a.	1.3	1.6
B. Average amount of unemployment benefit (in KM)					
Bosnia and Herzegovina	n.a.	n.a.	n.a.	169.0	153.7
Federation	n.a.	n.a.	n.a.	144.3	155.1
Republika Srpska*	n.a.	n.a.	n.a.	193.6	152.3
C. Participation in the health insurance program (access to health benefits, in thousand, end of the year)					
Bosnia and Herzegovina	n.a.	n.a.	n.a.	n.a.	n.a.
Federation	116.2	131.5	147.2	154.4	159.8
Republika Srpska	n.a.	n.a.	n.a.	n.a.	n.a.
Memorandum items: **Number of registered unemployed** (in thousand, end of the year)					
Bosnia and Herzegovina	364.8	398.7	409.3	421.2	423.5

	1997	1998	1999	2000	2001
Federation	222.3	256.5	261.8	267.9	275.8
Republika Srpska	142.5	142.2	147.5	153.3	147.7

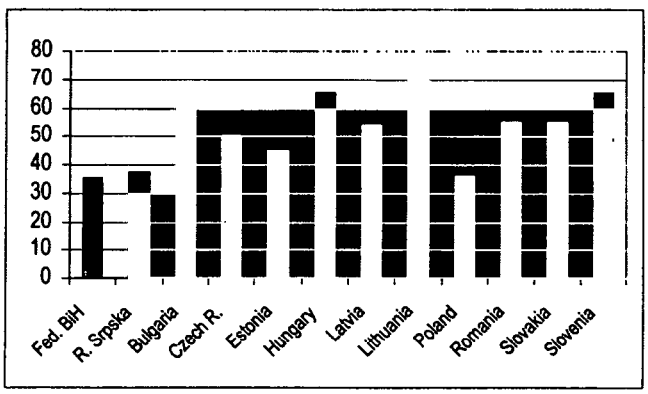
Notes:
* Estimate – Tomas (2002).
Sources: Federal employment office (internal material), Federation of BiH, Sarajevo; Monthly statistical overview, No.4/2001, Statistical Office Republika Srpska.

151. The majority of registered unemployed gained free access to health care, which seems to have provided the strongest incentive for individuals to register. Also, some active labor market programs have been implemented (including providing credits/grants to the unemployed to start self-employment); once programs for war veterans are excluded, expenditures on active labor market programs in BiH were about 0.08 percent of GDP both in 1999 and 2000 (Abrahart, 2002).

4.3.2 Measuring unemployment: survey and registered unemployment

152. According to LSMS data, there were 191,000 unemployed in Bosnia in Herzegovina in 2001, producing an overall survey-based unemployment rate of 16.4 percent. This subsection sheds light on how well these numbers, produced by an internationally accepted definition, accord to Bosnian specificity. Given the particularities of the Bosnian labor market – the destruction of the war and its consequences not only on the reduction of jobs, but also on workplace relationships – one may suspect that some groups of workers may be overlooked by traditional, ILO-OECD measurements of unemployment. This section also investigates the survey-based labor market status of the registered unemployed.

Figure 4.4: Replacement rate of unemployment benefits, transition countries, late 1990s or 2000s



Source: Table S4.6.
Note: *In countries with varying rate for different categories, a simple average across the categories is presented.

153. To find out whether there are other groups which were overlooked by the standard definition of unemployment (not employed and willing to work, seeking work, and available for work), the report identifies two other groups of workers:

- discouraged workers, who share all other characteristics of the unemployed except that they are not looking for a job because they believe that there is no suitable job available;[46] and
- "discouraged for personal reasons," who also share all other characteristics of the unemployed, except that they are not looking for a job because of "personal or other reasons." By distinguishing this category, we sought to find out whether specific, war-related

[46] For a discussion of incidence of discouragement in developed economies, see OECD, 1995.

circumstances are responsible for lower labor force participation (see Box 4.1 on the incidence and influence of mental disorders in the post-conflict countries).

154. According to LSMS data, in 2001 there were 75,000 discouraged workers, or about 40 percent of the unemployed, and there were 189,000 "discouraged for personal reasons," only slightly less than there were unemployed (see Table 4.5).

Table 4.5: Unemployed, discouraged, and discouraged "for personal reasons", 2001
(in thousand)

	Bosnia and Herzegovina	Federation	Republika Srpska
A. Unemployment			
Number of unemployed (in thousand)	190.7	111.0	79.7
Unemployment rate (in percent)			
Total	16.0	16.8	15.1
Men	15.1	15.9	14.0
Women	17.7	18.2	17.1
B. Discouraged workers			
Number of unemployed (in thousand)	74.8	50.0	24.7
Discouragement rate (in percent)			
Total	6.3	7.6	4.7
Men	3.4	3.9	2.7
Women	11.5	14.1	8.3
C. Unemployed "for personal reasons"			
Number of unemployed (in thousand)	186.4	107.7	78.7
Rate of unemployment for "personal reasons"			
Total	15.7	16.3	14.9
Men	8.6	8.8	8.4
Women	28.2	29.5	26.6
Memorandum item: registered unemployed			
Total	423.5	275.8	147.7
Men	234.7	148.1	86.6
Women	188.8	127.7	61.1

Source: own computations based on Bosnian 2001 LSMS.

155. What is the labor force attachment of the above two groups of discouraged workers, compared to the group of unemployed? Along several dimensions, the attachment of both groups of discouraged workers is weaker: in comparison to the unemployed, a lower share of discouraged workers have ever worked before, were laid off from the previous employer, or were employed after the war (see Table S4.7). Judged by labor force attachment, then, the two groups identified above as discouraged show lesser ties to the labor market. Interestingly, the differences between the two groups of discouraged workers along the above dimensions of labor force attachment are very small.

Box 4.1: Mental disorders influence job opportunities and economic development

Research under the Bank-supported Post-Conflict Mental Health Project showed that in post-conflict societies, poor mental health reduces job opportunities of affected individuals and stands in the way of development of human and social capital. Moreover, in these societies, mental disorders are widespread and may represent a major obstacle to economic development.

Recent large-scale epidemiological surveys have shown that in traumatized populations, incidences of depression can be up to seven times higher than in non-traumatized societies, and incidences of posttraumatic stress disorder (PTSD) can be up to ten times higher. In addition, because traumatized populations develop psychiatric morbidity, they are more prone to chronic medical illnesses (such as cardiovascular diseases) which result in disproportionate rates of disability and premature deaths.

Source: World Bank staff

156. To investigate the psychological and mental consequences which may also influence the decision to participate in the labor market, the health status of workers by different labor market status was analyzed (distinguishing unemployed, employed, as well as discouraged and "discouraged for personal reasons", Table S4.8). The groups which emerge most troubled by mental problems are the group of discouraged workers – and, surprisingly, employed workers. The incidence of chronic mental problems among employed workers is staggering – 17 percent – and is by far larger than among the other groups; employed workers also expressed the feeling of having low energy more than other groups did. In contrast, discouraged workers suffer more than other groups from insomnia and traumas. Interestingly, the unemployed, as well as "discouraged for personal reasons," appear to have fewer mental health problems than the other two groups.

To investigate another dimension of unemployment – registered unemployment – we examined the labor force status of the registered unemployed, distinguishing the two above-defined groups of discouraged workers from the rest of inactive persons. Only slightly less than a quarter of registered unemployed qualified as unemployed under the standard ILO-OECD definition, another quarter of them were employed, and 51 percent of them were out of labor force (see Box 4.2, and Table 4.6). The main reason for registration thus appears to be free access to health services, an entitlement which is obtained by registration.

Table 4.6: Registered unemployed by their labor market status

	Bosnia and Herzegovina		Federation		Republika Srpska	
	Number	Percent	Number	Percent	Number	Percent
A. Employed in formal sector						
Total	14.5	2.9	5.1	1.6	9.4	5.0
Public sector employee	9.7	1.9	4.5	1.5	5.1	2.7
Private sector employee	2.4	0.5	0.5	0.2	1.9	1.0
Employer	1.1	0.2			1.1	0.6
Self-employed	1.3	0.3			1.3	0.7
Other						
B. Employed in informal sector						
Total	109.8	22.1	60.4	19.5	49.4	26.3

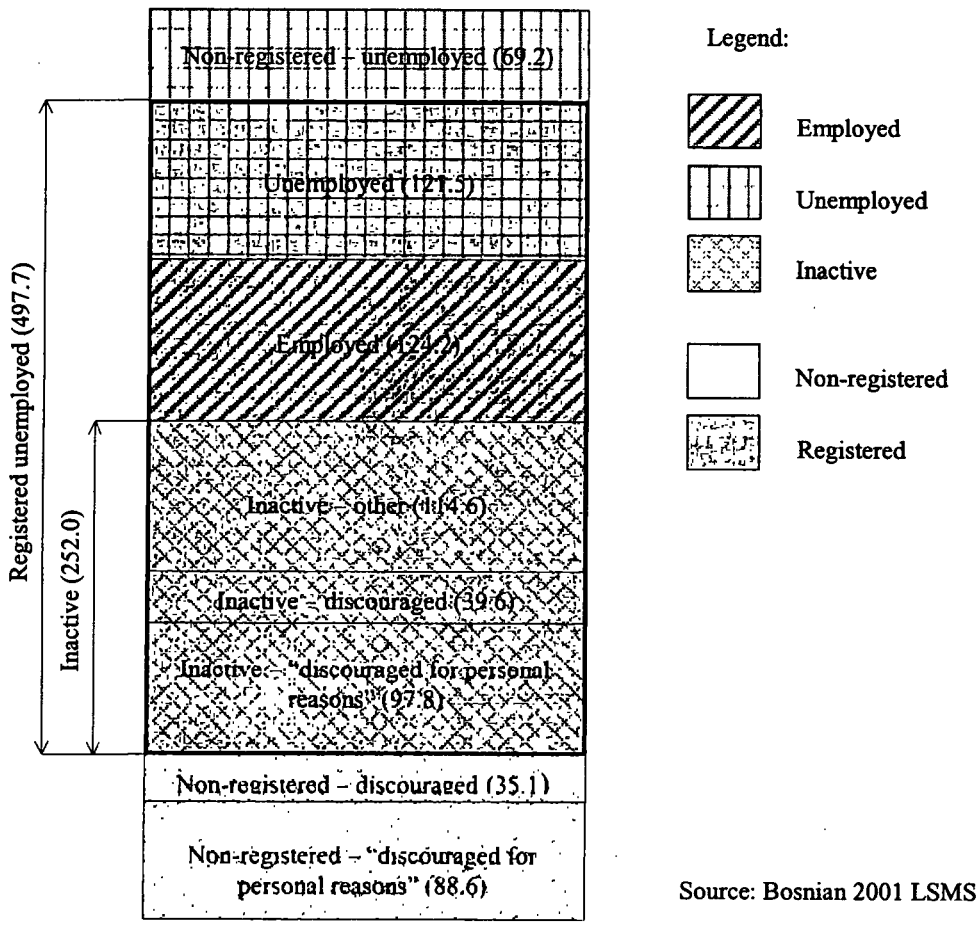
	Bosnia and Herzegovina		Federation		Republika Srpska	
	Number	Percent	Number	Percent	Number	Percent
Private sector employee	65.2	13.1	35.5	11.5	29.6	15.8
Employer	0.0	0.0			0.0	0.0
Self-employed	15.9	3.2	7.7	2.5	8.2	4.4
Contributing family member	18.8	3.8	9.9	3.2	8.9	4.7
Other	9.8	2.0	7.2	2.3	2.6	1.4
C. Unemployed and discouraged workers						
Unemployed	121.5	24.4	77.4	25.0	44.1	23.5
Discouraged	39.6	8.0	28.8	9.3	10.8	5.7
Discouraged "for personal reasons"	97.8	19.6	59.8	19.3	37.9	20.2
D. Out-of-labor force status						
Total	252.0	50.6	166.8	53.9	85.2	45.3

Source: own computations based on Bosnian 2001 LSMS.

Box 4.2: Labor force status of registered unemployed, Bosnia and Herzegovina, 2001

A labor force survey enables one to classify registered unemployed according to their labor force status. As seen below, out of 498 thousand registered unemployed in Bosnia and Herzegovina in 2001, only 122 thousand (24.4 percent) qualified as unemployed according to the standard definition of unemployment. Several other interesting features also emerge:

- Among registered unemployed, there were 124 thousand (25.0 percent of registered unemployed) who were employed workers, and 252 thousand inactive (50.6 percent of registered unemployed).
- Not all unemployed had registered – there were 69 thousand (36.3 percent of unemployed) who did not approach employment offices and register.
- Among the inactive persons who were registered, slightly more than half qualify as discouraged in the sense described above. *(The numbers in parentheses below are thousands of workers.)*



Source: Bosnian 2001 LSMS

4.3.3 Who are the unemployed?

157. According to the LSMS, in 2001 there were 190,700 unemployed in Bosnia and Herzegovina, and the unemployment rate was 16.4 percent (see above). Two groups stand out as disproportionally affected by unemployment:

- Young men and particularly women have unemployment rates exceeding 30 percent (20-24 years old) and even 40 and 50 percent (15-19 years old) – the group of about 64,000 workers (Table 4.7). With the unemployment rate of 69 percent, young women (16 to 19 years of age) in the Federation were particularly exposed to unemployment.

Table 4.7: Unemployment rates by personal characteristics, LSMS

	Bosnia and Herzegovina	Federation	Republika Srpska
A. Unemployment - total			
Total	16.0	16.8	15.1
B. Gender			
Men	15.1	15.9	14.0
Women	17.7	18.2	17.1
C. Age			
Men			
15-19	45.6	49.1	40.9
20-24	33.6	30.1	37.4
25-34	19.0	20.0	17.7
35-44	10.1	11.7	7.7
45-54	9.2	9.8	8.4
55-64	8.7	12.0	5.2
64+	1.0		1.2
Women			
15-19	57.7	68.6	47.1
20-24	36.9	33.2	43.3
25-34	19.2	21.8	15.0
35-44	15.5	14.0	17.5
45-54	8.1	6.1	10.3
55-64	5.4	5.8	5.1
64+	0.5		0.6
D. Education			
Unfinished Elementary	11.5	10.8	12.1
Elementary	20.4	25.7	15.3
Vocational	17.4	17.8	17.0
High school	16.1	15.8	16.6
University (2y)	9.1	8.9	9.4
University (4y)	4.3	3.9	5.4

Source: own computations based on Bosnian 2001 LSMS.

- Unskilled workers also face higher unemployment rates (such is the case in other transition economies as well).
- In general, women's unemployment rates are higher than men's, but only by 2.6 percentage points. The patterns in both entities are similar. It is interesting that although more than half of the unemployed are first-time job seekers, more than two thirds of the unemployed are

long-term unemployed (one year and more; see Table 4.8). Both facts are indicative of a tight labor market. The high share of long-term unemployed is also connected to low labor market dynamics

Table 4.8: Unemployed by duration, source, and time gap and sector of activity of the last job

	Bosnia and Herzegovina	Federation	Republika Srpska
A. Duration of unemployment			
1-6 months	41.6	22.4	19.3
7-12 months	12.4	6.4	5.9
1-2 years	55.5	33.3	22.2
3-4 years	28.8	17.3	11.5
5-7 years	28.7	14.9	13.8
More than 7 years	23.6	16.6	7.0
B. Source of unemployment			
First time job-seekers	102.4	59.0	43.4
Laid-off	30.1	19.9	10.1
Employer closed down	16.6	11.6	4.9
End of fixed term job	8.8	5.9	2.9
Quit previous job	12.6	6.6	6.0
Displaced	9.2	3.8	5.4
Other	10.9	4.1	6.9
C. Last time employed			
Before 1993	38.0	23.3	14.7
During the war (1993-1996)	6.3	3.7	2.6
After the war	44.0	25.0	19.0
E. Sector of activity			
Manufacturing	7.8	2.8	5.0
Agriculture	27.8	16.0	11.8
Construction	1.8	1.6	0.2
Transp. and communications	13.8	9.7	4.1
Trade	10.3	6.6	3.7
Hotels and restaurants	4.2	2.5	1.6
FIRE	4.2	2.5	1.7
Education	1.7	0.9	0.8
Health	6.6	2.6	4.1
Government	0.9	0.9	0.0
Education	2.0	0.9	1.0
Other	7.1	5.0	2.1

Source: own computations based on Bosnian 2001 LSMS.

158. According to the employment office data, in 2001 there were 424,000 workers *registered as unemployed*, 275,800 in the Federation and 147,700 in Republika Srpska (Table 4.9).

Table 4.9: Number and structure of registered unemployment, 2001
(end of the year)

	Bosnia and Herzegovina		Federation		Republika Srpska	
	Number	Percent	Number	Percent	Number	Percent
A. Number of unemployed						
Total	423,526	100	275,777	100	147,749	100
B. Gender						
Male	234,731	55.4	148,084	53.7	86,647	58.6
Female	188,795	44.6	127,693	46.3	61,102	41.4
C. Age						
Up to 26	116,441	27.5	82,292	29.8	34,149	23.1
27-39	175,008	41.3	114,723	41.6	60,285	40.8
40-49	89,138	21.0	54,273	19.7	34,865	23.6
50 and more	42,939	10.1	24,489	8.9	18,450	12.5
D. Education						
Unskilled	155,112	36.6	106,723	38.7	48,389	32.8
Vocational	164,797	38.9	106,751	38.7	58,046	39.3
Secondary school	92,724	21.9	55,994	20.3	36,730	24.9
University	10,889	2.6	6,305	2.3	4,584	3.1
E. Reason of entry						
First time job seekers	n.a.	n.a.	160,686	58.3	n.a.	n.a.
Laid off	n.a.	n.a.	5,725	2.1	n.a.	n.a.
F. Duration of unemployment*						
Less than 6 months	47,497	11.2	34,610	12.5	12,887	8.7
6-12 months	47,083	11.1	29,508	10.7	17,575	11.9
1-2 years	64,421	15.2	42,111	15.3	22,310	15.1
More than 2 years	264,525	62.5	169,548	61.5	94,977	64.3
Long-term unemployed (longer than a year)	328,946	77.7	211,659	76.8	117,287	79.4
G. Flows into and from unemployment (absolute number and percent of the stock of registered unemployed a the beginning of the year)						
Inflow	101,782	24.0	72,903	26.4	28,879	19.5
Outflow	78,990	18.7	72,636	26.3	6,354	4.3

Source of data: Statistical Yearbook 2001, Federal Office of Statistics, Sarajevo ; Statistical data on economics and other trends, February 2002, Federal office of Statistics, Sarajevo; Monthly statistical overview, 4/2002, Republika Srpska Employment Office.
Note: *Estimate for Republika Srpska based on the structure for 2000.

159. Characteristics of these workers were similar as those of survey unemployed:

- 44.6 percent were women, which is higher that the women's share in formal employment.
- There was a relatively high proportion of young workers – 27.5 percent of unemployed were younger than 26 years, 41 percent were 27 to 39 years old, and 31 percent were older than 40 years.
- A large majority of unemployed is unskilled. Very few registered unemployed possessed a university degree (2.6 percent), and about one fifth a high school diploma.

160. Similar to the survey unemployment, more than half (58.3 percent) of the registered unemployed are first time job seekers, and a very high percentage are registered for a long time – as much as 77.7 percent are long-term unemployed (they are unemployed for more than a year), and 62.5 percent are unemployed for more than two years. Inflow to unemployment in 2001 was 102,000 people and outflow was 79,000 people; it is important to realize that among the outflow, only one quarter found a job, and the others were erased from the register for other reasons.

4.3.4 Summary

161. The new legislation from 2000 provides an affordable unemployment benefit system in both entities. With the expected increase of worker mobility once the working of the labor market is normalized – which may push the current, already high, unemployment rate even higher – the unemployment benefit system will provide valuable income support to an increased share of unemployed workers. The standard ILO-OECD definition of unemployment accords well to the Bosnian labor market, as the group of discouraged workers – the group which resembles the unemployed in other aspects but does not look for a job – is less attached to the labor market than the unemployed are. Only one quarter of registered unemployed qualify as unemployed under the ILO-OECD definition; another one quarter are employed, and the rest inactive. Among the unemployed, young workers and unskilled workers are more than proportionally represented.

4.4 Concluding remarks

162. In seeking to identify sources of rigidities responsible for the static Bosnian labor market, this chapter reviewed institutional and legislative framework in three key labor market areas: wages, employment, and unemployment. It found that recently accepted employment protection legislation in Bosnia and Herzegovina is attuned to the needs of the economy, as it provides modern solutions, increasingly embraced also in Western Europe; thus employment legislation is not suspected to impede worker mobility and job creation.(The exception is labor market discrimination, particularly on ethnic grounds, but resolving this issue reaches far beyond the legal arena.) Moreover, this chapter found that the system of income support for the unemployed, also introduced recently in the same push to revamp labor legislation as the Labor Code, provides a modest, affordable income compensation to the unemployed. If coupled with an appropriate monitoring and enforcement regime, this system, too, is unlikely to distort incentives of the unemployed, and is thus unlikely to contribute to "sclerotic" labor markets and reduced capacity for job creation.

163. On the other hand, the rigid, structured, and formalized wage determination system – and collective bargaining system in particular – should be added to the list of culprits responsible for low worker mobility and job creation. By setting binding minimum wages, the wage determination system imposes barriers for moving from informal sector to the formal sector for certain categories of workers – young and unskilled, in particular (indeed, these are the two groups which are over-represented among employed in the informal sector) – and possibly for women, too (this problem seems particularly acute in the Federation). It also hinders outflows from unemployment into employment, particularly into formal employment. Moreover, a

mandatory premium attached to work experience hinders mobility of older workers, as these workers are unable to compete for new jobs with more productive younger workers, whose pay is lower.

5. EMPLOYMENT EFFECTS OF PRIVATIZATION

164. Many observers fear that privatization in BiH will lead to large reductions of employment and to substantial increases of unemployment.[47] Faced by competitors and striving to raise productivity, new owners, it is believed, will shed redundant workers from newly privatized firms. These firms, while still being under social and state ownership, have been notorious for keeping redundant workers, and – instead of laying them off – they have placed them, in cases of most blatant overstaffing, on the so called "waiting lists"(see the previous chapter).

165. International evidence on the employment effects of privatization offers only limited guidance. Kikeri (1998) reports that labor force reductions have often accompanied privatization and provides an example of Argentina, where privatization in telecommunication and utility sectors reduced employment by more than a half (she also reports of strong reductions following privatization of firms in Mexico, Bangladesh, Brazil, and Turkey). On the other hand, she also reports that several studies have found employment increases of 10-60 percent in the majority of privatized firms of the sample of firms under investigation (most of the firms were in developing countries). In these enterprises, investment and the ensuing expansion of output has lead to job creation, an outcome most likely in enterprises which were restructured before privatization and/or which were operating in competitive markets.

166. The purpose of this chapter is to investigate the impact on employment of privatizations which occurred in the initial period (from June 1999 till February 2001) in the Federation of BiH. This chapter collects the information on privatization firms from Cantonal privatization agencies, and data on initial employment – and all subsequent separations and accessions – from the Federation Pension and Disability Fund, and have thus been able to determine employment consequences of privatization. It also compares employment and worker flows of privatized firms with a comparable outcomes of the control group of state enterprises.

5.1 Methodology and data sources

167. To investigate employment changes in privatized firms, this chapter traces the evolution of employment in six consecutive quarters following the date of privatization (data for the control group are available only for a year). In addition, it also presents the evolution of worker flows, both accessions and separations, following the privatization, as well as total worker reallocation (the sum of accessions and separations).

168. The chapter further investigates the effects of privatization by focusing on what happens to the "inherited" workforce, that is, to the workforce employed by the firm at the moment of privatization. Non-parametric analysis of survival in employment (via survival functions) is then presented. To cast more light on privatization effects, the chapter contrasts the results pertaining to privatized firms with those obtained on the control group of state-owned firms.

Data sources

169. We obtained data on 201 firms, privatized from June 1999 till February 2001, from Cantonal privatization agencies (data consisted of firm identification number, sector of activity, number of employees, expected change of employment following the privatization, and price for which the enterprise was sold). We merged these data with accounting data on the same firms

[47] See, for example, DFID (2001) for a very thorough analysis, assuming various scenarios.

obtained from the Social Accounting Service (SDK) of the Federation (see the description of the accounting data in Appendix 1). We obtained data on initial employment in these firms – and all subsequent separations and accessions – from the Federation Pension and Disability Fund (FPDF). Similar matched employee-employer data were available also for the control group of workers, which consisted of a random sample of workers in state-owned enterprises, described in the Appendix 1.

5.2 The evolution of employment following privatization

170. From the employment evolution of individual privatized firms, the analysis showed that – apart from a group of mainstream firms, with moderate employment increases and reductions there was also a group of extreme reductions and a group of extreme expansions. This extreme pattern may reflect true changes in employment following the privatization – but, perhaps more likely, it reflects organizational changes (such as "re-registering" workers from one firm with its successor firm, or splitting firms into several new ones, etc; see the discussion about the treatment of organizational and other changes of employers in Appendix 1). In further analysis, we therefore decided to distinguish three groups of privatized firms: the group of mainstream privatized firms (95 firms), the group of extreme employment expansions (24 firms), and the group of extreme employment reductions (38 firms).[48]

171. Summary statistics for the three groups privatized firms, for the privatized firms for which data was provided by Cantonal Privatization Agencies, and for the group of the control firms, are provided in table S5.1 (in the control group, we included all state-owned firms in the Federation in 1999, 18,748 of them). As it can be seen from the table, the mainstream group is bigger, both by average revenues and by average employment, than our control group; note that both have about the same percent of loss makers. In terms of privatization price, the mainstream group was sold at an average price somewhat below the average for all privatization firms; the group of extreme reductions at about 70 percent higher price, and the group of extreme expansions at about half of the average price.

172. Following the privatization, how did the number of workers in the firm change, and how in this respect newly privatized firms compare to firms which remained state-owned? Eighteen months after privatization, total employment in privatized firms was reduced by 6.4 percent, and employment in the mainstream privatization group by 4.4 percent (predictably, employment changes of other two groups were extreme – see Table S5.2). The comparison with a control group reveals that the reduction of employment in privatized firms was indeed more intense, but not dramatically so – for example, one year after the privatization, employment in the mainstream privatization group was reduced by 4.1 percent, and employment in the control group just by 0.9 percent (Figure 5.1). Due to large swings in employment of the two extreme privatization, the evolution of employment of all privatized firms exhibits large swings. Overall, however, it can be concluded that privatized firms (even focusing on the mainstream privatization group) reduced their employment at a somewhat higher rate than the control group – that is, state-owned firms in the economy. It is interesting to remember that according to privatization plans confirmed by privatization agencies, the group of 201 privatized firms was obliged to *increase*, in the course of the following year or two years, their employment by 18.9 percent.[49]

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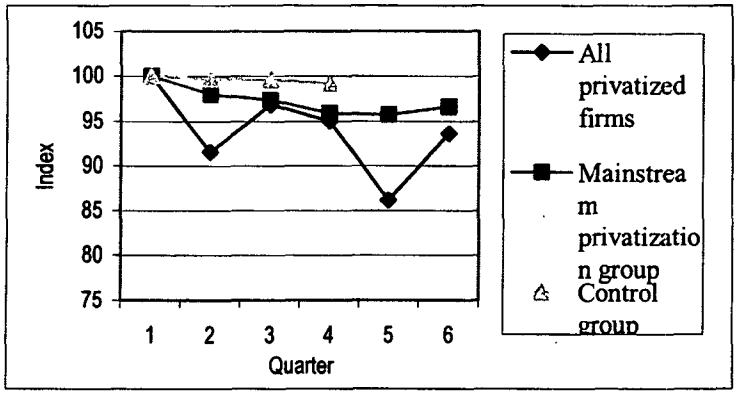
[48] In a group of extreme expansions, we classified firms which in any quarter increased their employment by more than 50 percent, or over the period of 18 months, by over 80 percent; in a group of extreme reductions, we classified firms which in any quarter reduced their employment by more than 50 percent, or over the period of 18 months, by over 80 percent.

[49] Recently in the Federation, media reported about several cases of complaints about failures of privatized firms to implement their accepted employment plans.

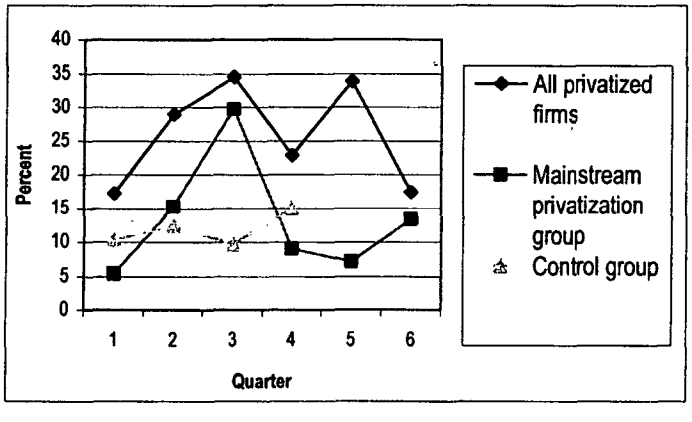
Figure 5.1: Evolution of employment in all privatized firms, mainstream privatization group, and the control group*



Note: *Employment has the index of 100 at the moment of privatization, and on January 1, 1999, for the control group.

173. Another important respect in which newly privatized firms may be distinguished from state-owned firms are worker flows. Indeed, accession and separation rates of all privatized firms are much higher than those of state-owned firms (Figure 5.2, Table S5.2). Even if we concentrate on the mainstream privatization group, its worker reallocation rate tends to be higher than the reallocation rate of the control group (note that the control group consists, on average, of smaller firms, which have larger worker flows than big firms, other things equal). It also seems that particularly intense reallocation occurs not in the first quarter, but from 3 to 6 months after the privatization.

Figure 5.2: Worker reallocation rate in all privatized firms, mainstream privatization group, and the control group
(in percent)



174. Unsurprisingly, the above results show that worker reallocation is more intense in privatized firms. What effect does this reallocation have on the structure of workforce of privatized firms? In particular, following privatization, are certain groups of workers more likely to exit than others? Below this question is explored, focusing on gender, age, education, and on firm effects.

175. As can be seen in Table S5.3, the fate of women in privatized firms was no worse than the fate of man – women even increased their employment share following privatization. Similar

conclusions applies when we observe the survival of workers employed by privatized firms on the date of privatization: the percentage of women staying in the firm after the privatization was very similar to the percentage of men (Figure 5.3). Among age groups, Figure 5.3. suggests that older workers are more likely to leave privatized firms; interestingly, very few young workers were employed by the privatized firms as well, so their share fell dramatically (Table S5.3). Quite surprisingly, the highly educated (those with university degrees) were also among those whose intensity of separation from privatized firms was above average, and their share in employment also fell. Firm effects are as expected: profitable firms retained more of their original workers than did loss makers, and so did large firms in comparison to small firms (Figures 5.4 and 5.5).

Figure 5.3: Survival in mainstream privatization firms, by gender and age

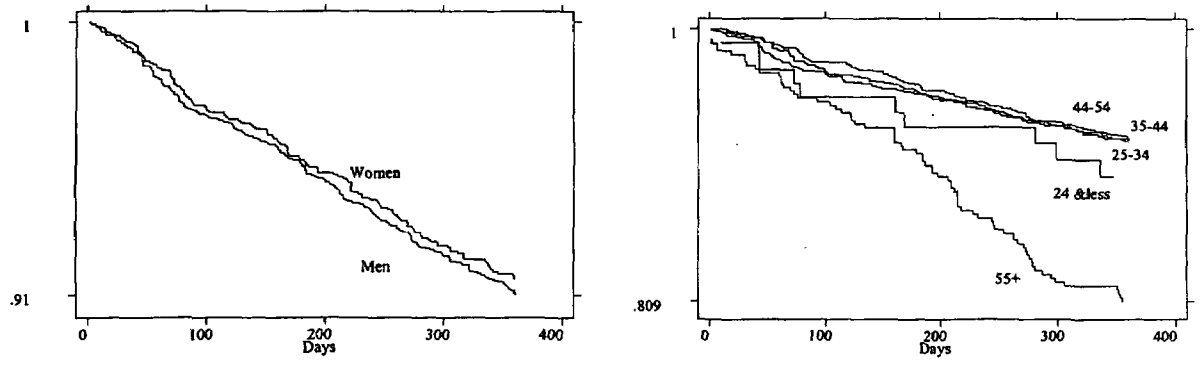


Figure 5.4: Worker survival in mainstream privatization firms, by education of workers and profitability of the firm

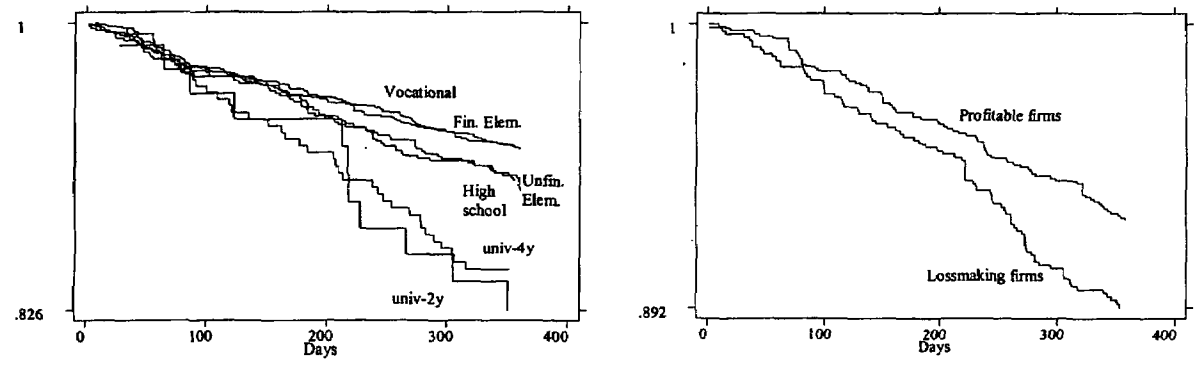
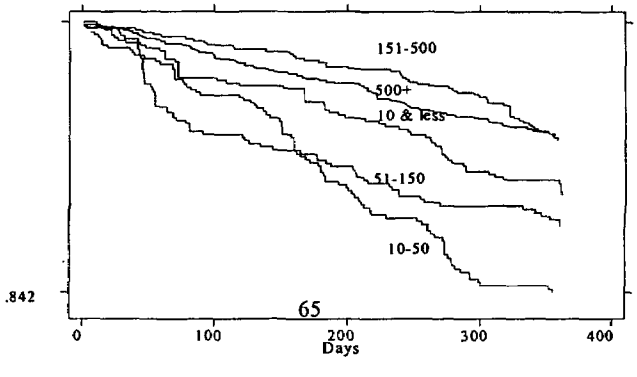


Figure 5.5: Worker survival in mainstream privatization firms, by size of the firm



5.3 Concluding remarks

176. The above results show that following privatization, newly privatized firms have reduced their employment more than have firms which remained state-owned. The reduction of employment, however, was far from dramatic – a year and a half after privatization, the level of employment in privatized firms was 4 to 6 percent lower than at the date of privatization. But as far as achieving privatization plans, it has to be admitted that the actual reduction of employment in privatized firms stands in sharp contrast to the planned increase of employment by 18.9 percent over the period of one to two years.

177. What is the predictive power of the above findings? The crucial question relates to the representativeness of the group of firms where initial privatization took place. The group seem to resemble the control group by the share of loss makers, yet privatization is unlikely to occur in a random fashion – and some may argue that better enterprises are privatized first.[50] In that case, subsequent privatizations may provoke more separations than what could be gauged on the basis of the sample analyzed above. On the other hand, overall conditions of the economy in the future may differ from the ones in the period under investigation, and that could conceivably ameliorate the employment effects of privatization.

178. The above results also shed some light on the requirement of privatization programs to keep and/or increase the number of workers. The above results show that the discrepancy between the plans and their implementation was very large – and that few, if any, corrective actions make sense. In light of the above, the usefulness of employment retention conditions in privatization plans may be reconsidered, and perhaps such conditions used only in most sensitive cases.

[50] See the discussion of the selection problems in evaluating privatization outcomes in Djankov and Murrell (2000).

6. BARRIERS FOR SMALL AND MEDIUM SIZE ENTERPRISE DEVELOPMENT

179. Earlier chapters presented state enterprises – and large enterprises in particular – as being ill-suited to create jobs, and slow and reluctant restructures, thus lacking the dynamism necessary to revive the Bosnian economy. A natural question arises, then, how much can SMEs be relied upon as an engine of employment growth? That is, to what extent can the creation of new firms, and a vibrant SME sector in general, contribute to job creation and thus absorption of surplus labor, as well as to labor reallocation?

180. Previous studies in BiH identified administrative barriers to business creation – consisting of a labyrinth of formal and informal rules – as among the worst in the region.[51] Financial constraints, especially the lack of startup funds, also seem to pose serious constraints on the establishment of new business. A positive experience of the recent World Bank project providing credit to micro-enterprises attests to that.[52]

181. The purpose of this chapter is to shed more light on the barriers to SME development in Bosnia and Herzegovina.[53] It will do so by seeking to answer the following questions: How important are administrative barriers vs. financial, as perceived by entrepreneurs themselves? Are taxes viewed as a very large burden ? How serious limitations are imposed by the labor market? And – last but not least – how important are social considerations? For example, is the lack of interpersonal and systemic trust in the Bosnian economy considered a barrier to SME growth?

182. The analysis is based on the information provided by a survey of about 800 entrepreneurs in Bosnia and Herzegovina (Federation only), Macedonia and Slovenia, conducted in Fall 2000.[54]While focusing on Bosnia and Herzegovina, the analysis also provides a comparative dimension, so as to put the results in better perspective.

183. This chapter first describes the SME sector in the Bosnia and Herzegovina by presenting its major characteristics. It then analyzes barriers to SME development as expressed by entrepreneurs themselves. It also examines the role of social capital – in particular, the role of trust – in SME development, before outlining conclusions and policy implications.

6.1 The characteristics of SME sector in Bosnia and Herzegovina

184. Below the present characteristics of the SME sector in Bosnia and Herzegovina are outlined, as obtained from a recent survey. The chapter discusses the size distribution of firms, their recent growth record, age and education of entrepreneurs, and the way they distribute profit. To provide a broader picture, the results on Bosnian firms are compared to those from Macedonia and Slovenia ones (see Appendix 1 for a description of the data source).

185. *Size.* Similar to other countries, the universe of SME sector is populated by numerous firms of very small size in Bosnia and Herzegovina (Table 6.1, panel A).

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[51] FIAS, 2001.
[52] See PAD for Local Initiatives Project (WB, 2000).
[53]This chapter is based on the background paper prepared by Andrej Rus.
[54] Bukvič et al. 2001. See Appendix 1 for a description of the data source.

Table 6.1: SMEs in Bosnia and Herzegovina, Slovenia and Macedonia by size, growth and employment growth, late 1990s

	Bosnia and Herzegovina	Slovenia	Macedonia
A. Size			
Average number of workers in 1997	20.1	16.8	29.4
Micro *(1-3 empl).*	29.6	32.9	22.0
Very small *(4-12 empl.)*	29.9	34.9	29.0
Small *(13-50)*	29.9	23.3	30.7
Medium *(51-250 empl.)*	10.9	9.5	13.4
B. SME growth 1997-99			
Shrinking	21.4	17.2	20.6
Stagnating	28.0	40.4	33.7
Growing	21.0	23.7	23.6
Gazelles	29.6	18.7	22.1
C. Employment growth (in percent)	19.9	21.2	16.4
D. Age and education of entrepreneurs			
Age			
up to 25	5.0	5.3	1.4
26-35	14.5	21.4	22.3
36-45	41.1	38.3	34.2
46 and up	39.4	35.0	42.1
Education			
Elementary or vocational	34.5	46.2	25.9
College	22.9	17.6	16.2
University and more	42.6	36.2	57.9
E. Strategies of profit allocation*			
Repayment of loans	2.41	13.79	5.47
Reinvestment in new assests	16.80	45.63	39.99
Payment to owners	36.29	6.65	4.81
Savings deposit	12.18	10.71	4.61
Total number of SMEs	284	210	300

Source: A survey of SMEs in Bosnia and Herzegovina, Slovenia, and Macedonia.
Note: *values in the cells represent mean percentage of profit as reported by respondents.

186. Our survey shows that Bosnian SME sector consists of 30 percent micro firms (1-3 workers), 30 percent very small firms (4-12 workers), and 30 percent small companies (13-50 workers), whereby only full time workers are counted. The remaining 10 percent were medium size firms with the number of workers ranging from 51 to 250.

187. *Growth.* Between 1997 and 1999, half of the Bosnian SMEs experienced growth in employment (Table 6.1, panel B). Compared to Slovenian figures, Bosnia and Herzegovina had a comparable share of declining (21 percent), but fewer stagnating firms. Growth was underscored

by the fact that the majority of growing companies grew very fast, so that they were classified as "gazelles." On the other hand, 60 percent of micro firms stagnated, underscoring the fragility of their capacity to grow.

188. Total employment of the SME sector also grew in the observed period: in Bosnia and Herzegovina, it increased in the two year period by 20 percent, in Slovenia by 21 percent, and in Macedonia by 16 percent (Table 6.1, panel C).

189. *Educational and demographic characteristics of entrepreneurs.* Do young workers seize the opportunity of working in the SME sector, given their difficulties to enter formal sector jobs? The survey results show otherwise. Only 20 percent of entrepreneurs were younger than 35 (Table 6.1, panel D). In Slovenia, those under 35 represent 27 percent of entrepreneurs. Moreover, it has to be noted that the Bosnian SME sector is attracting the highly educated. About 45 percent of entrepreneurs have university degrees or more, while 35 percent have completed elementary or vocational schools (but workers employed by SMEs are mostly unskilled or semi-skilled, a result not shown in the table). Although this educational group faces less risk on the labor market, it generates most entrepreneurs, so one can conclude that labor market risk is not the prevailing factor in deciding who joins the ranks of entrepreneurs in Bosnia and Herzegovina.

190. *Distribution of profits.* Reinvestment of profit is a sign of long-term growth strategy. In Bosnia and Herzegovina, companies from the sample reinvested, on average, about 17 percent of their profits, in comparison with a much higher 46 percent in Slovenia (Table 6.1, panel E). Similarly, Bosnian firms paid 36 percent of all profits to the owners. In comparison, only 7 percent of profits in the Slovenian sample were paid out to the owners, and even less in Macedonia (5 percent). This result suggests that in Bosnia and Herzegovina, the profits are used to finance private consumption more than in the two comparison countries, thus lifting people form dire economic conditions, but at the same time weakening the prospects of SME growth and employment expansion.

6.2 Barriers to SME development

191. Below the barriers to SME development are outlined, as perceived by the entrepreneurs. The questionnaire distinguished five main areas: institutional (regulatory), organizational, those erected by labor and product markets, financial, and social barriers, and asked the entrepreneurs to rate them at the one to five point scale. Table S6.1 lists all 54 barriers measured by the survey, ranked by their perceived importance by Bosnian entrepreneurs. The results of the survey show that ten most important barriers pertain to four key issues: high taxes, difficult access to bank finance, too much bureaucracy, and too little trust in the economy.

192. *Payroll taxes and social security contributions.* High taxes were considered as an important barrier by 88 percent of respondents in Bosnia and Herzegovina, 79 percent in Slovenia, and 78 percent in Macedonia. In all three countries it was ranked first by its importance for preventing SME growth. In addition, the third most important barrier in Bosnia and Herzegovina was high social security contributions. Both taxes and contributions are mandatory for formal employment and have to be deducted on a monthly basis. This represent a serious burden on SMEs and provides an incentive to engage in informal employment relationships. This interpretation is enhanced by a further finding that entrepreneurs do not consider labor costs to be too high.

193. *Income and profit taxes.* About 83 percent of entrepreneurs concur that high income taxes and high profit taxes keep their companies from growing. A high resentment over taxes is not unique to Bosnia and Herzegovina, but it does suggest two things. First, the fact that these

two taxes fall among top five barriers suggests the entrepreneurs have strong incentives for tax evasive behavior. Second, the high concern with income and profit taxes may signal frustration with the quality of state administration. This point seems to be important to the entrepreneurs, as is evident form the next paragraphs.

194. *Difficult access to bank finance.* High cost of credit, high bank charges, and high collateral requirements are also high on the list of barriers to SME development – more than two thirds of the Bosnian entrepreneurs consider them as presenting an important hindrance. Interestingly, in comparison to their Bosnian counterparts, fewer Macedonian and Slovenian entrepreneurs consider access to the bank finance to be a serious barrier.

195. *Bureaucracy.* While the level of corporate taxation in Bosnia and Herzegovina is comparable with the one found in developed economies, the quality of the state administration and its services is generally not. This is expressed in the critical attitude of the public toward the state administration:

- almost 71 percent of respondents believe that there is too much bureaucracy and that bureaucratic state is a serious barrier to the growth of their firms;
- 60 percent of entrepreneurs complained over the lack of support from the state and local government; and
- some 40 percent of the respondents also claim that there is the need to bribe officials in order to get things done

In the above three aspects, the discontent Bosnian entrepreneurs is much higher than the one of their colleagues in Slovenia and Macedonia. These findings strongly support the results of the FIAS study of administrative barriers which found that the state bureaucracy is a source of inefficient regulation and red tape – and far from being immune to corruption.

196. There are two other issues linked to the problem of low quality of state and its services: late payment of bills and the lack of trust in the economy. Both are considered serious barriers to SME growth. The three issues would appear to be linked: inefficient and corrupt bureaucracy is unable to establish and maintain financial discipline. As companies fail to pay their bills on time mistrust grows not only toward the state but also toward other companies in the economy. The result is a vicious cycle of mistrust that not only drives up transaction costs but also prevents companies to grow faster.

197. *Late payment of bills.* This is a pervasive phenomenon in all three countries. According to the survey, the average delay in paying bills is about 54 days in Slovenia, 81 days in Macedonia and 106 days in Bosnia. This creates serious liquidity problems for the SMEs, and 67 percent of Bosnian respondents claim that late payment of bills negatively affects the growth prospects of their businesses.

198. *Lack of trust in the economy.* The lack of trust is a barrier for 64 percent of respondents. In Bosnia and Herzegovina it was twice as important as in Slovenia, where the lack of trust was perceived as an important barrier by only 30 percent of entrepreneurs. The next section provides an overview of the results pertaining to trust and social capital more thoroughly. The significance of this finding was that the lack of trust made it to the top ten barriers alongside with the other, more conventional and straightforward items.

199. To summarize: what can be learnt from this analysis of barriers to SME development? The key message is that it is the combination of these barriers that matters. For example, low quality of government services, late payment of bills, and the lack of trust in the economy are all interlinked: inefficient and corrupt bureaucracy is unable to establish and maintain financial discipline. As companies fail to pay their bills on time mistrust grows not only toward the state

but also toward other companies in the economy. The result is a vicious cycle of mistrust that not only drives up transaction costs but also prevents companies growing faster.

200. Another important lesson is that Bosnian entrepreneurs do not perceive labor market institutions and practices as important barriers. Limitation on the use of fixed-term contracts, high costs of dismissing workers, long advance notification of layoffs – all these areas ranked very low on the list of barriers. Note that the survey was administered just before the new legislation was put in place and thus the Labor Code in power was still much more restrictive. The reason entrepreneurs did not feel constrained by labor market legislation was obviously its weak enforcement in small firms (interestingly, barriers created by restrictive employment protection legislation labor market were ranked more important by Slovenian entrepreneurs, presumably because enforcement is stricter in Slovenia).

6.3 Lack of trust as a barrier

201. Social capital is important for SME growth because small firms are more vulnerable to opportunism than larger ones. Small size leads to the lack of diversification and consequently to a higher business risk. By generating trust, promoting co-operation and reducing both risk and transaction costs in the economy and society, social capital benefits SMEs. It: (i) increases their willingness to enter into new business transactions and start new ventures, and (ii) enables them to reap the benefits of economies of scale while retaining their flexibility (see Box 6.1 for two key components of social capital: resources and embeddedness).

202. The key indicator of social capital is trust. Trust – an expectation toward the benevolent behavior of others – encourages cooperation because it eliminates crippling concerns about opportunism. Trust can be identified at two levels. First, there is *interpersonal trust*, which forms between two particular actors. Based on learning by monitoring from previous transactions, trust can link two individuals or organizations and facilitate their mutual dealings. Second, there is a *systemic trust*, trust which generates expectations of benevolent behavior not only among people we know but also among strangers. Where systemic trust exists, individual or corporate actors enter in a transaction assuming that every party is trustworthy.

203. In continuation, we review the survey results on social capital in Bosnia and Herzegovina at both interpersonal level and systemic level. The results will enable a better insight into the potential of Bosnian SMEs to grow and generate new employment.

Box 6.1: Two key components of social capital: resources and embeddedness

Social capital is defined as a set of social relationships an actor can draw on in various situations. There are two components to social capital: resources and embeddedness. The resources side of social capital views social ties as opening the access not only to other peoples' minds but also to their pockets. People that we have ties to control various resources. Depending on the quality of this relationship they make their resources available to us. The resources that can travel through social ties are familiar also to economic analysis: information, opportunities, referrals, advice, and capital. Thus, social capital extends and multiplies resources available to economic and social actors. This is what gives social relationships economic value, hence social *capital*.

The second component of social capital is embeddedness. The fact that actors can derive economic benefits from social relationships often invokes concerns among involved parties caused by unspecified property rights of social capital. Social capital does not have clearly established ownership. In fact, social relationships and social capital are jointly owned by people that are part of social relationships. This puts constraints on the use of resources that are accessed through social ties. Resources can be used depending on the nature of each relationship and depending on the structure of all relationships in actor's social network. Embeddednes therefore refers to the fact that social ties and relationships do not occur in isolation but are embedded in a broader social context such as family, neighborhood, local community, professional associations and the like. Embeddedness into these social contexts

(a) Interpersonal trust

204. In assessing the level of interpersonal trust, the results below take into account responses about trust in the business environment (trust among business partners, and the perceived fairness of competition), and the extent of subcontracting by SMEs.

205. *Trust among business partners* was measured with explicit reference to the business partners with whom the entrepreneur works with throughout the year. Table 6.2, panel A, shows that in comparison to Slovenia and Macedonia, the level of trust was much lower in Bosnia and Herzegovina – 67 percent of Bosnian entrepreneurs, and a much higher 83 percent of Slovenian and 74 percent of Macedonian entrepreneurs trusted their business partners completely. The lack of trust in business partners is evident also from the attitude toward relational contracting. In Bosnia and Herzegovina 36 percent of respondents thought that companies depended on long term partners while 55 percent of respondents preferred changing of partners. In Slovenia 74 percent of respondents believed that relational contracting with long term partners was the key to the success of their companies.

Table 6.2: Interpersonal and systemic trust as perceived by entrepreneurs, Bosnia and Herzegovina, Slovenia and Macedonia
(percent of positive responses)

Barrier	Bosnia and Herzegovina	Slovenia	Macedonia
1. INTERPERSONAL TRUST			
A. Business environment			
(a) Do you trust your partners			

Barrier	Bosnia and Herzegovina	Slovenia	Macedonia
Not at all or a little	8.3	1.0	7.1
Partly	24.8	15.8	19.3
Quite or completely	67.0	83.1	73.5
(b) Companies depend on long term partners			
Quite or completely	67.0	83.1	73.5
Yes, at least 1 long-term partner	36.1	74.3	37.6
No, you have to change partners	55.2	12.1	57.6
No, you depend on more short term partners	8.7	13.6	4.8
(c) Consider the competition to be fair (percent of positive answers)	31.2	59.1	42.3
B. Firms engaged in subcontracting			
Operate as a subcontractor (percent of positive answers)	24.5	47.4	46.0
Outsource work to another firm (percent of positive answers)	32.5	47.1	25.2
2. SYSTEMIC TRUST			
C. Trust in systemic actors and groups			
Government	5.8	7.7	17.3
Administration	5.8	6.7	11.0
Local government	9.6	18.0	16.7
Chamber	12.9	19.2	21.5
Banks	19.5	45.2	27.0
Large firms	22.1	31.1	30.6
Small firms	31.7	28.6	40.2
D. Perceived corruption			
No corruption	2.9	4.9	2.0
Low corruption	3.6	8.8	5.4
Moderate corruption	20.9	31.9	30.2
High corruption	40.6	21.1	31.5
Do not know	32.0	33.3	30.8

Source: A survey of SME sector in Bosnia and Herzegovina, Macedonia, and Slovenia.

206. The lower levels of trust in Bosnia and Herzegovina can be explained by lower quality of their business environment. Table 6.2, panel A, shows that only 31 percent of entrepreneurs believe that competition in Bosnia and Herzegovina economy is fair. In contrast, 59 percent of Slovenian entrepreneurs consider competition in their country fair. It seems that in a stable Slovenian environment, entrepreneurs are more inclined to build mutual trust. In Bosnia and Herzegovina, where entrepreneurs work in a less stable environment, trust in business partners is much lower. Consequently, long term partnerships are considered an inferior option to opportunistic changes of partners.

207. Subcontracting and outsourcing are indicators of the level of co-operation between independent companies. Table 6.2, panel B, shows that subcontracting and outsourcing are at much lower levels than in Slovenia. Only 25 percent of companies in Bosnia and Herzegovina work as subcontractors, while the number for Slovenia is 47 percent. Similarly, 33 percent of

SMEs in Bosnia and Herzegovina outsource their work to other small companies, while 47 percent of Slovenian SMEs do. These findings indicate that there are consistently lower levels of co-operation in Bosnia and Herzegovina than in Slovenia.

208. A consequence of the lower level of interpersonal trust in Bosnia and Herzegovina is the avoidance of long term relationships and lower levels of co-operation in the economy. Since co-operation among SMEs is a key engine of SME sector growth, the lack of interpersonal trust and co-operation reduces the chances of SME development and employment growth in Bosnia and Herzegovina.

(b) Systemic trust

209. Systemic trust is measured below by two groups of indicators, one measuring trust in the context of systemic actors and groups, and the other perceived corruption.

210. Bosnia and Herzegovina was found to have the lowest levels of systemic trust in almost every context that was measured in the survey, ranging from trust to government, administration, local government, chamber of commerce and banks, to trust in large and small firms (Table 6.2, panel C). The poor showing of Bosnia and Herzegovina is consistent with the findings above which suggested that Bosnia and Herzegovina suffered from lack of trust on the interpersonal level.

211. Systemic trust is related also to the perceived corruption of public officials. In Bosnia and Herzegovina, about 73 percent of respondents believe that public officials are corrupt. This number is lower in Macedonia and Slovenia, where corruption is alleged by 62 percent and 53 percent of respondents, respectively. Moreover, of the three countries, in Bosnia and Herzegovina there is also the highest percentage of those who think that the level of corruption is high.

212. To summarize: the lack of both systemic and interpersonal trust puts Bosnia and Herzegovina limits the potential of the SME sector to grow and to create jobs. In other words, faced with strong social barriers to growth, the SME sector is in a weak position to create more jobs.

6.4 Concluding remarks

213. The main results of this chapter can be summarized as follows. Entrepreneurs from Bosnia and Herzegovina are predominantly concerned with the high level of taxes, as well as with the lack of affordable financing (loans, venture capital, equity capital). It seems that high taxes discourage job creation in the formal sector, pushing large numbers of workers in the informal economy. Moreover, while the respondents did not attribute much importance to the administrative barriers, they were much more perceptive of the social constraints, the majority of them claiming that the lack of trust in business partners and system in general was an important impediment to SME development (because it constrained business opportunities and raised transaction costs). Interestingly, the concerns of Bosnian entrepreneurs with labor costs are placed much lower on the list, and so are their concerns with labor market legislation.

214. The above results show that the level of both interpersonal and systemic trust is very low in Bosnia and Herzegovina, thus pointing to the lack of trust as a barrier to SME development. The reason that it is so difficult to break a vicious cycle of mistrust is the fact that it is the combination of barriers that fuels the mistrust. For example, inefficient and corrupt bureaucracy is unable to impose financial discipline, which encourages the mistrust not only toward the state but also toward other companies.

215. To increase systemic trust, i.e. confidence in the economic and political system, the country must improve the impartiality, reliability, and efficiency its institutions. In particular, a serious crackdown on corruption together with improving the functioning of independent courts would lift the level of trust in the institutional infrastructure that is required for doing business in Bosnia and Herzegovina. Foreign agencies could play a pivotal role in this drive, transferring, together with their programs, also the systems of governance that would increase transparency and accountability. Unfortunately, there is no ready recipe for boosting interpersonal trust.

7. CONCLUSIONS AND RECOMMENDATIONS

216. Bosnian postwar labor market has been faced with the need to accommodate enormous accumulated imbalances. These imbalances were produced by: (i) the destruction of production and human assets by the war; (ii) the loss of traditional business partners and markets due to political and economic changes in neighboring countries; and (iii) transition to market, which has profoundly affected country's institutional and price-setting framework. Efficient postwar adjustment of the Bosnian economy thus inevitably calls for large worker reallocation and job creation.

217. The report portrayed the Bosnian labor market as a rather static one, unable to accommodate looming imbalances in the economy. In comparison to the prewar period, postwar employment has been strongly reduced, as new jobs have only been slowly created. While arguably the most important instruments to boost job creation should be sought outside the labor market, the report finds that some labor market institutions also reduced the capacity to allocate labor efficiently and to create jobs. Worker and job flows have been rather low, lagging behind flows in other transition economies during intense restructuring periods, with the lag of Republika Srpska being particularly pronounced. In short, in spite of the tremendous need for labor reallocation due to huge accumulated imbalances, barriers to mobility proved to be important, reducing labor mobility and ultimately hindering job creation, too. In particular, the report found that:

218. **Finding no. 1: The formal sector workforce has become considerably older, and young workers have been denied access to formal sector jobs**. The average age of formal workers increased from 36.6 years at the beginning of 1991 to 40.0 years by 2000 (in the Federation; no comparable data exist for RS). The share of workers younger than 35 decreased strongly in comparison to prewar years. Particularly worrying is the fact that, while the postwar years reversed the trend for some age groups, the share of 25-34 year old ones has continued to decrease. In 2000, the employment share of this group was 23 percent, in comparison to 37 percent in 1990. Consistent with the above, the share of workers with less than 10 years of experience dropped from 46 percent in 1990 to 36 percent in 2000, and in the same period, the group with 21-30 years of experience increased their share by 10 percentage points. Recent LSMS data confirm that some of the younger workers "missing" from the formal sector are employed in the informal sector. For example, in 2001 around 18 percent of workers employed informally were younger than 25 years, to be contrasted with the 7 percent share of this group in formal employment. However, the overall reduction in share of younger workers is robust to the inclusion of the informal sector. In sum, new formal employment has brought little fresh blood – the postwar formal sector workforce largely consists of the same pool of workers, who are becoming gradually older and who exit the workforce at pensionable age.

219. **Finding no. 2: There is low labor force participation, and female labor force participation is among the lowest in the region. A large shares of labor force participants is unemployed or employed in the informal sector.** A recent LSMS survey allows for the first time to measure the participation in the Bosnian labor force in internationally comparable fashion. According to the survey, in 2001 the labor force participation rate was at a low 48 percent, with male participation rate at 62 percent and women participation rate at only 28 percent, which extremely low by international standards. Moreover, the unemployment rate according to the survey was a high 16.4 percent, and it was somewhat higher for women. Unfavorable labor market conditions were reflected also in a large share of jobs in the informal sector, which amounted to more than one third of total employment.

220. **Finding no. 3: Data on registered unemployment vastly exaggerate true prevalence of unemployment.** According to the 2001 labor force survey, out of 498,000 registered unemployed in Bosnia and Herzegovina, only slightly less than a quarter (122,000) qualified as unemployed under the standard ILO-OECD definition. The rest were either employed (another quarter, or 124,000) or inactive (51 percent, or 252,000). True, 69,000 unemployed workers did not register with employment offices. The survey thus shows Total number of unemployed workers in 2001, according to the survey, is thus 191,000, which is less than 40 percent of the number of registered unemployed. The main reason for unemployment registration thus appears to be free access to health services, obtained upon registration.

221. **Finding no. 4:There is a large informal sector.** According to survey data, in 2001 there were 362,000 workers in the informal sector, or 36 percent of total employment. The survey results also showed that:

- most informal employment takes place in agriculture (47 percent), in construction (17 percent), and in manufacturing (9 percent);
- the majority of informal workers are employed by private employers, 28 percent are self-employed, and about one fifth are contributing family members,
- the groups which are particularly over-represented in the informal sector are the young and the unskilled (but not women), with high barriers to entry into the formal sector may have contributed to the high share of informal employment of both the young and the unskilled.

222. **Finding no. 5: Job creation and reallocation of jobs has been low, with the situation markedly worse in RS.** A powerful way of studying labor market dynamism is to examine data on creation and destruction of jobs. The report shows that during 1997-99, the job flow rate (the number of jobs created or destroyed during the year per 100 existing jobs at the beginning of the year) in Bosnian enterprises with more than 10 workers was rather modest. On average, expanding firms annually created 4.2 new jobs, and contracting firms destroyed 5.3 jobs per hundred existing jobs. Moreover, the measures of enterprise restructuring (reflecting the shift of employment positions from one firm to another while leaving the overall number of employment positions intact) were also quite low. Job flow rates were even lower for enterprises with more than 100 workers, for which comparable data exist in other transition economies (the comparison group consists of Bulgaria, Estonia, Poland, Romania, and Slovenia). In all dimensions of job flows, the average for these countries exceeds the numbers for Bosnia. If one takes into account the extraordinary conditions imposed on the Bosnian economy by the war devastation, the low job dynamics in Bosnia and Herzegovina in the first postwar years becomes even more obvious; of the two entities, Republika Srpska is the obvious laggard. Such a low intensity of creating new, more productive jobs; of closing down unproductive jobs; and of shifting jobs from less productive to more productive jobs undoubtedly reduced the productivity growth and growth potential in general, including the growth of employment.

223. Similar to results in other transitional countries, other results on job flows show that sector and enterprise characteristics matter – above all, in both entities private enterprises created and destroyed more jobs, per number of existing jobs, than public enterprises. The intensity of job flow also varied by sector and enterprise size. Interestingly, job flow intensity of loss-makers did not lag much behind the job flow intensity of profitable enterprises.

224. **Finding no. 6: Worker mobility has been modest.** Despite both war- and system-induced imbalances in the economy, the Bosnian labor market has been remarkably static. In 1996, both accession and separation rates dramatically increased, but in recent years they have fallen back, and in 2000 both rates were 18 percent, only just above the pre-war socialist era rates (data relate to the Federation only, because comparable data for RS were not available). These figures are significantly below worker flows during the intense restructuring phase of other

transition economies, and were much lower than long-term worker mobility rates in mature market economies. For example, the Federation's post war separation rates have been below 20 percent in every year – much below separations rates in Bulgaria and Hungary during their early 1990s restructuring, and below Poland's average for the entire 1990s.

225. The report also shows that the position of women has not deteriorated substantially. In the postwar period, women were less likely to switch jobs, but they were no more likely than men to experience separation from job to non-employment (inactivity or unemployment), and faced no more difficulties in accessing jobs from non-employment than men. However, the report finds that the gap between male and female participation in the labor force is easily the highest in the region, with female participation only just over half the male rate. While the relative position of women has therefore not deteriorated markedly, the starting position for female labor force participation was very low by regional standards and has not improved since the war.

226. In terms of age, in comparison to the prewar period older workers were less likely to separate from employment. This finding is consistent with deteriorating labor market conditions, but may also reflect "waiting effects" – workers deciding not to quit in expectation of the compensation for involuntary separation. Corroborating the waiting effects is also the finding that in contrast to the prewar period, workers in medium and large firms were less likely to change jobs as well as to leave jobs to non-employment other than retirement. Consistent with the results in other transition countries, the better educated are found to have higher chances of exit from employment to another job, and lower chances of exit to non-employment, including retirement – the result suggesting the presence of a skills gap in the Bosnian economy (that is, the presence of a large mismatch between the skills demanded by firms, and the skills offered by labor force participants).

227. There are several other aspects of the Bosnian labor market that have strongly affected worker mobility and flexibility. First, the phenomenon of wait-listed workers is gradually disappearing from BiH, though more slowly than hoped, particularly in the RS. This is a significant improvement, as workers – instead of being trapped in low productivity jobs in loss-making enterprises, many at the same time being pushed to informal employment – are more likely to move on to other jobs. At the same time, relieved from the counterproductive subsidization of loss-makers, firms have better chances to create more jobs. Second, young and unskilled workers (but not women) are over-represented in informal employment, as well as in unemployment. A high tax wedge imposed on wages, together with binding minimum wages may have contributed to these high shares; the high share of unskilled workers also suggests the presence of a skills gap in the Bosnian economy. And third, employment discrimination, particularly along ethnic lines, has been strongly present also in the postwar period, and constitutes an important impediment for worker mobility and economic efficiency in general.

228. **Finding no. 7: After the 2000 changes, labor legislation and the unemployment support system have been better attuned to the needs of a market economy.** To identify sources of the above-established lack of mobility and job creation, the report investigates institutional and legislative features of the Bosnian labor market. It found that the new Entity Labor Codes of 2000 are better attuned to the needs of the economy, as they provide more modern solutions, increasingly embraced also in Western Europe. In contrast to the previous, extremely restrictive labor legislation – which undoubtedly contributed to low worker and job mobility – the new labor legislation does not unduly impede job creation and worker mobility. Moreover, the revised unemployment insurance program introduced in 2000 provides a modest, affordable income compensation to the unemployed, which is comparable with other transition countries in terms of replacement rate and duration of benefits. There have been very few recipients of unemployment benefits in recent years, but the system is capable of providing

valuable income support to an increased number of unemployed workers in the future. If coupled with an appropriate monitoring and enforcement regime, it is unlikely to distort incentives of the unemployed, and should not significantly contribute to "sclerotic" labor markets and reduced capacity for job creation.

229. ***Finding no. 8:*** **A rigid Bosnian wage determination system stands in the way of job creation and worker mobility.** Despite the positive developments in new Labor Laws in both Entities, several features of the new labor relations framework have not fed into the real economy yet, largely due to the retention of socialist era features in collective agreements. This is a result of a bargaining system which retains most of its socialist era characteristics, with government and trade unions essentially bargaining without effective employer representative in a highly centralized and overly politicized manner. The effects can be seen in the wage structure for the formal sector: collective agreements in both Entities determine not only minimum wages but also wage floors for nine categories of workers, the components of wages, the fringe benefits of workers, and automatic pay increases for work experience. They also prescribe rules and mechanisms for adjusting wages to inflation. The report shows that these rigidities continue to strongly affect wage formation in BiH in the following ways:

- Minimum wages in the Federation imposed a binding constraint (i.e. there was a clear presence of "bunching of wages" at the prescribed minimum wages), raising the pay of the least skilled workers employed in the formal sector and compressing wage distribution (there were much larger wage differences in the informal than in the formal sector).
- In the formal sector, the male-female wage gap was lower than in the informal sector, suggesting the enforcement of formal rules.
- Wages of formal sector workers with a long work experience commanded a premium unmatched by wages of similar workers in the informal sector and with no demonstrated link to worker productivity.

230. By imposing such rigidities, the wage determination system introduced various barriers to labor mobility. For example, for some categories of workers it was difficult to move from the informal to the formal sector – for young and unskilled workers, in particular (indeed, these were the two groups which were over-represented among informal sector workers) – and possibly for women (with this problem particularly acute in the Federation). Relatively high wages could also have slowed down outflows from unemployment into employment, particularly into formal employment. Moreover, a mandatory premium attached to work experience hindered the mobility of older workers, as these workers were unable to compete for new jobs with more productive younger workers, whose mandated pay was lower.

231. **Finding no. 9: Firms are under-reporting their wages.** The study presents evidence that suggests that firms under-reported wages so as to avoid or minimize payment of social security contributions. Under-reporting was detected by comparing formal sector wages as reported to the pension authorities with data obtained from the recent LSMS survey (due to data limitations, the comparison applies to the Federation only). The officially reported data had a large spike at the officially mandated minimum wage, followed by a large dip, suggesting employer reporting of higher-paid workers in lower-wage categories. Reported wages thus exaggerated the number of workers who were paid the minimum wage. Comparisons from administrative and survey data suggest that under-reporting was particularly prevalent in small, private firms. Enterprise surveys confirm that high payroll tax rates provide a strong incentive for under-reporting.

232. **Finding no. 10: Despite the overall context of a stagnant labor market, private firms have been much more dynamic in all aspects of job flows, including net employment**

growth. In every category except for job destruction, the highest job flows are produced by private firms.. They by far exceed the other types of firms not only by job creation, but also by gross reallocation, and net employment growth. Private firms were the only category in 1997-1999 with positive net employment growth. Private firms show much higher vitality both with respect to their ability to create more jobs as well as to "reshuffle" jobs (employment positions) within the firms in the sector, as suggested by their higher excess job reallocation. Job flow patterns in respect to ownership are remarkably uniform across the two entities.

233. **Finding no. 11: Newly privatized firms reduced their workforces, but not dramatically. This suggests that fears of a dramatic social impact of privatization have not been borne out to date in BiH.** The report shows that firms which were privatized in the initial period of privatization reduced their employment only slightly more than firms which remained state-owned (the Federation only due to data availability). A year and a half after privatization, the level of employment in newly privatized firms was 4 to 6 percent lower than at the date of privatization – so for this group, the fear that privatization would lead to large reductions of employment did not materialize. However, the actual reduction of employment in privatized firms stands in sharp contrast to the sizeable planned increase of employment. Other results show that these firms recorded higher worker flows, suggesting that worker-employer matching process was more intense in privatized firms than in state-owned firms. Interestingly, women increased their employment share following the privatization; older workers were more likely to leave the privatized firms, and so were, surprisingly, the highly educated. As expected, profitable firms retained a higher share of their original workforces than did loss-makers, and so did large firms in comparison to small firms.

234. **Finding no. 12: High taxes, difficult access to credits, and lack of trust hinder SME development.** SMEs are typically a sector which account for a high share of total employment and high rates of employment growth in other parts of Western and Eastern Europe. However, formal sector SME growth has been constrained in BiH to date. According to BiH's entrepreneurs, the lack of trust in business partners and the system in general is placed among the main barriers to SME development – beside the high level of taxes and the lack of affordable bank finance. The report also shows that the level of both interpersonal and systemic trust is particularly low in BiH (e.g. lower than in Macedonia and Slovenia). The lack of trust hurts SME development because it constrains business opportunities and raises transaction costs. Interestingly, the concerns of Bosnian entrepreneurs with administrative barriers, labor market legislation, and labor costs are placed much lower on the list of impediments. This is consistent with a greater latitude of small firms in setting their wages, as discussed above; presumably, small firms are also more able to minimize costs imposed by restrictive labor legislation and administrative procedures (as shown by FIAS and others, administrative barriers in general are very significant in BiH).

D. Recommendations

235. The main challenge of Bosnian policymakers is to encourage businesses to create more jobs, as well as to promote an efficient and equitable reallocation of labor – a formidable task under the present circumstances of high unemployment, significant share of informal employment, and barriers to job creation and labor mobility. To do this effectively will require stronger incentives for formal sector participation among the large share of firms and workers currently working in the informal sector.

236. The main message of the report is that the remaining rigidities in the formal sector labor market need to be further reduced if BiH is to discontinue the trend of an aging formal sector labor force, and generate sufficient jobs for young workers, the unemployed, and other groups.

Reducing the rigidities in the formal sector will not only improve labor mobility (including by attracting workers from the informal to the formal sector), but will also create an environment conducive to job growth. The present system involves substantial costs from the large informal sector in BiH: both efficiency costs in terms of reduced productivity, as well as equity costs, in terms of uncertainty of the receipt of wages, and violations of health and safety regulations. To help reduce the size of the informal sector and stimulate formal sector job growth, the best strategy for BiH is therefore to keep liberalizing the legislative and institutional framework so as to promote a labor market which offers a scope of regulations and rights which is acceptable but also enforceable, and minimizes disincentives for informal sector employers to move into the formal sector over time.

237. Overall, a key recommendation of the report is that expanding labor market regulation is a counterproductive way to stimulate job creation, and that job subsidization programs can only be of marginal importance, and should be strictly targeted. In order to help the government to formulate effective economic and labor market policies, the reports offers also the following specific policy recommendations:

i. *Strengthen business environment.* Low worker and job flows are primarily produced by the lack of job creation capacity of the Bosnian economy. While the issue of job creation is extremely complex – among others, it calls for political stability and an appropriate macro environment – it is clear that sustained growth cannot be achieved without a vibrant private sector. The government should therefore speed up the privatization process and deepen the liberalization of the business environment supported under the BAC agenda. Moreover, the results of a survey of Bosnian entrepreneurs suggest that Bosnian SME development is faced by a host of barriers which include high taxation of both wages and profits, too much bureaucracy, and a lack of systemic trust. The government should thus promote the growth of businesses by simplifying the red tape and increasing the trust in the system. Moreover, the possibilities of reducing taxation rates, including the taxation of labor – without jeopardizing fiscal balance – should be explored: this calls, above all, for improving tax collection, as well as examining the level and structure of public expenditures. Reducing high labor costs may also attract more workers in the formal sector.

ii. *Overhaul the bargaining system for determination of terms and conditions in the formal sector, in particular encouraging effective employer participation in bargaining process and encouraging more decentralized bargaining where appropriate. In particular, the aim should be to liberalize the wage determination framework.* A less rigid system would stimulate mobility and improve access to jobs of some groups of workers who are greatly suffering under the present system. The prime case in point are young workers, whose access to formal sector jobs has been severely curtailed and who suffer from high unemployment rates, are extensively engaged in the informal sector, and lack the necessary experience and financial assets to start their own businesses. In order to stimulate more flexible wage determination, bargaining over employment terms and conditions needs to be decentralized to the level where those involved in the bargaining process are directly affected by the outcomes of their decisions. Even within the current overly centralized bargaining system, there are many options for improvements in the way wages are set which should stimulate labor demand. To this end, policymakers should consider introducing a less binding minimum wage (and possibly a separate youth minimum wage); abolishing determination of wage floors for various categories of workers; and dropping the stipulation which mandates specific and automatic returns to work experience which are not related to productivity. Moreover, the wage

determination process would also benefit from strengthened representation of businesses through an independent employer association.

iii. *Reduce labor market discrimination.* To curb widespread ethnic discrimination at the workplace, a program to monitor discriminatory labor practices, particularly by large employers, could help in reducing the most obvious cases. The transparency of administrative and court procedures should also be sought, and the role of ombudsmen strengthened.

iv. *Approach the area of social policy in a more comprehensive way.* While the demands on social policy – ranging from health care to active and passive labor market programs to social assistance – are very diverse and the funding possibilities extremely limited, the whole area need to be viewed in a more holistic way. Among other things, this means that fiscal allocations among different areas should be carefully evaluated, and cross-subsidization avoided. For example, the availability of health insurance upon registration at employment offices needs to be reviewed, as it not only redirects resources from the unemployment to the health care area, but it also creates perverse incentives for registration and unnecessary clogs the capacity of employment offices.

v. *Reorient active labor programs while continuing basic unemployment insurance.* The current implementation of active labor market programs prioritizes interventions which are not cost-effective (e.g. credits/grants for starting self-employment of the unemployed) and have often proven non-transparent and subject to political manipulation. Therefore, current labor market policies need to be carefully reviewed and priorities in active programs reassessed. For the most part, this will require a greater emphasis on basic job search and job brokerage/information services by the public sector. In addition, the above established skills gap needs to be addressed, and efforts should be made to offer labor market training to the unemployed with low education (and to increase enrollment in post-elementary education). In terms of unemployment benefits, the unemployment insurance system as amended in 2000 is unlikely to distort incentives of the unemployed, but it is important to carry out strong monitoring of benefit recipients, to enforce the system's rules, and to resist pressure for increasing benefit levels and duration, either of which would lower incentives for the unemployed to return to work.

vi. *Help the young, particularly the unemployed young, accessing jobs.* Young workers have been disproportionately hurt in the postwar BiH's labor market. They are also the group who are most likely to leave BH altogether in the absence of better employment opportunities than current policies and practices provide. Less constrained wage determination, as recommended above, would improve the labor market prospects of young workers, but in view of the harmful long-term effects of unemployment, the authorities are advised also to consider the introduction of special programs – perhaps in the form of job subsidies – for specific youth groups (such as refugees, orphans, school drop-outs). A more inclusive program could be one which would waive, for a limited period, the payment of social security contributions for young workers in their first. However, in order to make such programs effective and fiscally affordable, they need to be clearly targeted, and implemented in a strictly timebound manner and with greater transparency than has been exhibited in implementation of active labor market programs to date in BiH.

vii. *Increase systemic trust*, i.e. confidence in the economic and political system, by improving the impartiality, reliability, and efficiency of BiH institutions (such actions include anti-corruption campaigns and improvements of the functioning of independent

courts – foreign agencies could help significantly in this task). By promoting business opportunities and reducing transaction costs, such measures would help the SME development and improve business environment in general.

APPENDIX 1: DATA SOURCES AND PROCESSING

This appendix describes the sources of data on individuals and enterprises used in preparing this report, as well as some important steps in processing the data. The sources used by the study are:

1. Work history database (for the Bosniak part of the Federation only),
2. Enterprise database,
3. Living Standard Measurement Survey, and
4. Survey of the SME sector in Bosnia, Slovenia, and Macedonia (October 2000).

Below we describe the coverage and contents of these sources, and main processing procedures used to prepare data for the analysis in the present report.

1. **Work history database,** Bosniak part of the Federation (Federation Pension and Disability Fund)

1.a. Description

We obtained data on every job held by a sample of workers in 1990, 1998 and 1999. For workers who held more than one job during the course of the year, two or more records were therefore supplied. Specifically, we obtained the following number of records, containing information about the following number of individuals:

	1990	1998	1999
Number of records	14398	15000	15000
Number of individuals	11113	13475	13507

As it became clear during the analysis, in the selected samples young workers (those under 25 years) were underrepresented. Apart from the age structure, other aspects of the population are represented fairly well in the individual data (see below). In the analysis of worker mobility based on the individual level data, we thus treat "younger of 34" as one group, and do not report separately the results for younger than 25 years (note, however, that the aggregate data covers all individual in all age groups and thus enable a complete analysis of outcomes by age groups).

For each observation and year, the following variables were supplied:

- ID number of the individual
- starting date of employment
- ending date of employment (if applicable)
- gender
- date of birth
- education
- experience
- vocation
- giro account of the employer
- sector of the employer
- type of ownership for firm
- number of hours worked in the year
- amount earned in year
- date of retirement (if applicable)

1.b. Treatment of organizational and other changes of employers

One difficult issue facing any labor and job mobility study is the treatment of organizational and other changes of employers which resulted in a formal change of the identity of the employer – and this issue is even more pressing in the analysis of transition economies, because of the large scale of such changes produced by ownership and other systemic changes. Viewed on the paper – through a firm registry – such changes typically result in a death of one and a birth of another enterprise; viewed in substantial terms, however, such change may or may not produce behavioral changes. For example, when previously socially owned firms were transformed into shareholding companies (with government, other firms, and workers of the firm being the main shareholders) – the type of change underwent by many firms in 1990-91 in the former Yugoslavia – should the resulting "transfer" of the employees be treated equally as the job-to-job transfer of a worker when truly changing employers?

We dealt with such organizational and other changes of firms in two ways. First, thanks to the registry of organizational changes kept by the Federation Pension and Disability Fund, the aggregate data on worker flows has been purged from such organizational changes. Consequently, a change of job in *aggregate data* is only counted when the two employers are two different, distinct firms. Second, in individual data records we do not distinguish between different types of job changes. In comparison to aggregate data, the individual data thus produce higher "baseline" mobility rates and, in particular, higher job-to-job mobility rates (direct job changes), but the results about other types of mobility are not affected. Moreover, assuming that organizational changes have spread over all sectors of the economy in a similar way, individual data also enable analysis which accurately identify differences of mobility between different demographic groups (by the use of analytical methods which distill the partial influence of variables). Because organizational changes were much more prevalent in prewar than in postwar years, differences in individual and aggregate data are noticeable particularly in the pre-war period (for the year 1990 in our analysis).

2. Enterprises database (SDK - Social Accounting Service of the Federation, Statistical Office of the Republika Srpska)

2.a. Description

The data contained selected information on firms in the formal (incorporated) sector, for selected years in the 1990s (see table below). For the Federation, only data on firms belonging to the so-called "economic sphere" were provided (thus the sectors of health, education, and government were excluded, and thus the firms for which we had data employed only a share of total formal sector employment).[55]

For each firm and year, the following variables were supplied:

- giro account of the employer
- amount of profit or loss
- total revenues
- total gross wages
- total taxes
- total contributions
- number of employed
- name of firm
- locality & commune

[55] The Social Accounting Service (SDK) was abolished in the beginning of 2001.

- type of ownership
- sector of activity

2.b. Processing of data in the analysis of job creation and destruction

We focused the analysis of job flows on medium and large enterprises which have been continuously in existence in the postwar period and reported a non-zero employment. Beside being interesting on its own right, we decided to do so also for the following data related reasons:

- Based on the information we had, we were not able to judge whether births and deaths of firms appearing in our data correspond to a true emergence of firms (that is, to births of "de-novo" firms), and to true disappearances of firms as going concerns. While undoubtedly some firm have entered and some have disappeared (although not through bankruptcies, as no bankruptcy has been officially recorded in BiH yet!), the information provided does not allow us to separate such events from artificial deaths and births (for example, privatized firms re-registering as a different business subject, or firms changing their organizational structure). In addition, firm reporting standards in the post-war period have deteriorated, and particularly the reporting of new, privatized firms has been deemed incomplete, a factor that would seriously undermines our ability to investigate job flows of de-novo and privatized firms.
- We also noticed that the reported data on employment was not always of high quality (note that in contrast to accounting data, for which strong logical controls exist, the information on employment – which was added to accounting database – cannot be verified in the same manner). In particular, for some enterprises we noticed a drop of employment to zero in one year and a strong subsequent recovery in the subsequent year. Some state-owned firms also appeared in our database as new firms (that is, no information existed in one year, and a large employment was reported in the next year). It is possible that this was produced by organizational changes of firms which resulted in the change of identification number of the firm; moreover, some firms re-registered because of change of some of their attributes (for example, the sector of activity).

For the above reasons, we selected in our sample a subset of firms which were in existence for at least for two consecutive years, and – because of our focus on larger firms – which employed more than 10 workers in the earlier year of the two-year observation period. In addition, because of the irregularities in our data set, we have performed several consistency tests aimed at excluding artificial births and deaths and removing reporting errors. We thus excluded from analysis (i) firms with less than 10 workers in the first year of the two-year observation period, (ii) firms which exhibited large swings in employment not supported by the changes in their payroll data, and (iii) firms which changed their employment by more than 30 percent from one year to another. The selection procedure – and the number of firms and their cumulative employment – are presented in Table A1.

Table A1: Selection of firms for the analysis of job flows

	Federation		Republika Srpska	
	Number of firms	Total employment	Number of firms	Total employment
A. Period 1997/98				
a. Firms for which accounting and employment information was supplied	14211	204226	11351	182780
b. Firms excluded	12690	46977	9985	39801
Firms smaller than 10 workers	12489	24982	9779	9274
Firms which exhibited large swings in	147	19011	77	7227

	Federation		Republika Srpska	
	Number of firms	Total employment	Number of firms	Total employment
employment not supported by the changes in their payroll data				
Firms which changed their employment by more than 30 percent from one year to another (for which data on wages is missing)	54	2984	129	23300
c. Firms retained in the final sample	1406	156099	1366	142979
B. Period 1998/99				
a. Firms for which accounting and employment information was supplied	12772	214888	11516	196841
b. Firms excluded	10907	39149	9801	31515
Firms smaller than 10 workers	10762	25333	9609	11973
Firms which exhibited large swings in employment not supported by the changes in their payroll data	102	9594	61	5881
Firms which changed their employment by more than 30 percent from one year to another (for which data on wages is missing)	43	4222	131	13661
c. Firms retained in the final sample	1865	175739	1715	165326

2.c. Merging of work history and enterprise data

For the Federation, we were able to merge data on workers with their respective employers. The two datasets were merged according to the giro account numbers provided in both datasets. As mentioned above, not all formal sector workers worked in enterprises for which accounting data was provided, so the resulting merges were not perfect - that is, some observations from the work history dataset were left without corresponding data from the enterprises dataset.

	1990	1998	1999
Initial number of observations in work history data	14398	15000	15000
Successful merges with enterprises data	4356	8179	8288

3. Living Standard Measurement Survey

To overcome the absence of any recent survey data in Bosnia and Herzegovina, Living Standard Measurement Survey (LSMS) was conducted in September and October 2001, under the auspices of the entity statistical offices, World bank, and several other international agencies. Below we describe the survey and explain how we obtained an estimate of informal employment based on the survey data.

3.a. Description

The main goal of the LSMS was to measure welfare in both monitory and non-monitory terms in Bosnia-Herzegovina. Beside collecting data on consumption, however, several other modules were also administered, gathering data, among others, on education, health, and labor market. Beside demographic information, in this report we used data collected in these three modules, particularly by labor market one. The whole questionnaire consisted of 13 modules covering

Roster, Housing, Education, Labor, Migration, Health, Voucher, Credit, Social Assistance, Consumption, Non-Agricultural Activities and Agricultural Activities.

Coverage and weighting. The data were collected from a random sample of households from 25 municipalities (out of 145) in Bosnia-Herzegovina – 14 from the Federation Bosnia and Herzegovina and 11 from Republika Srpska. Individual observations were weighted by special weights (provided by survey statisticians) to obtain estimates of attributes for Bosnia and Herzegovina. Below we present the number of households and individuals included in the sample, and estimates of the total number of households and persons obtained by applying weights to the survey population, by entity:

Number of:	**Total**	**Federation**	**Republika Srpska**
Households – survey	5,397	3,002	2,395
Individuals – survey	17,111	9,265	7,846
Households – population (in thousand)	1,091.4	678.3	413.1
Individuals – population (in thousand)	3,547.7	2,189.9	1,357.8

Contents of the labor market module. The module covered six areas:

- employment status,
- main job,
- second job,
- information about persons who do not work,
- information about persons looking for job, and
- status with the Employment Bureau.

3.b. Definition of employment in the informal sector:

According to the "The resolution concerning statistics of employment in the informal sector" (The Fifteenth International Conference of Labour Statisticians, January 1993), the defining element of informal employment is the fact the employer is not an incorporated business. That is, a worker is treated as informally employed if he (she) is either self-employed (in an unincorporated business), or an employee working for unincorporated employer. Note that by its nature, informal jobs are associated with different bearing of risks and stability of job: self-employed, by definition, bear the residual risks and profits, and their job is directly affected by their business performance; employees in informal sector are usually more exposed to risk, because the risk of their job termination is higher – they enjoy less protection. Note that formal sector workers may or may not be covered by health and pension insurance.

To determine the formal vs. informal work status in Bosnian LSMS, we proceeded as follows.

- For some workers, we inferred from the questionnaire whether or not their employers are incorporated businesses. We thus categorize as working in **informal** employment all unpaid supporting family member, farmer on own farm, and do other activity (described as the sale of agricultural and other products, etc). In contrast, we counted as **formally employment** all workers who worked in public enterprises and international organizations.
- However, for many workers, we could not infer from the questionnaire whether or not their employers are incorporated businesses – in principle, they can be either. For these workers, we categorized them into formal sector if their pension contributions were paid, and into informal sector, if they were not.[56]

[56]Resolution concerning statistics of employment in the informal sector (The Fifteenth International Conference of Labour Statisticians, January 1993), paragraph 9.

4. A survey of SME sector in Bosnia, Macedonia, and Slovenia

The data come from a survey of SMEs in Bosnia and Herzegovina (the Federation only), Macedonia, and Slovenia, carried out as part of the Phare-ACE Project "Barriers to SME Development in Bosnia, Macedonia, and Slovenia" (Bukvič et al, 2001).

The survey covered 794 small and medium sized firms in the three countries in all sectors except agriculture. A representative sample was selected in each of the three countries. These were random stratified samples drawn from a population of firms that had at least 2 and not more than 250 employees. The exclusion of the firms with one or zero employees was made to make sure that the samples include only companies with at least some proven potential for growth, and to avoid swamping the sample with a large number of micro firms. The strata were defined for firm sector and firm location. The trade sector was restricted to 30 percent of the sample and firms located in the area of the national capital to 40 percent of the sample. The data were collected by personal interviews with owners and managers of the selected firms in the Fall of 2000.

REFERENCES

Abraham, Katharine, and Milan Vodopivec (1993): "Slovenia: A Study of Labor Market Transitions." The World Bank, Washington, DC, processed.

Abrahart, Alan (2002). "Employment Service Programs in Bosnia and Herzegovina," background paper for the World Bank PEIR Review, processed.

Blanchard, O. (1998). "Employment Protection and Unemployment." Unpublished paper available at: http://web.mit.edu/blanchar/www/. Accessed in April 2000.

Bisogno, Marcelo. and Alberto Chong (2000): "Poverty and Inequality in BiH: The Situation after the War," The World Bank, processed.

Boeri, Tito (1998): "Labor Market Flows in the Midst of Structural Change," in S. Commander, ed., Enterprise Restructuring and Unemployment Models of Transition," EDI, The World Bank.

Bosnjović, Ilijas (2001). Migrations and Demographic Changes in Bosnia and Herzegovina, 1991-2000, a background paper for the WB Study on the Bosnian Labor Market, processed.

Bukvič Vlado, Will Bartlett, Rus Andrej, Sehič D., Stojanova V.(2001). "Barriers to SME development in Slovenia, Bosnia and Herzegovina, and FYRO Macedonia. Final Report to PHARE/ACE Foundation P97-8089-R." GEA College Entrepreneurship, Ljubljana, September 2001.

Causević, Fikret (2001). "Specific Aspects of the Labor Market Adjustment in the Federeation BiH," a background paper for the WB Study on the Bosnian Labor Market, processed.

Davis, Steven and John Haltiwanger (1999): "Gross Job Flows," in Ashenfelter and Card (eds.), *Handbook of Labor Economics*, (Amsterdam: North Holland).

Davis, Steven and John Haltiwanger, and Scott Schuh (1996): "Job Creation and Destruction." Cambridge, Mass: The MIT Press.

DFID (2001). "Bosnia and Herzegovina: Privatisation and Enterprise Restructuring Programmes: Effects on Unemployment and Poverty," processed.

Djankov, S. and P. Murrell (2000): "Enterprise Restructuring in Transition: A Quantitative Survey." The World Bank, processed.

Faggio, Guila and Konings, Jozef (1999). "Gross Job Flows and Firm Growth in Transition Countries:Evidence Using Panel Data on Five Countries," CEPR Discussion Paper Series, No. 2261.

FIAS (2001). "Bosnia and Herzegovina: Commercial Legal Framework and Administrative Barriers To Investment," Foreign Investment Advisory Service, Joint Service of the IFC and the World Bank, processed.

Haltiwanger and Vodopivec (2002a). Worker Flows, Job Flows and Firm Wage Policies: An Analysis of Slovenia, *Economics of Transition*, forthcoming.

Haltiwanger, John and Milan Vodopivec (2002b). "Gross Worker and Job Flows in a Transition Economy: an Analysis for Estonia," *Labour Economics*, forthcoming.

Kikeri, Sunita (1998). "Privatization and Labor: What Happens to Workers When Governments Divest?", Technical Paper No. 396, World Bank, Washington, D.C.

Kraft, Evan and Milan Vodopivec (1992). "How Soft is the Budget Constraint for Yugoslav Firms?", *Journal of Comparative Economics*, Vol. 16, No. 3, 1992, pp. 432-455.

Kucharski, Leszek (2002). "Labor Market Indicators for Poland." A report to the Word Bank, HDNSP, processed.

Kugler, A., and G. Saint-Paul (2000). "Hiring and Firing Costs, Adverse Selection and the Persistence of Unemployment." CEPR Discussion Paper No. 4210.

LIP (2000). "Bosnia and Herzegovina Local Initiative Project: Client Survey." Final Report, February 2000. Sarajevo: University of Sarajevo, Institute of the Faculty of Economics.

OECD (1999). *Employment Outlook*. Paris: OECD.

OECD (1995): *Employment Outlook*. Paris: OECD

OECD (1994): *The OECD Jobs Study*, Paris.

Orazem, Peter and Milan Vodopivec (1995). "Winners and Losers in Transition: Returns to Education, Experience, and Gender," *World Bank Economic Review*, May 1995, pp. 210-230.

OSCE (1999). "Employment Discrimination in Bosnia and Herzegovina," Organization for Security and Cooperation in Europe, processed.

Riboud M., C. Silva-Jauregui, and C. Sánchez-Páramo (2002). "Does Eurosclerosis Matter? Institutional Reform and Labor Market Performance in Central and Eastern European Countries in the 1990s." Forthcoming in a Social Protection Discussion Paper Series, The World Bank.

Rus, Andrej (2002). "Barriers to the SME Development in Bosnia and Herzegovina: a Social Capital Approach," a background paper for the WB Study on the Bosnian Labor Market, processed.

Rutkowski, Jan (2001): "Wage Inequality in Transition Economies of Central Europe. Trends and Patterns in the Late 1990s." The World Bank, SP Discussion Paper Series.

Sorm, Vit and Katherine Terrell (1999): "A Comparative Look at Labor Mobility in the Czech Republic: Where Have All the Workers Gone?", The Davidson Institute Working Paper Series, No. 140, May.

Tomas, Rajko (2002). "Labor Market in Republika Srpka," a background paper for the WB Study on the Bosnian Labor Market, processed.

Vodopivec, Milan and Dhushyanth Raju (2002). "Income Support Systems for the Unemployed: Issues and Options," Word Bank's Social Protection Discussion Paper, No. 0214, 140p.

Vodopivec, Milan (2002): "Worker Reallocation During Estonian Transition To Market, *International Journal of Manpower*, Vol. 23, No.1, p.77-97

Vodopivec, Milan (2001). "Labor Mobility in the Federation of Bosnia and Herzegovina," processed, HDNSP.

WIIW (2000). Countries in Transition 2000. WIIW Handbook of Statistics. Vienna Institute for International Economic Studies.

STATISTICAL TABLES

Table S2.1: Structure of net wages in formal employment, Federation 1990 and 1998-99
(percent of average wages)

	1990	1998	1999
A. Gender			
Women's wages as percent of men's wages	91.1	93.8	98.2
B. Age			
16-19	n.a.	n.a.	n.a.
20-24	n.a.	68.2	68.6
25-34	79.8	82.5	87.2
35-44	98.2	94.8	94.4
45-54	105.3	103.3	103.5
55-64	121.7	131.6	128.4
65 +	n.a.	211.3	158.9
C. Work experience			
Less than 2	n.a.	75.0	89.1
2-5	79.9	83.2	84.9
6-10	84.3	90.9	82.3
11-20	93.9	93.8	96.2
21-30	107.3	103.9	103.0
31-40	118.3	129.4	132.7
Over 40	n.a.	171.4	210.6
D. Education			
Unfinished elementary	70.6	69.9	68.6
Elementary	77.2	76.0	87.2
Vocational	91.9	85.2	94.4
High school	112.3	102.9	103.5
University (2y)	127.9	137.7	128.4
University (4 y)	181.0	175.2	158.9
E. Type of ownership			
State	100.5	100.8	101.0
Private	63.0	75.8	74.7
International organizations and embassies	n.a.	85.5	87.2

Source: own computations, based on data from Federal Pension and Disability Fund (FPDF). The data reflect the number of active participants in the Bosniak part of the Fund (it excludes data on the Croat Pension and Disability Fund administered by the Mostar Bureau). Number of observations used in above calculations: 6611 for 1990; 6437 for 1998; and 4236 for 1999.

Table S2.2: Structure of net wages by sector of activity, 1998-2001
(percent of average entity wages)

	Federation				Republika Srpska	
	1998	**1999**	**2000**	**2001**	**2000**	**2001**
Agriculture	95.8	90.7	100.4	94.4	94.9	83.5
Mining	101.3	94.0	92.0	73.1	85.0	83.9
Manufacturing	72.3	69.8	73.2	71.3	70.1	67.9
Electricity and water supply	156.8	150.1	127.1	168.3	141.2	138.2
Construction	71.4	77.9	75.2	73.0	80.7	70.2
Trade	71.9	74.4	83.3	70.3	79.9	78.4
Hotels and restaurants	72.6	72.7	76.7	75.9	69.3	65.2
Transport and communications	120.2	123.3	115.8	136.8	117.5	128.1
Financial services	200.7	190.0	197.7	202.0	175.9	153.8
Business services	106.7	102.6	98.6	104.5	123.4	119.0
Public administration	131.6	125.3	130.5	131.7	146.0	157.0
Education	117.8	108.2	104.9	101.3	117.5	104.4
Health services	110.0	107.0	108.0	108.6	125.2	123.5
Other services	100.2	96.9	101.7	100.4	100.4	95.0
Coefficient of variation (in percent)	36.4	33.2	31.9	39.6	31.7	31.8

Note: data refer to annual average for 1998-2000, end year 2001.
Source of data : Statistical yearbook 2001, Federal Office of Statistics, Sarajevo; Statistical data on economic and other trends, Feb.2002, Federal Office of Statistics, Sarajevo; Monthly statistical trends, 4/2002, Statistical office of Republic Srpska.

Table S2.3: Population of Bosnia and Herzegovina, 1991-2000
(in thousand)

	1991	1996	1997	1998	1999	2000
A. Total						
Permanent population	4,377	4,160	4,196	4,230	4,256	4,263
Present population	4,377	3,646	3,756	3,655	3,724	3,774
B. Federation						
Permanent population	2,758	2,768	2,786	2,801	2,808	2,801
Present population	2,758	2,254	2,346	2,226	2,276	2,312
C. Republika Srpska						
Permanent population	1,619	1,392	1,410	1,429	1,448	1,462

Sources: Statistical Yearbook 2001, Federal Office of Statistics, Federation, Sarajevo; Demographic Statistics, Statistical Bulletin, Republic of Srpska Institute of Statistics, Banja Luka

Table S.2.4: Population in 1992, 1996 and 2000,by ethnically controlled territories and nationalities
(in thousand)

Territory	Bosniaks	Croats	Serbs	Others*	Total
A. Year 1992					
Croatian controlled	122	357	85	29	594
Bosniak controlled	1,331	258	403	199	2,190
Serbian controlled	466	151	887	123	1,627
Total BiH	1,919	767	1,375	350	4,411
B. Year 1996					
Croatian controlled	20	340	11	19	390
Bosniak controlled	1,230	65	133	164	1,592
Serbian controlled	32	15	824	60	931
Total BiH	1,282	420	968	242	2,912
B. Year 2000					
Croatian controlled	54	350	25	3	433
Bosniak controlled	1,570	138	176	13	1,897
Serbian controlled	62	20	935	6	1,022
Total BiH	1,686	508	1,136	22	3,352

Source: Ilijas Bosnjovic, background report for this study, Institute of Economics, Sarajevo, 2001.
In year 1992 and 1996, others include population declared as "Yugoslavs." In year 2000, "Yugoslavs" are excluded from group "Others" and included into three national groups.

Table S2.5: Population migration by ethnically controlled territories and nationalities 1992-96 and 1996-2000
(in thousand)

Territory	Bosniaks	Croats	Serbs	Others*	Total
A. Inflow, 1992-96					
Total	358	151	222	51	783
a. Refugees and settlers	317	142	205	50	714
Croatian controlled	0	142	0	5	147
Bosniak controlled	317	0	0	26	343
Serbian controlled	0	0	205	20	225
b. Natural increase of population	41	9	17	1	69
Croatian controlled	1	8	0	0	9
Bosniak controlled	39	1	2	1	43
Serbian controlled	1	0	15	1	17
B. Outflow, 1992-96					
Total	995	497	629	160	2,281
a. Departed and expelled	317	142	205	50	714
Croatian controlled	32	0	43	9	84
Bosniak controlled	0	80	162	19	261
Serbian controlled	285	62	0	22	369
b. Exiled abroad	525	324	352	96	1,297
Croatian controlled	62	147	30	5	244
Bosniak controlled	355	110	104	35	604
Serbian controlled	108	67	218	56	449
c. Killed, missing and incr. mortality	153	31	72	14	270
Croatian controlled	8	20	1	1	30
Bosniak controlled	102	4	6	7	120
Serbian controlled	42	7	62	5	120
C. Balance, 1992-96	-637	-346	-405	-108	-1,498
D. Inflow, 1996-2000					
Total	345	120	185	4	654
a. Returned refugees and displaced	299	111	176	4	590
Croatian controlled	33	40	14	0	87
Bosniak controlled	238	68	44	3	353
Serbian controlled	28	4	117	0	150
c. Natural increase of population	45	9	10	0	65
Croatian controlled	1	8	0	0	8
Bosniak controlled	44	1	2	0	48
Serbian controlled	1	0	7	0	8
E. Outflow, 1996-2000					
Total	90	54	68	1	214
a. Refugees and emigrants abroad	39	11	25	0	75
Croatian controlled	0	8	0	0	9
Bosniak controlled	38	2	3	0	44
Serbian controlled	1	0	22	0	23
b. Departure of displaced people	51	44	44	0	139
Croatian controlled	0	44	0	0	44
Bosniak controlled	51	0	0	0	51
Serbian controlled	0	0	44	0	44
F. Balance, 1996-2000	255	66	117	3	441

Source: Ilijas Bosnjovic, background report for this study, Institute of Economics, Sarajevo, 2001

Table S3.1: Separation rates by gender, age, and education, prewar (1990) and postwar (1998-99)*

	1990**	1998	1999
A. Gender			
Men			
Job-to-job	14.0	9.4	9.1
Job-to-ret.	4.3	3.8	1.9
Job-to-other	3.1	3.9	4.1
Total	21.5	17.1	15.2
Women			
Job-to-job	10.6	10.6	10.8
Job-to-ret.	3.8	2.4	0.7
Job-to-other	2.1	3.9	3.8
Total	16.5	16.9	15.2
B. Age			
Age below 35			
Job-to-job	13.4	10.0	10.2
Job-to-ret.	0.3	0.3	0.1
Job-to-other	4.0	6.0	6.4
Total	17.8	16.3	16.6
Age 35 to 44			
Job-to-job	13.2	9.9	10.6
Job-to-ret.	0.4	0.6	0.4
Job-to-other	2.5	4.4	4.2
Total	16.1	14.9	15.3
Age 45-54			
Job-to-job	13.0	10.1	8.5
Job-to-ret.	4.7	3.3	1.4
Job-to-other	1.9	2.4	2.9
Total	19.5	15.8	12.8
Age 55 to 64			
Job-to-job	10.6	8.1	8.8
Job-to-ret.	21.0	20.8	8.2
Job-to-other	4.5	3.5	3.2
Total	36.2	32.4	20.2

Table S3.1: Separation rates – total and by gender, age, and education, prewar (1990) and postwar (1998-99) - continued

	1990**	1998	1999
C. Education			
Unfinished elementary			
Job-to-job	13.8	7.7	8.1
Job-to-ret.	6.9	7.3	3.3
Job-to-other	2.8	3.6	4.1
Total	23.6	18.7	15.4
Elementary			
Job-to-job	15.7	9.6	7.1
Job-to-ret.	3.4	2.9	1.4
Job-to-other	2.7	4.0	3.9
Total	21.8	16.4	12.5
Vocational			
Job-to-job	15.2	8.9	8.2
Job-to-ret.	3.6	2.6	1.2
Job-to-other	3.1	4.5	4.7
Total	22.0	15.9	14.1
High school			
Job-to-job	10.8	10.9	12.0
Job-to-ret.	2.6	2.5	0.9
Job-to-other	2.3	3.8	3.8
Total	15.6	17.3	16.7
University (2 year degree)			
Job-to-job	3.0	12.1	14.8
Job-to-ret.	3.8	4.5	1.2
Job-to-other	2.6	2.5	4.3
Total	9.5	19.0	20.3
University (4 year degree)			
Job-to-job	6.7	13.1	14.5
Job-to-ret.	2.5	2.2	1.5
Job-to-other	2.8	3.0	2.4
Total	12.0	18.3	18.4

Source: own computations, based on FPDF data.

Notes:

*Separation rate is defined as the annual number of separations per 100 employees as of end of the year.

**To account for organizational changes of enterprise – which were purged from aggregate data on accession and separations but not from individual data from which components of separations and accessions are calculated – total separation rates calculated from individual data for 1990 were reduced so as to match total separation rates obtained from aggregate data, respectively (job-to-job changes were also reduced commensurately).

Table S3.2: Accession rates – total and by gender, age, and education, prewar (1990) and postwar (1998-99)*

	1990**	1998	1999
A. Gender			
Men			
Job-to-job	14.3	9.4	9.1
Other-to-job	3.2	5.7	4.0
Total	17.5	15.1	13.0
Women			
Job-to-job	11.0	10.6	10.8
Other-to-job	2.2	6.2	4.2
Total	13.3	16.8	15.0
B. Age			
Age below 35			
Job-to-job	13.9	9.5	10.2
Other-to-job	3.4	10.2	6.3
Total	17.3	19.6	16.5
Age 35 to 44			
Job-to-job	13.4	9.7	10.7
Other-to-job	2.9	5.9	4.7
Total	16.3	15.6	15.4
Age 45-54			
Job-to-job	13.4	10.3	8.2
Other-to-job	2.7	4.4	2.8
Total	16.1	14.6	11.0
Age 55 to 64			
Job-to-job	10.9	10.0	9.4
Other-to-job	2.3	3.0	1.6
Total	13.2	13.0	11.0

Table S3.2: Accession rates – total and by gender, age, and education, prewar (1990) and postwar (1998-99) - continued

	1990	1998	1999
C. Education			
Unfinished Elementary			
Job-to-job	14.7	8.0	8.0
Other-to-job	2.2	4.5	3.0
Total	17.0	12.5	11.0
Elementary			
Job-to-job	16.3	9.5	7.0
Other-to-job	2.4	5.3	3.2
Total	18.7	14.7	10.2
Vocational			
Job-to-job	15.4	8.8	8.3
Other-to-job	3.4	6.6	4.7
Total	18.8	15.4	13.0
High school			
Job-to-job	11.1	10.7	12.1
Other-to-job	2.1	5.9	4.7
Total	13.2	16.6	16.8
University (2y)			
Job-to-job	2.7	13.2	14.5
Other-to-job	2.5	4.3	2.1
Total	5.1	17.5	16.5
University (4y)			
Job-to-job	6.6	13.3	14.2
Other-to-job	4.9	7.5	4.1
Total	11.5	20.8	18.2

Source: own computations, based on FPDF data.

Notes:

*Accession rate is defined as the annual number of accessions per 100 employees as of the start of the year.

**To account for organizational changes of enterprise – which were purged from aggregate data on accession and separations but not from individual data from which components of separations and accessions are calculated – total accession rates calculated from individual data for 1990 were reduced so as to match total accession and separation rates obtained from aggregate data, respectively (job-to-job changes were also reduced commensurately).

Table S3.3: Probability of Exit from Employment, Pre- and Post-War
(in percent)*

	Probability of staying in same job		Probability of exit to another job		Probability to retire		Probability of other exit	
	Prewar	Postwar	Prewar	Postwar	Prewar	Postwar	Prewar	Postwar
Baseline probability**	68.6	84.9	27.5	8.5	0.3	0.1	3.6	6.5
Difference in probability associated with:								
A. Demographic and skill characteristics								
Gender (compared to men)								
Women	-2.1	1.7	**2.3**	**-1.3**	**0.4**	**-0.1**	-0.7	-0.3
Age (compared to age under 34)								
35 to 44	-0.8	1.8	2.0	-0.4	0.1	0.7	**-1.4**	**-2.2**
44 to 54	-5.1	3.4	1.9	**-2.4**	**5.2**	**2.6**	**-1.9**	**-3.6**
Over 55	-25.9	-10.5	-1.5	**-3.7**	**27.4**	**17.2**	**-0.1**	**-3.0**
Education (compared to unfinished elementary education)								
Elementary	-2.5	2.6	2.4	-1.9	0.0	0.0	0.1	-0.7
Vocational	-1.2	1.4	0.8	-1.1	0.0	0.0	0.3	-0.3
High school	-2.4	0.7	2.5	0.2	-0.1	0.0	0.0	-0.9
University (2y)	2.3	-3.7	-3.2	**2.2**	0.0	-0.1	1.0	1.6
University (4y)	-1.7	0.3	1.2	**1.8**	**-0.2**	**-0.1**	0.7	**-2.0**
B. Firm characteristics								
Type of ownership (compared to state ownership)								
Private	19.9	5.2	**-24.1**	**-5.9**	**-0.2**	0.0	**4.4**	0.8
Size of the firm (compared to firms with under 100 workers)***								
Medium (100-400)	-15.4	6.3	**17.7**	**-1.9**	0.0	0.0	-2.4	**-4.5**
Large (over 400)	-8.9	7.5	**11.1**	**-2.1**	0.0	0.1	-2.1	**-5.5**
Profitability of the firm (compared to lossmakers)***								
Profitable firm	2.9	-1.8	-2.9	**4.0**	0.0	**-0.1**	0.0	-2.1

Table S3.3: Probability of Exit from Employment, Pre- and Post-War, continued
(in percent)*

	Probability of staying in same job		Probability of exit to another job		Probability to retire		Probability of other exit	
	Prewar	Postwar	Prewar	Postwar	Prewar	Postwar	Prewar	Postwar
Industry (compared to manufacturing)								
Agriculture	12.3	2.5	**-14.8**	-0.2	**-0.1**	-0.1	2.5	-2.3
Construction	-14.3	-6.9	**12.8**	1.6	-0.1	0.0	**1.7**	**5.3**
Transport and communications	-13.9	3.6	**15.3**	-1.9	-0.1	0.0	-1.3	-1.6
Trade	-2.0	-13.4	1.6	**9.5**	**-0.2**	-0.1	0.6	**4.0**
Hotels and restaurants	1.3	-18.1	-2.2	**15.9**	**-0.2**	0.0	1.1	2.2
Utilities	-9.2	-0.9	**9.7**	-1.0	-0.1	0.0	-0.4	2.0
F.I.R.E.	2.0	-13.3	-1.9	**13.1**	-0.1	-0.1	0.0	0.3
Education	20.4	-5.2	**-19.0**	**6.7**	**-0.3**	-0.1	**-1.2**	-1.4
Health	25.7	-16.9	**-23.9**	**20.1**	**-0.2**	0.0	**-1.6**	-3.2
Government	19.4	-9.6	**-20.9**	**10.5**	0.0	0.0	1.5	-0.8

Source: own computations, based on FPDF data.
Notes:

*Pre-war refers to the year 1990, and post-war to the year 1999. Exit is defined as the first transition occurring after January, but not later than December of the same year. Probabilities associated with coefficients which are significant at 10 percent level are reported in bold (probabilities of staying in the same employment are derived from other transitions, so significance levels are not reported).

** Baseline probability applies for individuals with the following characteristics: males, under age of 34, with unfinished elementary education, working in state-owned, manufacturing firm.

*** Estimated by separate regressions from a subsample obtained by merging data on individuals with data on enterprises – there was no overlapping observations containing both ownership as well as size and profitability of the firm (similar baseline probabilities and estimates of common variables were obtained). Baseline for this estimation (which is not reported in entirety) are individuals with the following characteristics: males, under age of 34, with unfinished elementary education, working in a small, loss-making manufacturing firm.

Table S3.4: Probability of Entry to Employment, Pre- and Post-War
(in percent)*

	Probability of staying on the same job throughout the year		Probability of entry from employment		Probability of entry from non-employment	
	Pre-war	Post-war	Pre-war	Post-war	Pre-war	Post-war
Baseline probability**	67.6	84.9	29.2	9.4	3.2	5.6
Difference in probability associated with:						
Gender (compared to men)						
Women	3.9	-0.8	**-2.9**	0.8	**-0.9**	0.0
Age (compared to age under 34)						
35 to 44	-0.1	1.6	0.7	-0.3	-0.6	**-1.4**
44 to 54	0.3	5.5	0.6	**-2.4**	-0.9	**-3.0**
Over 55	3.8	6.5	-2.3	**-2.3**	**-1.5**	**-4.2**
Education (compared to unfinished elementary education)						
Elementary	-1.9	2.5	1.8	-1.8	0.1	-0.8
Vocational	-1.6	-0.6	0.2	-0.5	**1.3**	1.1
High School	3.3	-4.4	**-3.2**	**3.2**	-0.1	1.2
University (2y)	11.5	-5.6	**-12.0**	**7.4**	0.6	-1.7
University (4y)	4.2	-8.0	**-8.3**	**6.4**	**4.1**	1.6

Source: own computations, based on FPDF data.

Notes:

* Pre-war refers to the year 1990, and post-war to the year 1999. Entry is defined on the basis of the last transition in the year. Probabilities associated with coefficients which are significant at 10 percent level are reported in bold (probabilities of staying in the same employment are derived from other transitions, so significance levels are not reported).

**Baseline probability applies for individuals with the following characteristics: males, under age of 34, with unfinished elementary education.

Table S3.5: Firms selected in the analysis of job creation and destruction, by firm characteristics and sector, 1997 and 1998

	Year 1997		Year 1998	
	Number of firms	Average employment	Number of firms	Average employment
A. Number of firms				
Total	2774	107.9	3580	95.28
B. Ownership				
State	1675	128.7	1959	119.83
Private	614	30.3	1001	27.56
Cooperative	54	45.0	75	41.45
Mixed	431	145.2	538	140.56
Ownership missing	n.a.	n.a.	7	n.a.
C. By sector				
Manufacturing	727	202.9	933	175.88
Agriculture	228	77.5	264	78.95
Construction	274	94.5	389	76.40
Transport and Comm.	145	182.5	176	171.28
Trade	463	55.0	657	47.14
Tourism	107	59.3	135	51.10
Utilities	218	64.2	252	62.48
F.I.R.E.	155	41.3	208	37.31
Education	269	47.2	318	47.43
Health	103	113.8	120	108.28
Government	85	60.6	122	56.04
Sector missing	n.a.	n.a.	6.	n.a.
D. By size				
Less than 25	951	15.9	1410	15.09
25-100	1175	52.1	1420	51.26
More than 100	648	344.1	750	329.36
E. By profitability				
Loss-making	1000	147.1	1323	127.09
Profitable	1478	85.0	1933	75.65
Profitability missing	296	n.a.	324	n.a.

Source: own computation based on Bosnian enterprise data.

Table S3.6: Job flows by ownership type, 1997-99*

	Job creation	Job destruction	Gross job reallocation	Net employment growth	Excess job reallocation
Bosnia and Herzegovina					
State	3.7	5.3	9.0	-1.6	6.7
Private	12.4	7.3	19.7	5.1	14.6
Cooperative	2.8	7.6	10.4	-4.8	5.6
Mixed	3.4	4.8	8.2	-1.5	6.0
Federation					
State	3.8	8.3	12.1	-4.4	7.6
Private	12.2	7.7	19.9	4.4	15.4
Cooperative	1.8	12.1	13.9	-10.3	3.6
Mixed	3.0	5.3	8.3	-2.3	6.0
Republika Srpska					
State	3.6	3.3	6.9	0.3	5.9
Private	13.4	5.8	19.1	7.6	11.5
Cooperative	3.0	6.7	9.8	-3.7	6.0
Mixed	4.0	4.1	8.0	-0.1	6.0

*Average of job flows of the 1997/98 and 1998/99 periods.

Table S3.7: Job flows by sector, 1997-99*

	Job creation	Job destruction	Gross job reallocation	Net employment growth	Excess job reallocation
Bosnia and Herzegovina					
Manufacturing	3.3	6.3	9.7	-3.0	6.0
Agriculture	3.2	4.6	7.9	-1.4	6.5
Construction	4.6	6.1	10.7	-1.5	9.0
Trans. & Com.	6.0	2.9	8.9	3.2	5.5
Trade	6.2	7.0	13.2	-0.7	12.4
Tourism	3.3	6.4	9.7	-3.0	6.4
Utilities	6.3	3.1	9.4	3.2	6.2
F.I.R.E.	5.4	7.6	12.9	-2.1	9.4
Education	3.6	2.0	5.5	1.6	3.9
Health	3.9	1.4	5.3	2.5	2.8
Government	8.5	2.6	11.1	6.0	5.1
Federation					
Manufacturing	3.3	8.9	12.1	-5.6	6.5
Agriculture	3.7	5.6	9.3	-1.9	7.4
Construction	4.4	6.8	11.2	-2.4	8.8
Trans. & Com.	7.8	2.8	10.6	4.9	5.6
Trade	6.7	7.5	14.2	-0.8	13.3
Tourism	4.7	7.3	11.9	-2.6	8.7
Utilities	6.9	3.3	10.2	3.6	6.6
F.I.R.E.	5.2	9.5	14.7	-4.3	10.4
Republika Srpska					
Manufacturing	3.5	3.7	7.3	-0.3	5.4
Agriculture	2.9	4.1	7.0	-1.2	5.8
Construction	5.0	4.9	9.9	0.2	9.6
Trans. & Com.	3.0	3.0	6.1	0.0	5.3
Trade	5.6	6.2	11.7	-0.6	11.1
Tourism	2.1	4.9	6.9	-2.7	4.2
Utilities	5.2	2.7	7.8	2.5	5.4
F.I.R.E.	5.7	3.7	9.4	2.1	7.4
Education	3.6	2.0	5.5	1.6	3.9
Health	3.9	1.4	5.3	2.5	2.8
Government	8.5	2.6	11.1	6.0	5.1

*Average of job flows of the 1997/98 and 1998/99 periods.

Table S3.8: Job flows by size, 1997-99*

	Job creation	Job destruction	Gross job reallocation	Net employment growth	Excess job reallocation
Bosnia and Herzegovina					
Less than 25	11.7	8.6	20.3	3.1	17.2
25-100	5.0	4.6	9.7	0.4	8.5
100 or more	3.4	5.3	8.7	-1.9	6.4
Federation					
Less than 25	13.2	9.5	22.7	3.7	19.1
25-100	5.4	6.4	11.8	-0.9	10.9
100 or more	3.6	7.3	10.9	-3.7	7.2
Republika Srpska					
Less than 25	9.7	7.3	16.9	2.4	14.6
25-100	4.8	3.5	8.3	1.4	6.9
100 or more	3.2	3.3	6.5	-0.1	5.4

*Average of job flows of the 1997/98 and 1998/99 periods.

Table S3

	Job creation	Job destruction	Gross job reallocation	Net employment growth	Excess job reallocation
Bosnia and Herzegovina					
Loss-making	3.5	7.2	10.6	-3.7	6.7
Profitable	5.3	3.5	8.8	1.8	7.1
Federation					
Loss-making	3.3	10.1	13.4	-6.8	6.6
Profitable	5.9	4.2	10.2	1.7	8.4
Republika Srpska					
Loss-making	3.6	4.2	7.9	-0.6	6.7
Profitable	4.6	2.7	7.3	1.9	5.4

*Average of job flows of the 1997/98 and 1998/99 periods.

Table S4.1: Examples of industry-level base wage scales, Federation and Republika Srpska

	Category of complexity of work	*Federation:* **Construction and Engineering***		*Republika Srpska: Graphics, Publishing, and Broadcasting***	
		Coefficient of complexity	Basic monthly net wage for full time work	Coefficient of complexity	Basic monthly net wage for full time work
1	Simple work (no training, unfinished elementary education)	1	124	1.1 – 1.3	74.8 – 143
2	Less demanding work (short training, completed elementary education)	1.25	155	1.4 – 1.6	95.2 – 176
3	Medium demanding work (up to two year professional/vocational education)	1.60	199	1.7 – 1.9	115.6 – 209
4	Demanding work (up to two-and-a-half- year professional/vocational education)	2.00	249	2.0 – 2.5	136 – 276
5	More demanding work (3 year of professional/ vocational education, with a foreman exam, or 4-5 year of such education)	2.65	329	2.6 – 3.0	176.8 – 330
6	Very demanding work (2 years of college level education)	3.00	373	3.1 – 3.6	210.8 – 396
7	Extremely demanding work (4-5 years of college level education)	3.40	423	3.7 – 4.6	251.6 – 506
8	Most demanding work (master degree)	3.70	460	4.7 – 5.2	319.6 – 572
9	Exceptionally important and most demanding work (doctorate)	4.00	497	5.3 – 6.0	360.4 - 660

*Federation: General Collective Agreement for FBIH, Official Gazette of FBIH,. May 26, No. 19/2000 and Branch Collective Agreement for Construction and Engineering, Official gazzete of FBIH, No. 49/2000. November 27, 2000.

**Branch Collective Agreement for Graphics, Publishing, and Broadcasting, Official gazzete of RS, no. 11/98, April 10, 1998.

Table S4.2: Earnings function estimation, 1990, 1999, and 2001, by entities*
(t-statistics in parentheses)

	Federation				Republika Srpska	
	Formal sector			Informal sector	Formal sector	Informal sector
	1990	**1999**	**2001**	**2001**	**2001**	**2001**
A. Gender						
Female	-0.191 (-20.41)	-0.105 (-6.62)	-0,161 (-5.29)	-0.319 (-3.34)	-0.173 (-4.05)	-0.26 (-2.86)
B. Education (compared to unfinished elementary education)						
Elementary	0.080 (6.08)	0.077 (2.67)	-0.065 (-0.84)	-0.471 (-2.88)	-0.192 (-0.12)	-0.013 (-0.08)
Vocational	0.182 (15.46)	0.202 (7.74)	0.119 (1.55)	-0.085 (-0.52)	-0.005 (-0.03)	-0.114 (-0.66)
High school	0.353 (25.40)	0.377 (14.17)	0.184 (2.43)	0.063 (0.35)	0.101 (0.6)	-0.04 (-0.23)
University (2y)	0.473 (22.67)	0.599 (15.19)	0.388 (4.57)	-0.062 (-0.16)	0.309 (1.8)	0.121 (0.52)
University (4y)	0.742 (44.77)	0.790 (26.42)	0.745 (9.00)	0.5 (1.96)	0.633 (3.78)	0.586 (1.836)
C. Work experience (compared to 2-5 years of experience)						
Less than 2	0.271 (2.01)	0.046 (0.76)	-0.32 (-3.2)	0.043 (0.148)	0.114 (0.67)	0.118 (0.88)
6-10	0.205 (3.71)	0.013 (0.32)	-0.044 (-0.56)	-0.174 (-0.83)	0.01 (0.1)	0.231 (1.26)
11-20	0.264 (5.03)	0.100 (2.86)	0.037 (0.63)	-.084 (-0.55)	-.007 (-0.08	0.034 (0.53)
21-30	0.376 (7.13)	0.175 (4.91)	0.074 (1.21)	-0.07 (-0.43)	0.131 (1.564	0.156 (1.07)
31-40	0.471 (8.77)	0.349 (8.51)	0.096 (1.3)	-0.342 (-1.768)	0.08 (0.8)	0.07 (0.45)
Over 40	0.476 (3.37)	0.580 (4.67)	0.141 (1.23)	-.776 (-2.476)	0.033 (0.22)	-.31 (-1.67)

Table S4.2: Earnings function estimation, 1990, 1999, and 2001, by entities* (continued)

	Federation				Republika Srpska	
	Formal sector			Informal sector	Formal sector	Informal sector
	1990	1999	2001	2001	2001	2001
D. Tenure (compared to 2-5 years of tenure)						
Less than 2	n.a.	n.a.	0.003 (0.06)	-0.169 (-1.45)	-0.046 (-0.75)	-0.032 (-0.31)
6-10	n.a.	n.a.	-0.01 (-0.21)	0.016 (0.08)	0.141 (2.34)	0.0256 (0.15)
11-20	n.a.	n.a.	-.035 (-0.77)	0.125 (0.68)	0.025 (0.38)	-0.101 (-0.42)
More than 20	n.a.	n.a.	-0.086 (-1.63)	0.442 (2.01)	-0.135 (-1.76)	0.175 (0.84)
E. Job/firm characteristics						
Entry to the firm (compared to workers who staying with the firm for more than a year)						
Ownership – working in a private firm (compared to state/socially owned)	-0.976 (-31.6)	-0.113 (-2.74)	0.239 (4.41)	n.a.	0.558 (7.77)	n.a.
Profitability – working in a profitable *firm* (compared to loss-making firms)**	-0.014 (-0.68)	0.264 (11.57)	n.a.	n.a.	n.a.	n.a.
Size of the firm (compared to firms with less than 100 workers)						
Medium (100-400 workers)***	0.043 (1.71)	0.228 (8.36)	-0.080 (-2.093)	0.08 (0.28)	-0.065 (-1.39)	0.031 (0.22)
Large (more than 400 workers)***	0.083 (3.38)	0.432 (15.53)	0.041 (0.91)	-0.405 (-3.02)	0.113 (1.96)	-0.145 (-0.93)
Entry to the firm (compared to workers who staying with the firm for more than a year)						
Within a year, from another job	0.036 (3.72)	-0.072 (-3.05)	n.a.	n.a.	n.a.	n.a.
Within a year, from non-employment	0.036 (1.40)	-0.171 (-5.20)	n.a.	n.a.	n.a.	n.a.
Being on the wait list (compared to those who are not)	n.a.	n.a.	-0.4 (-4.56)	n.a.	-0.152 (-1.2)	-0.142 (-0.71)
Having a second job (compared to those who do not have one)	n.a.	n.a.	-0.121 (-1.4)	-0.323 (-0.97)	0.062 (0.601)	0.188 (1.1)

Table S4.2: Earnings function estimation, 1990, 1999, and 2001, by entities* (continued)
(t-statistics in parentheses)

	Federation				Republika Srpska	
	Formal sector			Informal sector	Formal sector	Informal sector
	1990	1999	2001	2001	2001	2001
F. Sector (compared to manufacturing)						
Agriculture & Logging	-0.143 (-7.47)	-0.046 (-0.75)	0.061 (0.65)	-0.873 (-5.13)	0.401 (5.54)	-0.031 (-0.17)
Construction	-0.097 (-6.44)	-0.202 (-6.40)	0.218 (3.42)	-0.007 (-0.04)	0.26 (2.26)	0.093 (0.58)
Transportation & Communications	0.044 (2.53)	0.231 (8.00)	0.136 (1.96)	0.334 (1.25)	0.286 (4.18)	0.542 (2.32)
Trade	0.064 (4.23)	-0.132 (-4.85)	-0.058 (-0.98)	-0.097 (-0.59)	-0.133 (-1.69)	0.02 (0.14)
Tourism & Catering	-0.097 (-3.80)	-0.042 (-0.69)	-0.138 (-1.91)	0.286 (1.54)	-0.001 (-0.01)	0.13 (0.84)
Public Utilities	0.138 (6.64)	0.054 (1.57)	0.339 (4.9)	-0.21 (-0.56)	0.156 (0.97)	0.661 (1.18)
FIRE	0.297 (15.0)	0.137 (4.73)	0.381 (4.69)	0.91 (3.84)	0.386 (2.64)	0.16 (0.75)
Education	0.099 (5.7)	-0.030 (-1.11)	0.096 (1.63)	n.a.	0.267 (3.47)	n.a.
Health	0.397 (21.39)	0.034 (1.10)	0.313 (5.52)	n.a.	0.352 (5.41)	n.a.
Government	0.389 (21.72)	0.167 (6.29)	0.4 (6.63)	n.a.	0.402 (7.0)	n.a.
Number of observations	8381	4607	1750	393	1485	530
R^2	0.48	0.29	0.34	0.37	0.35	0.12

Source: own computations, based on FPDF data (1990 and 1999), and LSMS (2001).

Notes:

* Dependent variable is ln(wage), where wage is hourly wage obtained from administrative data (for 1990 and 1999), and monthly wage (for 2001), survey data.

** Based on separate equation with similar specification (with dropped type of ownership); for 1990, there was 2300 observations and $R^2 = 0.36$, and for 1999, there was 2131 observations with $R^2 = 0.30$.

*** For 2001, the size classes are: less than 100, 100-500, more than 500.

Table S4.3: Strictness of employment protection legislation, Bosnia and Herzegovina, Slovenia, and Western European countries

	Regular procedural inconveniences		Notice and severance pay for no-fault individual dismissals						Difficulty of dismissal	
	Procedures	Delay to start notice	Notice period after 9m	4y	20y	Severance pay after 9m	4y	20y	Definition of unfair dismissal	Compensation at 20 years
	Scale 0 to 3	Days	Months						Scale 0 to 3	Months
Federation – before 2000	Workers were put on the "waiting list," the status which allowed them to be formally employed while in fact not working for prolonged period of time. Art. 143 of the Federation 1999 labor code called for prohibitively large severance pay for waitlisted workers (and added such rights to some other categories of worker as well).									
Federation – since 2000	1	0	0.25--0.5	0/25--0.5	0.25--0.5	0	1.3	6.7	0	
Repulika Srpska – before 2000	Workers were put on the "waiting list," the status which allowed them to be formally employed while in fact not working for prolonged period of time (Art. 64. of the 1998 labor code). The law also prohibited layoffs of workers put on the waiting list in certain years (in 1998, for example).									
R Srpska since 2000	1	0	1	1	1	0	1.3	6.7	0	
Slovenia -- before 2002	2	30	6	6	6	0	2	10	2	6
Slovenia – since 2002	2	0	1	2	5	0	0.8	10	1	3
Western European countries (as of late 1980s)										
Unweighted average**	1.7	12.3	0.9	1.9	4.9	0.2	1.2	6.6	0.8	16.9
Austria	2	5	0.8	1.2	2.5	0	2	9	1	9
Belgium	1	3	2	3.6	11.4	0	0	0	0	12.5
Denmark	0.5	0	1.6	2.8	5	0	0	1.5	0	9
Finland	2	56	2	2	6	0	0	0	0	20
France	1.5	12	1	2	2	0	0.4	2.7	0	15
Germany	3	10	1	1	4.5	0	0	0	2	18
Greece	2	1	0.6	1.7	9	0.3	0.9	4.6	1	9
Ireland	1.5	3	0.2	0.5	2	0	0.5	3.9	0	24
Italy	1.5	0	0.3	1.1	2.2	0.7	3.5	18	0	32.5
Netherlands	3	35	0.6	1	5.3	0	0	0	1	5.3
Norway	1.5	3	1	2	5	0	0	0	2	15
Portugal	2	17	0.8	2	9.1	0.2	1.7	9.3	3	20
Spain	2.25	40	1	3	3	0.2	1.3	6	2	35
Sweden	2	7	1	4	6	0	0	0	1	32
Switzerland	0.5	1	1	2	3	0	0	0	0	3
UK	1	3	0.2	0.7	2.8	0	0.9	4.6	0	10.8

Notes: Provisions described here relate to individual dismissals. CA – specified in collective agreements.
*Bosnian legislation before 2000 involved the so-called "waiting lists" – workers staying home and being paid at reduced rate.
** Averge for severance pay for countries with all non-zero entries (others leave severance pay provisions to collective bargaining).
Explanations for the columns:
Procedures: procedures to be followed when issuing a regular dismissal notice: 1 for a statement in writing to the employee of reasons for dismissal, 2 for notification to a third party, and 3 when prior permission for dismissal must be obtained from the third party (the higher the number, the stricter the procedure).
Delay to start of notice: the delay between a decision to dismiss and the time that notice can become effective after following required procedures, in days.
Notice period, 9 m, 4 y, 20 y: the period between issuance of a dismissal notice and the effective cessation of employment, in months. The columns refer to workers who have been with the employer 9 months, 4 years, and 20 years respectively.
Severance pay, 9 m, 4 y, 20 y: a lump-sum payment to the dismissed employee at the time of cessation of employment. The columns refer to workers who have been with the employer 9 months, 4 years, and 20 years respectively.
Definition of unfair dismissal: scored 0 when worker capability or redundancy of the job are adequate grounds for dismissal, 1 when social considerations, age or job tenure must, where possible, influence the choice of which worker to dismiss, 2 when retraining to adapt the worker to different work must be attempted prior to dismissal, and 3 when worker capability can never be a basis for dismissal (the higher the number, the stricter the definition).
Compensation at 20 y: the compensation payable to a worker who has been unfairly dismissed after 20 years with employer.

Sources: Federation: Law on Labor, Official Gazette of the Federation, No. 43/99; Republika Srpska: Law on Labor, Official Gazette of the Republika Srpska, No. 38/2000; Slovenia: Law on Labor Relation, 1991 and 2002; Western European countries: OECD (1994).

Table S4.4: Regulation of fixed-term employment contracts, Bosnia and Herzegovina, Slovenia, and Western European countries

	Valid cases	Maximum number of successive contracts	Maximum cumulated duration
	Scale 0-2 or no restrictions		Months
BiH Federation	0 (for renewals)	No limit	No limit
Republika Srpska (art. 15-18)	No restrictions	No limit	24
Slovenia – before 2002	0	No limit	No limit
Slovenia – since 2002	0	No limit	24
Western European countries (as of late 1980s)			
Austria	No restrictions	1.5	No limit
Belgium	0	1	24
Denmark	No restrictions	No limit	No limit
Finland	1	1.5	No limit
France	1	3	24
Germany	1	1	28
Greece	0	3	No limit
Ireland	No restrictions	No limit	No limit
Italy	0.5	1.5	4.5
Netherlands	No restrictions	1	No limit
Norway	1	1.5	No limit
Portugal	2	3	30
Spain	2	6	36
Sweden	2	2	No limit
Switzerland	No restrictions	No limit	No limit
UK	No restrictions	No limit	No limit

Notes: The variables tabulated in columns area s follows:
Valid cases: scored 0 if fixed-term contracts are permitted only in "objective" cases (that is, to perform a task which is of fixed duration), 1 if specific exemptions apply to situations of employer need (for example, starting new activity) or worker need (for example, first-time job seekers), 2 when exemptions exist on both the employer and the employee side, and no restrictions when there are no restrictions on the use of fixed-term contracts. Note that lower numbers mean stricter regulations.
Maximum number of successive contracts: the limit on the number of successive fixed-term contracts with a given employer (1 if no renewals are permitted).
Maximum cumulated duration: the maximum cumulated duration of successive fixed-term contracts that an employee can have with a given employer and without a break in the employment spell.

Sources: Federation: Law on Labor, Official Gazette of the Federation, No. 43/99; Republika Srpska: Law on Labor, Official Gazette of the Republika Srpska, No. 38/2000; Slovenia: Law on Labor Relations, 1991 and 2002; Western European countries: OECD (1994).

Table S4.5: Number of waitlisted workers, Federation, 1997-2001*

	1997	1998	1999	2000	2001(July)
Total	87781	70985	53912	40262	31991
Industry and mining	58560	47951	36721	28927	21260
Agriculture and fisheries	2460	1754	1199	741	680
Forestry	730	525	290	0	0
Water management	115	114	74	181	131
Construction	7752	6464	5514	4406	4092
Transport and communications	4828	3650	2630	2000	1983
Trade	5758	4703	3646	2661	2540
Catering and tourism	1071	748	678	576	690
Arts and crafts	1868	1846	1426	0	0
Public utilities	243	129	110	7	7
Financial and other services	3596	2627	1413	713	543
Education and culture	338	196	114	9	22
Health and social welfare	299	139	56	9	17
Public administration	165	94	41	17	26

Notes: *As of December of the year, unless otherwise indicated
Source: Federal Statistical Institute, Statistical Data on Economic and other Trends, several issues.

Table S4.6: Main features of unemployment benefit systems in CEEC (latest legislation in bold)

	Year	Reference period	Required employment record	Max duration of benefits	Relation to individual's gross earnings	Existence of the floor and ceiling of the benefit
Bosnia and Herzegovina - Federation	2000	12 (18) months	8 (12) months	• 6 months for those with less than 10 years of work experience • 9 months for those with 10-25 years • 12 months for those with over 25 years	• 30% for those with less than 10 years of work experience • 35% for those with 10-25 years • 40% for those with over 25 years	No
Bosnia and Herzegovina - Republika Srpska	2000	12 (18 with interruptions) months	8 months	• 3 months for those with less than 5 years of work experience • 6 (9) months for those with 5-15 (15-25) years • 12 months for those with over 25 years	• 35% for those with 10 years of work experience • 40% for those with more than 10 years	No
Bulgaria	1998	12 months	9 months	12 months	60%	Yes
Czech Republic	1998	3 years	12 months	6 months	• 50% first 6 months • 40% following 6 months (60% in case of retraining course)	Yes
Estonia	2002	24 months	12 months	• 6 months for those with less than 5 years of work experience • 9 months for those with 5-10 years of work experience • 12 months for those with over 10 years	• 50% first 100 days • 40% after 100 days	Yes
Hungary	1997	4 years	90 days	360 days	65%	Yes
Latvia	1993			6 months	90% of minimum wage (70% for new entrants)	Yes
Lithuania	1993			6 months	70 %, later reduced to 60 % and 50%	No
Poland	1997	18 months	1 year	18 months	Flat rate	No
Romania	1998	1 year	1 year	9 months	50-60% for 9 months	Yes
Slovak Republic	1997	3 years	12 months	12 months	• 60% first 3 months • 50% following 9 months	Yes
Slovenia	1998	18 months	9-12 months	• 3 (6,9,12,18,24) months for those with less than 5 years of work experience (5-15, 15-25, over 25, over 25 and older than 50, over 25 and older than 55).	• 70% first 3 months • 60% following 3 months	Yes

Source: Vodopivec et al (2001).

Table S4.7: Labor force attachment of the unemployed and discouraged workers

	Unemployed		Discouraged		Discouraged "for personal reasons"	
	Number	Percent	Number	Percent	Number	Percent
Total	190.7	100	74.8	100	186.4	100
Worked before	88.3	46.3	26.7	35.7	64.5	34.6
Laid off (if worked before) before	30.1	15.8	5.6	7.5	16.9	9.1
Last time employed in the postwar period	44.0	49.8	10.3	38.6	23.2	36.0

Source: own computations based on Bosnian 2001 LSMS.

Table S4.8: Health problems and labor force participation

	Bosnia and Herzegovina	Federation	Republika Srpska
A. Percent of unemployed workers with:			
Chronic mental problems	9.8	8.9	11.1
Low energy	3.9	3.7	4.3
Insomnia	6.7	4.2	10.1
Traumas	19.5	14.7	26.3
B. Percent of discouraged workers with:			
Chronic mental problems	10.9	8.4	16.0
Low energy	4.3	4.3	4.2
Insomnia	11.1	11.0	11.3
Traumas	26.6	21.3	37.2
C. Percent of "discouraged for personal reasons" with:			
Chronic mental problems	11.2	8.9	14.3
Low energy	4.1	3.5	4.8
Insomnia	7.4	6.1	9.1
Traumas	18.5	16.8	20.8
D. Percent of employed workers with:			
Chronic mental problems	17.3	15.6	19.4
Low energy	8.0	6.6	9.8
Insomnia	7.6	6.6	8.9
Traumas	20.4	15.2	26.7

Source: own computations based on Bosnian 2001 LSMS.

Table S5.1: Summary statistics on the group of privatized and control firms*

	FPDF data on privatized firms (as of the time of privatization)			Privatization agency data	Control group – the universe of firms
	Mainstream group	Group of extreme expansions	Group of extreme reductions		
A. Number of firms					
Total number of firms	157			201	18748
	95	24	38		
B. Financial data					
Average privatization price	1,268.0 (90)	729,6 (24)	2,426.3 (37)	1,449.0 (200)	n.a.
Average revenues	4,005.8 (19)	782.0 (2)	3,406.3 (10)	n.a.	741.3 (18748)
Percent of lossmakers	36.8 (19)	50.0 (2)	40.0 (10)	n.a.	38.8 (17701)
C. Employment					
Total number of workers	4860 (95)	221 (24)	3434 (38)	11300 (195)	233,977 (18748)
Average number of workers	51.2 (95)	9.2 (24)	90.4 (38)	57.9 (195)	12.5 (18748)
D. Distribution of firms by employment size (in percent)					
Less than 10	40.0	66.7	7.9	28.7	87.1
10-50	42.1	33.3	42.1	44.1	9.3
51-150	9.5	0	39.5	18.0	2.3
151-500	6.3	0	7.9	7.7	1.0
More than 500	2.1	0	2.6	1.5	0.2

Source: own computation based on data obtained from Cantonal Privatization Agencies and matched worker-firm data (see Appendix 1).

Notes: *As of the day of privatization (stocks) and year of privatization (flows), for privatized firms; 1999, for the control group. Values are expressed in KM 1000. The numbers in parentheses are the numbers of firms in the group (if data on some firms are missing, the number of firms with non-missing information about a particular attribute).

Table S5.2: Evolution of employment in privatized firms

	Q1	Q2	Q3	Q4	Q5	Q6
A. Employment (number of workers at the beginning of the quarter)						
Privatized firms – total	8515	7794	8241	8086	7331	7972
Mainstream group	4860	4756	4730	4662	4650	4696
Extreme reductions	3434	2666	2385	1746	789	171
Extreme expansions	221	372	1126	1678	1892	3105
Control group (economy average)	12002	11961	11949	11899	n.a.	n.a.
B. Index of employment (Q1=100)						
Privatized firms – total	100.0	91.5	96.8	95.0	86.1	93.6
Mainstream group	100.0	97.9	97.3	95.9	95.7	96.6
Extreme reductions	100.0	77.6	69.5	50.8	23.0	5.0
Extreme expansions	100.0	168.3	509.5	759.3	856.1	1405.0
Control group (economy average)	100.0	99.7	99.6	99.1	n.a.	n.a.
C. Accession rate						
Privatized firms – total	4.3	17.3	16.3	6.6	21.5	5.8
Mainstream group	1.6	7.3	14.1	4.4	4.0	2.4
Extreme reductions	3.6	7.1	2.1	1.5	8.7	57.3
Extreme expansions	76.5	218.0	55.4	17.9	69.7	8.1
Control group (economy average)	5.0	6.1	4.6	3.7	n.a.	n.a.
D. Separation rate						
Privatized firms	12.8	11.6	18.2	16.3	12.4	11.6
Mainstream group	3.8	7.9	15.6	4.6	3.1	10.9
Extreme reductions	25.9	17.6	28.9	57.7	84.0	10.5
Extreme expansions	8.1	15.3	6.4	5.4	5.4	12.9
Control group (economy average)	5.4	6.2	5.1	11.2	n.a.	n.a.
E. Worker reallocation rate						
Privatized firms	17.2	28.9	34.5	22.8	33.9	17.4
Mainstream group	5.4	15.2	29.7	9.0	7.1	13.3
Extreme reductions	29.5	24.7	31.1	59.2	92.8	67.8
Extreme expansions	84.6	233.3	61.8	23.4	75.1	20.9
Control group (economy average)	10.4	12.3	9.7	15.0	n.a.	n.a.

Source: own computation based on data obtained from Cantonal Privatization Agencies and matched worker-firm data (see Appendix 1).

Table S5.3: Evolution of employment in mainstream privatization firms, by worker and firm characteristics*

	Initial employ-ment	Evolution of employment (Q1 = 100)					
		Q1	Q2	Q3	Q4	Q5	Q6
A. Gender							
Males	3545	100.0	98.2	97.3	96.0	94.7	94.1
Females	1315	100.0	97.0	97.4	95.7	98.4	103.4
B. Age							
24 and less	27	100.0	40.7	37.0	22.2	22.2	14.8
25-34	2254	100.0	97.4	98.8	98.1	100.7	103.1
35-44	1327	100.0	97.4	94.4	94.9	92.8	93.3
44-54	1032	100.0	101.5	100.5	95.9	91.7	91.1
55 and more	220	100.0	95.5	92.7	89.1	89.1	86.8
C. Education							
Unfinished elementary	396	100.0	95.5	97.5	93.7	95.2	96.5
Finished elementary	2332	100.0	97.2	97.7	96.0	97.7	100.5
Vocational	1520	100.0	97.8	95.8	97.6	94.6	94.1
High school	448	100.0	103.6	100.9	95.8	94.9	93.3
University – 2 years	11	100.0	100.0	100.0	100.0	72.7	72.7
University – 4 years	153	100.0	98.0	96.1	84.3	80.4	75.2
D. Size of firm							
Less than 10	600	100.0	96.7	94.8	91.2	89.5	88.5
10-50	498	100.0	92.8	85.3	79.9	73.7	72.1
51-150	577	100.0	96.2	93.2	99.5	100.3	99.7
151-500	809	100.0	99.3	97.9	96.0	92.2	90.6
More than 500	1807	100.0	98.1	99.3	97.6	100.3	103.3

Source: own computation based on data obtained from Cantonal Privatization Agencies and matched worker-firm data (see Appendix 1).

Table S6.1: Barriers to SME development as deemed important or very important by entrepreneurs, Bosnia and Herzegovina, Slovenia and Macedonia
(percent of positive responses)

Rank	Barrier	Bosnia and Herzegovina	Slovenia	Macedonia
1	High taxes and contributions paid on wages	87.9	79.3	77.5
2	High income taxes	83.3	48.8	72.0
3	High social security taxes	83.2	65.2	66.7
4	High profits taxes	82.9	57.8	68.6
5	High cost of credit (interest rates)	74.3	71.2	67.4
6	Too much bureaucracy	70.7	63.9	47.0
7	High collateral requirements	67.4	64.2	57.2
8	Too high bank charges and fees	67.3	53.7	54.9
9	Late payment of bills by customers	66.7	70.7	70.8
10	Lack of trust in the society	63.5	30.2	53.3
11	Too many licences required	63.1	60.9	48.0
12	Onerous employment legislation	62.5	56.4	36.1
13	Refusal of required licences	62.1	45.2	40.2
14	Inadequate business support services	61.9	34.7	36.5
15	Too long time to get a loan	61.9	40.0	61.1
16	Lack of support from the state	59.9	47.1	66.1
17	Inadequate information on finance	59.8	37.1	42.7
18	Banks bureaucratic procedures	59.8	48.0	57.3
19	Lack of support from local government	59.6	35.8	38.9
20	Complex accounting standards	57.4	46.0	40.4
21	Banks not interested in small firms	56.9	39.0	61.5
22	Refusal of bank finance	56.7	22.4	61.2
23	Too high rents of premises	54.3	36.5	44.6
24	Inadequate information on markets	52.2	32.3	41.3
25	Lack of support from chamber of commerce	48.6	35.5	44.6
26	Lack of support from business association	46.1	30.5	35.5
27	Lack of demand for the product	43.9	40.1	46.1
28	Lack of access to equity capital	43.5	36.2	58.5
29	Lack of links with foreign partners	40.6	23.3	37.7
30	Need to bribe officials	40.5	14.5	27.6
31	Too high labour costs	40.5	48.5	47.2
32	Low quality of equipment	39.9	18.5	48.4
33	Threats from competitors	38.4	20.9	41.9
34	Environmental regulations	38.3	22.6	18.6
35	Lack of training opportunities	38.0	17.0	33.0
36	Need for recognised certificates	38.0	30.2	31.4
37	Difficulties in exporting product	34.7	15.1	41.4
38	Low skills of the labour force	34.5	25.1	35.0
39	Difficulty in access to raw materials	34.5	16.3	34.9
40	Lack of access to venture capital	33.2	36.0	57.2
41	Lack of capacity to produce more	32.8	27.6	35.2
42	Public procurement regulations	29.7	40.7	44.0

Table S6.1: Barriers to SME development as deemed important or very important by entrepreneurs, Bosnia and Herzegovina, Slovenia and Macedonia
(percent of positive responses, cont.)

Rank	Barrier	Bosnia and Herzegovina	Slovenia	Macedonia
43	Lack of space to produce more	29.4	30.9	37.3
44	Lack of management skills	28.3	29.2	36.1
45	Lack of consultancy services	28.1	24.0	26.3
46	Limitation on the use of fixed-term workers	27.7	35.6	27.9
47	High cost of dismissing workers	26.5	36.1	27.9
48	Cost of preparing business plan	25.8	33.3	53.9
49	Lack of management time	25.1	45.3	26.0
50	Shortage of labour	21.9	44.1	27.2
51	Poor labour relations	20.7	23.0	28.9
52	Long advance notification of layoff	19.5	35.0	37.0
53	Lack of support from friends and family	17.9	10.8	18.6
54	Not enough family members to fill management. positions	10.5	8.9	8.0

Source: A survey of SME sector in Bosnia and Herzegovina, Macedonia, and Slovenia.