Cross-Country Evidence
on Public Sector Retrenchment

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This article reports the results from a survey of public sector employment retrenchment episodes across a wide variety of developing and transition economies. The information collected and analyzed is primarily from internal World Bank documents and in-depth interviews with World Bank staff having operational information about experiences in specific countries. Using the information collected on 41 retrenchment programs across 37 countries, the article analyzes the relationships between the factors leading to retrenchment, the scope and nature of retrenchment, and the methods used to accomplish the retrenchment. The discussion of methods includes an analysis of the mix of involuntary and voluntary employment reduction programs, the compensation schemes offered, and the extent of targeting of specific types of workers. Although relevant quantitative information is limited, the article also attempts to evaluate the outcome of the programs on several dimensions. The most striking findings relate to analysis of the factors leading a significant fraction of programs to rehire workers separated from the public sector (thereby defeating the programs' objective). In addition, the article relates program characteristics to calculated summary financial payback indicators and to the nature of the labor market adjustment.

The retrenchment of public sector employment is an increasingly pervasive phenomenon. Many industrial, developing, and transition economies have recently faced the issue of downsizing their public sector employment. The reasons underlying the downsizing vary considerably across countries. For some, it is a general move toward a more market economy; for others, it is a reduction in the role of the military or an attempt to reduce a bloated bureaucracy; for others, it is sparked by a fiscal crisis necessitating a severe cutback in government spending; and, finally, for some, it is a combination of some or all of these.

Given the pervasiveness of the phenomenon, there is no shortage of studies of individual countries or episodes. Although country-specific studies are quite use-

ful, it is difficult to draw common lessons from them, and there is relatively little analysis comparing experiences across countries. Important exceptions are Svejnar and Terrell (1991), which provide a useful comparison across six countries for retrenchment in the transport sector, and Lindauer and Nunberg (1994), which provide a book-length discussion of civil service reform. Our study has benefited substantially from the insights in both of these publications. In this article, we compile and analyze information on the recent retrenchment experiences across a large number of countries and retrenchment episodes. We take a broad view of public sector employment and associated retrenchment. Public sector employment includes civil service workers, military personnel, and employees of public sector enterprises.

Comparing and contrasting the experiences across countries are formidable tasks. Beyond the usual problems of cross-country comparisons, no central database has compiled the requisite information that permits such analysis. Accordingly, we compiled and collected our own information from myriad sources, but primarily from internal World Bank documents and interviews of World Bank staff having operational information about retrenchment experiences in individual countries. (Section II provides details regarding the collection of information; a complete listing of individual country summaries is available from the authors upon request.)

Our analysis is based on 37 countries and 41 retrenchment programs. Most of the programs for which we could collect detailed information commenced in the early 1990s, and many of the programs are ongoing (which makes analysis of the ultimate success of the programs difficult). The gross number of workers separated in all the programs considered exceeds 5 million, with a somewhat smaller net reduction in employment. The discrepancy reflects the fact that some programs exhibited significant rehiring of separated workers or hiring of new workers by the public sector. In the analysis that follows, we look closely at the characteristics of programs that involved significant rehiring and new hires. Although new hires may be part of a coherent plan to restructure the public sector work force, rehiring is clearly not an indicator of success. The converse is not true; that is, the absence of rehiring is not synonymous with success. Also, a restructuring could involve separating employees en masse and subsequently rehiring those with necessary specific skills or rehiring workers on temporary terms or both. No program in our sample intended such purposive rehiring.

Evaluating the costs and benefits of individual programs in a more comprehensive fashion is inherently difficult. In principle, the requisite information includes the compensation packages offered, the relative productivity and wages of the displaced workers in the public and private sectors, and the adjustment costs borne directly by the affected workers and the entire economy. Measurement of much of this—particularly the nature of the adjustment costs—is well beyond the scope of available information. Nevertheless, we can document considerable details about the magnitude and forms of compensation used in retrenchment programs and the wage bill savings, and we can characterize some

of the other aspects that are relevant for evaluation. To summarize the available information on costs and benefits, we calculate a simple financial break-even indicator measured as the number of years required for the present value of financial costs to equal the present value of financial gains. We also examine refinements of this indicator that attempt to incorporate the productivity gains generated from the retrenchment. In turn, we relate these summary financial indicators to other program characteristics.

Section I provides a brief presentation of the underlying conceptual framework for characterizing the private and social costs and benefits of a public sector retrenchment program. The analysis is deliberately simple and borrows heavily from the existing literature. Our primary objective is to provide guidance about the type of information that is required to compare and analyze alternative programs and to discuss the interaction between the conceptual and measurement issues that must be confronted. Section II outlines the methodology used to collect information for the individual countries and to compile the information in a systematic fashion. Section III presents the analysis of the information collected as well as some detailed discussion of individual countries to illustrate the patterns that emerge. Section IV offers concluding remarks.

I. Conceptual Framework and Measurement Issues

A simple conceptual framework helps us to organize the information we have collected and provides some guidance on the type of factors relevant for comparing and analyzing retrenchment programs across countries. Although the discussion in this section borrows heavily from the existing literature, our characterization of the relevant issues emphasizes some points that are neglected in the literature. For example, many of the conceptual issues discussed in this section are discussed more formally and with greater attention to the range of relevant issues in Diwan (1993a, 1993b) and Rama (1997). Because our ultimate objective is to quantify the relevant measures using data across countries, we focus on the interaction between conceptual and measurement issues.

The analysis considers six relevant private and social incentives for the retrenchment decision regarding the marginal worker. Although we do not characterize all relevant sources of heterogeneity explicitly, differences across workers in the following present values may reflect differences in ability, experience, skills, horizons, discount rates, and mobility costs. P_{private} is the present discounted value of the worker's productivity in the private sector. P_{public} is the present discounted value of the worker's productivity in the public sector. $C_{\text{individual}}$ is the present discounted value of adjustment costs borne by the individual in relocating from the public to the private sector (for example, job search costs, relocation costs, and time spent unemployed). C_{social} is the present discounted value of adjustment costs borne by society for the individual to relocate from the public to the private sector (that is, adjustment costs borne by the individual plus spillover effects such as congestion effects). W_{public} is the present discounted value of the

earnings of the worker in the public sector. W_{private} is the present discounted value of the earnings of the worker in the private sector.

The discussion here and the subsequent analysis focus primarily on the reallocation of workers from the public to the private sector taking into account the relevant productivity, wages, and costs of labor market adjustment. Public sector downsizing also likely involves the reallocation of capital. Even though our focus is on the reallocation of workers, the implications of capital reallocation and its interaction with worker reallocation deserve further attention. Also, explicit modeling of the distinction between the present discounted value of earnings and adjustment costs would require incorporating the fact that transitions from a public sector job to a private sector job may involve several transitions and, accordingly, several spells of unemployment. As emphasized by Hall (1995), a potentially important explanation of persistence in unemployment rate dynamics is that separations tend to beget further separations.

The principle of social optimality considered here is that all resources should be allocated to their highest-valued use (net of relocation costs given the existing allocation of resources). Thus it is socially optimal to relocate the marginal worker to the private sector if:

$$(1) \qquad\qquad P_{\text{private}} - C_{\text{social}} > P_{\text{public}}.$$

An individual worker will choose to stay in a public sector job as long as:

$$(2) \qquad\qquad W_{\text{public}} > W_{\text{private}} - C_{\text{individual}}.$$

If workers are paid more than their marginal product in the public sector (that is, $W_{\text{public}} > P_{\text{public}}$), then it is easy to imagine that inequalities 1 and 2 can both hold simultaneously. That is, it is in society's interest for the marginal worker to relocate, but it is not privately optimal.

It may be that individual workers and the government discount the future differently because of differential access to capital markets. Such differential access to capital markets is, in principle, consistent with the specification and associated discussion considered here, but explicit consideration of the role of capital markets deserves more attention. For example, unemployment benefits and other forms of worker safety net assistance are often justified as a form of social insurance in the face of imperfections in the capital market. Because enhancements of the worker safety net are often part of a retrenchment program, explicit consideration of the role of differential capital market access is quite relevant.

Several additional factors are potentially important in evaluating the optimality of a retrenchment program. One factor is the expenditures incurred to pay the wages of public workers or, alternatively, the compensation packages offered to induce workers to relocate voluntarily. If taxes are not distortionary and there is no distortionary rent-seeking behavior, these expenditures should be viewed as transfers and thus should not affect efficiency. Under these strong assumptions, these terms should not appear in inequality 1. However, in the presence of

distortionary taxes (including the inflation tax) and distortions from rent-seeking behavior, such transfers yield efficiency losses. In addition, an excessive wage bill or fiscal crisis may imply that retaining redundant workers may adversely affect other government services.

To incorporate these effects in a modified version of inequality 1, suppose that there is a distortions-based loss function $L(.)$ that is an increasing function of the transfers to workers. Taking into account these distortionary losses in inequality 1, retrenchment is optimal if:

$$(3) \qquad P_{\text{private}} - C_{\text{social}} - L(\text{COMP}) > P_{\text{public}} - L(W_{\text{public}})$$

where COMP reflects the present discounted value of the compensation or other assistance programs that accompany the retrenchment. A related issue is whether the nature of the distortions from the transfers depends on the timing of the program as well as on the net present value of the transfers. For example, rents in the form of artificially high public sector wages may have dynamic distortionary effects beyond those associated with a one-time transfer.

Policymakers face the problem (shared in our analysis) of measuring the components in inequalities 1, 2, and 3. Many of the components are difficult to measure or difficult to observe in the presence of worker heterogeneity (outside opportunities and individual productivity). Among the most difficult to assess are the adjustment costs. Factors influencing adjustment costs include the degree of labor market flexibility (barriers to adjustment in terms of hiring and firing costs), the worker safety net, informal compared with formal sector development, and the method, scope, and speed of retrenchment.

Social adjustment costs will be greater than private adjustment costs to the extent that there are spillover or externality effects of worker displacement. The spillover and externality effects include the impact of changes in the demand for final goods due to reduced consumption expenditures by affected workers, congestion externalities among job searchers, and social disruption (such as national strikes). For further discussion of the congestion externalities among job seekers, see, for example, Blanchard and Diamond (1989, 1990). For further discussion of the idea that employment and earnings losses by workers in one sector may generate spillover effects in other sectors by changing the demand for final goods, see, for example, Cooper and Haltiwanger (1996). The method, scope, and speed of retrenchment potentially influence these spillover effects. In addition, the concentration of the retrenchment in a local community may imply important local spillover effects even if there are no economywide spillover effects.

The nature and magnitude of these adjustment costs are very difficult to measure, and we have relatively little quantifiable information on adjustment costs that we can use in our comparison across countries. The most direct evidence available is from recent studies of privatization in transition economies for which the massive restructuring implies that adjustment costs take center stage (see, for example, the studies in Commander and Coricelli 1994). Even in these studies,

information on the nature of the adjustment process is often quite limited. In general, and particularly in the transition economies, characterizing these adjustment costs is at the heart of the debate regarding gradualism and the big push in efforts to reduce the role of the public sector in the economy.

Another difficult measurement and conceptual problem is evaluating the pre- and post-retrenchment productivity of workers in the public sector. Although there may be widespread agreement that some public sector workers are redundant, quantifying this is extremely difficult. The nature of the measurement problems in evaluating pre- and post-retrenchment productivity will vary depending on the type of public sector employment (civil service, military, or public sector enterprises producing goods and services). Further, some of the need for retrenchment may reflect more of a need for restructuring than for simply downsizing. For example, low morale and low productivity of public sector employees may reflect poor organizational structure or wage compression. Thus a program may involve changes in the organizational structure and the wage structure that appear to be financially expensive but are well motivated by such factors. Simple financial indicators that do not adequately incorporate such factors should not be used to evaluate the need for or success of a program. In terms of inequality 3, this discussion implies that the public sector productivity term needs to be interpreted broadly. That is, retrenching the marginal worker will yield the direct loss of the worker's output (if any) but may also yield productivity gains from the reorganization that accompanies downsizing.

Beyond the problems of measurement and assessment, it is often politically necessary to implement the retrenchment scheme through a voluntary program. This necessitates the provision of some incentive payment in the form of severance pay or pensions (denoted INCENTIVE below) such that the following inequality would hold for an individual worker:

(4) $\text{INCENTIVE} > W_{\text{public}} - (W_{\text{private}} - C_{\text{individual}}).$

In principle, with complete information about worker heterogeneity, it is possible to design an optimal incentive scheme for each worker (see Diwan 1993a, 1993b and Rama 1997 for a formal analysis). One well-recognized problem that immediately emerges is that if a simple, common incentive package is offered to all workers, heterogeneity across workers implies that only those with the lowest rent will depart. It is important to emphasize that some aspects of the selection process may be unfavorable, while others may be advantageous. For example, in environments with wage compression, a common package offered to a wide class of workers implies that the most skilled and capable workers will leave. Individuals with better outside opportunities or low adjustment costs are more likely to leave. Other things being equal, this voluntary aspect of selection will be favorable.

The implication of this discussion is that an optimal incentive scheme must be individually tailored to reflect worker heterogeneity in rents and adjustment costs but that this is difficult to implement in practice in the face of imperfect infor-

mation. This tension is at the center of the debate about the pros and cons of voluntary and involuntary retrenchment programs. As noted, voluntary programs have the advantage that they yield some favorable voluntary selection of workers with good outside opportunities or low adjustment costs without requiring the policymaker to have complete information. However, workers with good outside opportunities are likely the most productive public sector workers, so that the voluntary selection may be adverse. The problem with adverse selection is apt to be especially severe in environments with wage compression. Levy and McLean (1996) discuss optimal schemes using different types of severance contracts or auctions.

Involuntary programs potentially permit specific targeting of groups of workers on observable characteristics but do not take advantage of favorable voluntary selection on unobservable characteristics. Further, involuntary schemes may also yield high adjustment costs. For example, mass involuntary layoffs may involve substantial private and social adjustment costs, and in this case the nature of the safety net takes on particular importance. Finally, the political will (ability) to undertake and sustain schemes with an involuntary component may be lacking.

Putting these pieces together suggests that our comparison and analysis of alternative programs should consider the following factors. First, we must consider the factors leading to retrenchment (fiscal crisis, overstaffing, low morale as a result of wage compression) because they may provide insights about the relationship between wages and productivity in the private and public sectors. Second, several factors influence the adjustment costs, including the scope and speed of retrenchment, the mechanism used (involuntary or voluntary), the use of targeting (for example, based on skill or age), and the nature of labor market flexibility and the safety net. Many of these same factors are important (especially the method used and the nature of targeting) in terms of the need for individual tailoring of plans given worker heterogeneity. Finally, the magnitudes of the financial costs (W_{public} and INCENTIVE) are relevant for characterizing the magnitude of the transfers.

II. Data Collection

The survey of public sector retrenchment programs across developing and transition countries was carried out on two dimensions. First, we collected internal World Bank documents relating to macroeconomic and public sector adjustment in these countries. We drew up a preliminary portrait of the issues relating to each country using various World Bank documents.[1] We used a variety of external sources to supplement these documents. Second, we interviewed World

1. The World Bank documents included Staff Appraisal Reports, Memoranda and President's Recommendations, President's Reports, supervision memoranda, Project Completion Reports, Implementation Completion Reports, Project Performance Audit Reports, Operations Evaluation Studies, Country Economic Memoranda, and sector and other economic reports.

Bank officials associated with the retrenchment programs to obtain more direct information and assessment. The interviews, conducted over more than eight weeks during the summer of 1995, typically yielded further acquisition of relevant documents. The countries, retrenchment programs, and associated officials were selected using the World Bank's electronic management information system and the adjustment lending database called ALCID. Appendix table A-1 lists the surveyed countries and programs. The projects and loans listed in the World Bank's management information system go back to the mid-1980s. The selection of programs was mostly restricted to this list. In general, the movement of World Bank staff away from early programs reduced the usefulness of such interviews.

The interview transcripts, documents, reports, and articles relating to each program were synthesized and summarized using a uniform outline. The information presented relates to four broad aspects characterizing retrenchment, the nature of labor turnover and institutions, cost-benefit analyses in financial and economic terms, and monitoring and evaluation of the program. A complete listing of the individual country summaries is available from the authors upon request.[2]

The information collected and assimilated ranges from quantitative information about scope, speed, and financial costs and benefits to qualitative information about the factors precipitating the retrenchment, as well as characteristics of the program such as the methods used and the productivity gains observed in the public sector. The quality and completeness of the information collected vary substantially across programs. This blend of quantitative and qualitative information yields an analysis that is primarily descriptive—an attempt at summarizing the basic facts and drawing out observable patterns. Not surprisingly, a host of institutional and idiosyncratic factors appear to be important. These institutional and idiosyncratic factors serve as an additional reminder to interpret the analysis of basic patterns with caution.

III. Survey and Analysis of Cross-Country Evidence

We begin the analysis by characterizing some basic facts about the programs for which we gathered information. Tables 1 and 2 present summary statistics about the programs surveyed (summary information on each program is provided in the cross-country appendix tables). The analysis is based on 41 programs in 37 countries. The World Bank has not historically provided direct assistance for public sector employment retrenchment programs. (As of February 1997, it allowed lending for severance payments provided they entail no organization closure.) However, under the umbrella of a comprehensive assistance package, an agreement with a country often stipulates that the country use domestic counterpart funds for specific purposes. Under such umbrella agreements,

2. The detailed country summaries total more than 200 pages, including extensive references to documents, papers, and other sources beyond those cited here.

public sector retrenchment may be part of the overall package. In our survey, about 65 percent of the programs had this umbrella connection to World Bank financing.

Table 1 shows that total separations are greater than the total reduction in employment, reflecting rehiring and new hires. Most programs did not experience rehiring of the same workers who had departed, but a nontrivial fraction (20 percent) experienced significant rehiring. New hires were also relatively rare (about 13 percent of programs). Some programs represented only good intentions, with no workers actually separated. One of the programs included in our survey is Hungary's massive public sector retrenchment program. This program is a clear outlier on a number of dimensions, but we felt it was important to include large programs among the transition economies as points of contrast.

In table 1, the method of employment reduction is divided into three basic categories: involuntary-hard refers to layoffs; involuntary-soft refers to employment reductions generated by strict enforcement of rules such as mandatory retirement and the removal of ghost workers (workers on the payroll who do not exist, although someone is collecting the paycheck); and voluntary refers to programs in which employment reductions were achieved through workers who quit voluntarily (for example, early retirements). Table 1 shows that involuntary-hard reductions dominate total reductions in employment. However, this is primarily driven by the massive involuntary reductions in Eastern Europe. By contrast, the use of voluntary and involuntary-soft measures is the prevailing pattern in Latin America, Asia, and Africa.

Table 2 indicates that the total financial costs of the retrenchment programs were large (exceeding $12 billion), with the average program having a total cost of $400 million. The total cost is driven in part by enormous increases in pension and safety net expenditures in Poland. From all accounts, the increases for Poland reported in appendix table A-2 are real, but they skew totals and averages somewhat. However, much of the subsequent analysis is not sensitive to outliers on this dimension. That is, much of the analysis is based on the percentage of programs that exhibit various characteristics.

The financial costs of the programs took a variety of forms, including severance payments, higher pension liabilities, and enhancements to the worker safety net. The worker safety net is a shorthand term for the various worker assistance programs, including unemployment benefits, job search assistance, training, and relocation assistance designed to aid in the process of worker reallocation. As is clear from the minimum and the maximum in table 2, the scope and mix of packages varied considerably across countries. As the patterns across continents show, the transition economies in Eastern Europe relied heavily on the worker safety net. Countries in the Southern Hemisphere and Asia relied much more heavily on direct compensation to workers, such as severance pay and enhanced pensions. The latter pattern is particularly striking for severance pay, which was 92 percent of total costs in Asia, 74 percent in Latin America, and 51 percent in Africa.

Table 1. Scope of Retrenchment: Number of Workers, 1990s

Region	Employment reduction	By instrument			Separations	Rehires	New hires
		Involuntary-hard	Involuntary-soft	Voluntary			
Total							
All cases	4,710,566	1,178,394	752,809	577,188	5,033,875	282,307	41,002
Africa	892,062	104,035	140,896	97,878	909,705	15,900	1,743
Asia	233,311	0	11,000	172,711	255,311	3,000	19,000
Europe	2,853,559	883,259	132,000	105,000	2,853,559	0	0
Latin America	731,634	191,100	468,913	201,599	1,015,300	263,407	20,259
Median							
All cases	32,900	0	1,800	4,800	37,500	0	0
Africa	10,061	1,922	6,861	3,696	10,061	0	0
Asia	21,925	0	0	14,373	23,425	0	0
Europe	172,959	42,000	0	17,500	172,959	0	0
Latin America	26,000	0	0	4,599	56,409	0	0
Average							
All cases	117,764	39,280	27,882	18,037	125,847	7,058	1,025
Africa	59,471	10,404	14,090	7,529	60,647	1,060	116
Asia	29,164	0	2,200	28,785	31,914	375	2,375
Europe	407,651	176,652	33,000	26,250	407,651	0	0
Latin America	73,163	19,110	58,614	22,400	101,530	26,341	2,026
Minimum							
All cases	0	0	0	0	247	0	0
Africa	247	0	0	0	247	0	0
Asia	6,500	0	0	0	6,500	0	0
Europe	35,000	0	0	0	35,000	0	0
Latin America	0	0	0	0	2,034	0	0
Maximum							
All cases	1,661,000	547,300	424,095	112,000	1,661,000	163,059	19,000
Africa	541,200	57,000	75,000	59,810	547,200	7,500	1,743
Asia	69,466	0	7,000	69,466	69,466	3,000	19,000
Europe	1,661,000	547,300	132,000	70,000	1,661,000	0	0
Latin America	405,995	100,000	424,095	112,000	424,095	163,059	18,100

Note: Values are based on 41 retrenchment programs in 37 countries. Information about worker separations by instrument is incomplete in several cases.
Source: Authors' calculations based on individual country summaries (see appendix tables for cross-country tabulations).

Table 2. Scope of Retrenchment: Financial Costs, 1990s

Region	Financial costs (millions of dollars)					Financial benefits (millions of dollars)	
	Total	Severance payments	Enhanced pension	Safety net	Cost per worker	Total	Annual wage bill savings
Total							
All cases	12,074	2,708	6,098	3,268	n.a.	4,206	2,834
Africa	500	255	20	225	n.a.	673	96
Asia	1,400	1,281	71	48	n.a.	179	–153
Europe	8,583	0	5,588	2,995	n.a.	1,846	1,446
Latin America	1,591	1,172	419	0	n.a.	1,508	1,445
Median							
All cases	42	13	0	0	1,085	17	10
Africa	20	13	0	0	1,476	10	8
Asia	50	25	0	24	1,040	9	9
Europe	454	0	25	859	616	923	723
Latin America	280	112	0	0	4,735	222	222
Average							
All cases	402	87	244	192	4,142	168	123
Africa	38	20	2	32	3,630	61	11
Asia	200	183	14	24	3,651	26	–22
Europe	2,146	0	1,397	998	3,817	923	723
Latin America	265	167	70	0	5,695	302	289
Minimum							
All cases	0	0	0	0	0	–157	–157
Africa	2	0	0	0	320	0	0
Asia	0	0	0	0	0	–157	–157
Europe	6	0	0	6	24	298	298
Latin America	2	0	0	0	0	–15	–15
Maximum							
All cases	7,669	1,140	5,538	2,130	17,108	1,548	1,148
Africa	200	80	20	200	13,166	542	30
Asia	1,188	1,140	71	48	17,108	350	83
Europe	7,669	0	5,538	2,130	14,012	1,548	1,148
Latin America	530	425	418	0	16,000	1,063	1,000

n.a. Not applicable.

Note: Values are based on 41 retrenchment programs in 37 countries. The percentages computed from this table (for example, severance as a percentage of total cost) may not match the percentages given in table 5 that are based on a count of programs.

Source: Authors' calculations based on individual country summaries (see appendix tables for cross-country tabulations).

A wide variety of circumstances led to the retrenchment programs across countries. The most prominent factors leading to retrenchment were fiscal crises and a general effort to reduce the size of government in the economy. However, in some cases, the compelling factors appeared to be structural problems with the type and mix of government workers. Wage compression among public sector workers leading to morale and staffing problems was a common complaint. Overstaffing, including the problem of ghost workers, was another common complaint. Finally, the downsizing of the military played a prominent role as well. Not surprisingly, in many programs multiple factors led to the retrenchment.

The differences in the factors generating retrenchment are closely linked to the mix of packages used across countries and continents. For some countries, the retrenchment episode was viewed as a one-time event correcting a perceived relatively narrow problem in a particular public sector agency or enterprise (for example, ghost workers or productivity and morale problems due to wage compression). These one-time-event cases typically used some form of direct compensation (severance and enhanced pension) and accordingly were more likely to use voluntary methods of retrenchment. By contrast, in some countries (for example, the transition economies), the public sector retrenchment was part of a fundamental change in the role of the public sector in the economy. In these cases, the programs typically paid much greater attention to institutional changes (unemployment benefits, relocation assistance, training assistance) that acted as the safety net for worker reallocation.

Much of the detailed information collected involves the method used to reduce employment, the nature of the compensation provided, and the degree of targeting. Tables 3, 4, and 5 provide summary information on these characteristics. Many programs (but less than half) used both involuntary and voluntary reduction methods; relatively few programs used all three methods (table 3). Although voluntary programs appear to be the most popular in terms of the

Table 3. *Distribution of Employment Reduction Methods in Retrenchment Programs, 1990s*

Type of method	Percentage of programs	Percentage of workers
Involuntary-hard (layoffs)	41.5	47.0
Involuntary-soft (enforcement of rules, removal of ghost workers)	65.0	30.0
Involuntary (removal of ghost workers)	22.5	3.3
Voluntary	77.5	23.0
Both voluntary and involuntary	42.5	19.2
All methods	17.5	13.4

Note: Values are based on 41 retrenchment programs in 37 countries. The percentage of workers may differ from those computable from table 1 on account of missing values that are subsumed in the totals in table 1. Missing values are excluded here.

Source: Authors' calculations based on individual country summaries (see appendix tables for cross-country tabulations).

Table 4. *Distribution of Compensation and Transition Assistance in Retrenchment Programs, 1990s*

Type of assistance	Percentage of programs
Severance payment	68.3
Pension enhancement	29.3
No direct compensation	14.6
Safety net	63.4
Safety net (training)	53.7
Unknown	12.2

Note: Values are based on 41 retrenchment programs in 37 countries.
Source: Authors' calculations based on individual country summaries (see appendix tables for cross-country tabulations).

percentage of programs with a voluntary component, most reductions in employment were achieved through involuntary methods. The inclusion of Hungary in our 41 programs has a clear influence on employment-weighted results. For the most part, we present unweighted results so that outliers such as Hungary do not play a disproportionate role. The removal of ghost workers played a relatively minor supporting role in the employment reductions but was quite prevalent in the African countries in our survey.

Table 4 indicates that the primary form of direct compensation to workers was a severance payment. Relatively few programs offered no direct compensation. Most programs involved some enhancement of the overall safety net intended to assist unemployed workers and workers attempting to relocate. An important component of the safety net enhancement was often the stipulation of some form of training assistance.

As discussed in section II, the underlying theory suggests that designing a program that targets specific individuals or groups of individuals is likely to be important to avoid adverse selection and to promote favorable selection. We attempt to summarize the many different approaches to targeting used in practice by classifying programs into three admittedly crude groups: skill-biased, age-biased, and neutral. Skill-biased programs restrict the program along detailed occupational or skill groupings. For example, the restructuring of the work force in the tax administration in Peru was based on new and continuing workers passing a written test. Age-biased programs focus on voluntary retirement

Table 5. *Distribution of Targeting in Retrenchment Programs, 1990s*

Type of targeting	Percentage of programs
Skill-biased	53.7
Age-biased	51.2
Neutral	19.5
Unknown	2.4

Note: Values are based on 41 retrenchment programs in 37 countries.
Source: Authors' calculations based on individual country summaries (see appendix tables for cross-country tabulations).

(and associated pension enhancements) as the means for retrenchment. Neutral programs offer a simple, common package to a wide class of workers with little or no attempt to target specific groups. Some programs are classified as both skill-biased and age-biased if they use a mix of packages that induce selection on both types of criteria.

Table 5 indicates that targeting on the basis of skills or age (in the latter case primarily through early retirement programs) was important, but not pervasive. Almost 20 percent of the programs did not use targeting of workers. As we will see in the following sections, the nature of targeting is closely related to a variety of measures of success of the program.

Rehires, New Hires, and Other Program Characteristics

Tailoring a program to individual characteristics using some form of targeting is likely to be important to avoid losing the most productive or essential workers. The absence of targeting may yield excessive losses of workers in key areas or with key skills and thus will necessitate either rehiring some of the same workers who departed (a sure sign of poor targeting) or hiring new workers. In many programs, workers are rehired by the same organization and unit. In some cases, they are rehired by a different branch of the public sector. Using the information collected, we examine the simple bivariate relationships between the likelihood of rehires and new hires and other program characteristics, including the nature of targeting.

Table 6 examines the link between rehiring and program characteristics. The most striking results involve the role of targeting and the type of compensation offered. Programs with rehiring were much less likely to use skill or age targeting. For example, only 25 percent of programs with rehiring also used skill targeting compared with more than 60 percent of programs without rehiring. The flip side of this is that more than 60 percent of the programs with rehiring did no targeting compared with less than 10 percent of programs without rehiring. These findings are consistent with the view that programs that fail to target yield severe adverse selection problems, with the most critical workers departing and creating the subsequent need to rehire these same workers.

Some other interesting patterns emerge that are large in magnitude but not statistically significant at conventional levels given the relatively small sample size of 41 observations on individual programs. Specifically, programs with rehiring were also less likely to have a safety net component and, in particular, some type of training component. The potential inference here is that the pressure to rehire may be greater if efforts are not made to assist workers in the transition to the private sector.

Table 7 examines the analogous relationships between new hires and program characteristics. The largest and most significant results again involve the nature of targeting and the type of compensation assistance. Programs with new hires are all age-biased with associated pension enhancements and do not include safety net components. It is not clear, of course, that evidence of new

Table 6. *Relationship between Rehiring and the Characteristics of Retrenchment Programs, 1990s*

Program characteristic	Percentage of programs with rehiring	Percentage of other programs
Employment reduction method		
Involuntary-hard	50.0	39.4
Involuntary-soft	62.5	65.6
Voluntary	62.5	81.3
All methods	12.5	18.8
Nature of targeting		
Skill-biased	25.0*	60.6
Age-biased	12.5**	60.6
Neutral	62.5**	9.1
Compensation or assistance		
Severance payment	75.0	66.7
Pension enhancement	37.5	27.3
No direct compensation	12.5	15.2
Safety net	50.0	66.7
Safety net (training)	37.5	57.6

* The difference between programs with and without rehiring is statistically significant at the 10 percent level.

** The difference between programs with and without rehiring is statistically significant at the 5 percent level.

Note: Values are based on 41 retrenchment programs in 37 countries. Each value is the percentage of programs with or without rehiring that also has the indicated program characteristic.

Source: Authors' calculations based on individual country summaries (see appendix tables for cross-country tabulations).

hiring should be interpreted or treated in the same manner as rehiring. Rehiring the same workers who departed is much more likely to indicate problems with the program, while hiring new workers may involve some intended restructuring of the work force. Rehiring the same workers who were separated could be part of a coherent plan of restructuring. For example, it might be difficult politically to target specific workers for retrenchment. Given constraints on the ability to target workers, the optimal strategy might be to induce separations en masse and then to rehire specific workers. We found no evidence for such purposive rehiring. The results on age targeting and pension enhancements suggest that for some programs the intent was to replace older, incumbent workers with new workers.

Summary Financial Indicators

We calculate a summary financial indicator that measures the simple, financial break-even period reflecting the number of years required before a program breaks even on financial costs and benefits. Financial costs are the present discounted value of the compensation package or safety net expenses incurred.

Table 7. *Relationship between New Hires and the Characteristics*
of Retrenchment Programs, 1990s

Program characteristic	Percentage of programs with new hires	Percentage of programs without new hires
Employment reduction method		
Involuntary-hard	0**	47.2
Involuntary-soft	80	62.9
Voluntary	80	77.1
All methods	0	20.0
Nature of targeting		
Skill-biased	40	55.6
Age-biased	100**	44.4
Neutral	0	22.2
Compensation or assistance		
Severance payment	60	69.4
Pension enhancement	60	25.0
No direct compensation	0	16.7
Safety net	0**	72.2
Safety net (training)	0**	61.1

** The difference between programs with and without new hires is statistically significant at the 5 percent level.

Note: Values are based on 41 retrenchment programs in 37 countries. Each value is the percentage of programs with or without new hires that also has the indicated program characteristic.

Source: Authors' calculations based on individual country summaries (see appendix tables for cross-country tabulations).

This present discounted value is, in principle, calculated over an infinite horizon. In practice, for many of the cases, the financial costs are front-loaded with severance payments, making this present discounted value easy to calculate. However, when costs are in the form of a continuing safety net or pension liabilities, we generate appropriate present discounted value measures of the financial costs. (For some programs, the evaluation of the program by World Bank staff had already yielded such calculations.) Financial benefits are measured as the present discounted value of the wage bill savings from the retrenched workers. The annual wage bill savings are assumed to be constant over time and equal to the wage bill savings relevant at the time of implementation of the program. These assumptions permit direct calculation of the break-even period as the number of years for the present discounted value of wage bill savings to equal the overall present discounted value of financial costs.

To achieve comparability of measures across countries, we use a common discount rate of 10 percent. Under these assumptions, the break-even period is a scale-free financial indicator that permits comparing and contrasting the financial costs and benefits across programs. Information was sufficient to calculate the break-even measure for about 40 percent of the programs.

Across the programs surveyed, 22 percent yielded net losses, essentially implying an infinite break-even period. The presence of net losses reflects in part the impact of rehires or new hires or of rising compensation for retained workers. Accordingly, some programs (for example, the Peruvian tax administration authority, SUNAT) yielded no wage bill savings as a result of rehires, new hires, or an increase in compensation. For the programs for which we can calculate a finite break-even period, the average break-even period is 2.27 years with a median of 1.82 years, a maximum of 10 years, and a minimum of 0 years. Programs with immediate break-even periods (0 years) are those with involuntary reductions without direct compensation or other assistance programs.

This simple financial indicator demonstrates the financial viability of the retrenchment programs. Many of the programs yielded relatively rapid financial payoffs. However, as discussed in section II, we would ideally like to quantify the present discounted value of all costs and benefits from retrenching public sector workers and evaluate programs accordingly. Where does this simple financial indicator fit into such a calculation? To address this question, it is useful to return to inequality 3. For purposes of discussion, suppose we treat the loss function in inequality 3 as a simple linear function such that a dollar of expenditures on public sector programs yields a dollar in distortionary losses. Then, inequality 3 can be written as

(5) $$W_{\text{public}} - \text{COMP} + P_{\text{private}} - C_{\text{social}} - P_{\text{public}} > 0.$$

Thus the measure of the break-even period essentially provides an evaluation of the program based on only the first two terms in inequality 5. A comprehensive evaluation, even in these crude terms, requires calculating all of the terms in inequality 5.

Unfortunately, data limitations imply that we cannot measure all of the components in inequality 5, and thus we cannot literally evaluate programs on this basis. However, for some programs we can go a few steps further. In particular, for some programs we can estimate the wages that retrenched workers receive in the private sector. The assumptions that workers are paid their marginal product in the private sector, ignoring adjustment costs, and that productivity of the redundant (retrenched) workers is zero in the public sector permit a crude implementation of the terms in inequality 5 using this additional information. Where possible, we calculate a modified break-even measure (denoted for labeling purposes as the economic payback period) using this additional information. The economic payback period is the number of years required for the benefits from the reduced public sector wage bill to be such that the present discounted value of costs equals the present discounted value of benefits. For this calculation, the costs and benefits for all components other than the public sector wage bill are calculated over an infinite horizon. In addition to measuring benefits based on retrenched workers' earnings in the private sector, for programs with measurable increases in productivity in the public sector (for example, SUNAT in Peru), we include such effects in the benefits. The average calculated economic pay-

back period is 2.1 years, and the median is 0.8 year across the programs for which we can generate the measure. (Sufficient information is available to calculate the payback period indicator for 20 percent of the programs.)

We calculate comparable summary financial and related indicators across programs so that we can relate them to other program characteristics. Table 8 characterizes the relationship between programs with net financial losses and other program characteristics. Programs with a net financial loss are much more likely to include a voluntary component than programs without financial losses. Interestingly, programs with net financial losses are more likely to use targeting, particularly age targeting through pension enhancements. This result indicates that targeting may be expensive, at least measured in simple, financial terms. Table 9 provides a related look at the relationship between the magnitude of the break-even period and other program characteristics. Given that these are at best crudely calculated, we divide programs into two groups—those in the lower and upper tail of the distribution relative to the median break-even period (which is 1.82 years). The results in table 9 reinforce those in table 8. Programs with relatively high break-even periods are more likely to involve a voluntary component, more likely to use targeting, and more likely to use direct compensation (through either severance payments or pension enhancements).

Table 8. *Relationship between Net Losses and the Characteristics of Retrenchment Programs, 1990s*

Program characteristic	Percentage of programs with net losses	Percentage of other programs
Employment reduction method		
Involuntary-hard	44.4	40.6
Involuntary-soft	50.0	68.8
Voluntary	87.5	75.0
All methods	25.0	15.6
Nature of targeting		
Skill-biased	66.7	50.0
Age-biased	88.9**	40.6
Neutral	0.0*	25.0
Compensation or assistance		
Severance payment	66.7	68.8
Pension enhancement	55.6**	21.9
No direct compensation	22.2	12.5
Safety net	55.6	65.6
Safety net (training)	55.6	53.1

* The difference between programs with and without net losses is statistically significant at the 10 percent level.

** The difference between programs with and without net losses is statistically significant at the 5 percent level.

Note: Values are based on 41 retrenchment programs in 37 countries. Each value is the percentage of programs with or without net losses that also has the indicated program characteristic.

Source: Authors' calculations based on individual country summaries (see appendix tables for cross-country tabulations).

Table 9. *Relationship between Financial Break-Even Periods and the Characteristics of Retrenchment Programs, 1990s*

Program characteristic	Percentage of programs with below-median break-even periods	Percentage of programs with above-median break-even periods
Employment reduction method		
Involuntary-hard	50.0	33.3
Involuntary-soft	66.7	70.6
Voluntary	33.3**	94.1
All methods	0.0	23.5
Nature of targeting		
Skill-biased	0.0**	66.7
Age-biased	16.7**	66.7
Neutral	66.7**	5.6
Compensation or assistance		
Severance payment	66.7	83.3
Pension enhancement	16.7	38.9
No direct compensation	33.3	11.1
Safety net	66.7	50.0
Safety net (training)	50.0	50.0

** The difference between programs with break-even periods below and above the median value is statistically significant at the 5 percent level.

Note: Values are based on 41 retrenchment programs in 37 countries. Each value is the percentage of programs with a break-even period below or above the median value that also has the indicated program characteristic.

Source: Authors' calculations based on individual country summaries (see appendix tables for cross-country tabulations).

Some of these patterns change substantially when we examine the distribution of the payback period. As seen in table 10, once we incorporate even crude information about productivity gains into the calculation, we no longer find that targeting implies a high payback period. Not surprisingly, we still find that programs with high calculated payback periods are more likely to involve direct compensation and in particular severance pay.

To sum up, simple calculations of financial break-even periods indicate that many of the programs had relatively rapid financial payoffs. By contrast, a nontrivial fraction were financial losers. However, caution must be used in interpreting such financial indicators as measures of the relative success of programs. There are many relevant components of the private and social costs and benefits not captured by these measures. Even the limited attempt made to incorporate relevant economic costs and benefits indicates that inferences based on narrowly defined financial indicators may be quite misleading.

Highlights of Individual Programs

We summarize the experiences of a select set of individual programs with three objectives in mind. First, consideration of individual programs provides a

Table 10. *Relationship between Payback Periods and the Characteristics of Retrenchment Programs, 1990s*

Program characteristic	Percentage of programs with below-median payback periods	Percentage of programs with above-median payback periods
Employment reduction method		
Involuntary-hard	60	18.2
Involuntary-soft	80	81.8
Voluntary	20**	100.0
All methods	0	18.2
Nature of targeting		
Skill-biased	20	54.5
Age-biased	40	36.4
Neutral	40	27.3
Compensation or assistance		
Severance payment	60**	100.0
Pension enhancement	40	18.2
No direct compensation	40**	0.0
Safety net	60	45.5
Safety net (training)	60	36.4

** The difference between programs with payback periods below and above the median value is statistically significant at the 5 percent level.

Note: Values are based on 41 retrenchment programs in 37 countries. Each value is the percentage of programs with a payback period below or above the median value that also has the indicated program characteristic.

Source: Authors' calculations based on individual country summaries (see appendix tables for cross-country tabulations).

more comprehensive view of the scope and heterogeneity across programs. Second, the discussion of individual programs permits illustration of some of the key patterns across programs. Third, our cross-country appendix tables and related analyses admittedly leave out a lot. Part of the reason for this is lack of data suitable for quantifying effects in a summary fashion. For example, quantifying the nature of productivity gains associated with retrenchment as well as the adjustment costs is difficult both in principle and in practice, given the available data. In general, measuring productivity in the service sector, especially in the public sector, is difficult; most work uses quantitative or technical measures (see Griliches 1992). However, some cases do provide qualitative information about these issues.

Here we highlight programs in Peru, Argentina, Uganda, Ghana, India, and Hungary. Key characteristics are presented in table 11. In the discussion, the ordering of the country/program cases reflects a rough attempt to select cases that highlight the role of targeting, productivity gains, the worker safety net, and labor market adjustment. This ordering is only approximate because all of these issues are present for every program. In table 11, entries marked with a

Table 11. Key Characteristics in Selected Retrenchment Programs, 1990s

Characteristic	Argentina Federal government	Argentina Railroads	Ghana	Hungary	India	Peru Civil service	Peru SUNAT[a]	Uganda Civil service	Uganda Military
Targeting									
Skill-biased	No	No	Yes	Yes	No	No*	Yes*	Yes*	Yes
Age-biased	Yes	Yes	Yes	Yes	Yes	No*	Yes*	Yes*	No
Neutral	—	—	—	—	—	Yes	—	—	—
Reduction method									
Involuntary-hard	No	No	No	Yes	No	Yes	No	Yes*	Yes
Involuntary-soft	Yes	Yes	Yes	—	No	Yes	Yes	Yes*	Yes
Voluntary	No	Yes	Yes	—	Yes	Yes	Yes	Yes*	Yes
Rehires	No	No	No	No	No	Yes	No	No	No
New hires	Yes	No	No	No	No	No	Yes	No	No
Financial indicators									
Break-even period	0.41*	1.56*	1.82*	Net loss	Net loss	2.6	Net loss*	Net loss*	2.7
Payback period	—	—	1.66*	—	—	—	0.0023*	—	1.2
Productivity gains									
Organizational	Yes* (quantitative)	Yes* (quantitative)	No	—	—	—	Yes* (monetary)	—	No
Worker	—	—	Yes* (monetary)	—	—	—	—	—	Yes* (monetary)
Safety net provision	No	No	Yes* (most workers reemployed)	Yes*	Yes* (most workers reemployed)	No	No	Yes	Yes

— Not available.
* A key issue that motivates our inclusion of the program for special discussion.
a. The Peru tax administration authority.
Source: Authors' calculations based on individual country summaries (see appendix tables for cross-country tabulations).

star are key issues that motivate our inclusion of the program for special discussion.

PERU. Two programs were initiated as part of a broader exercise of fiscal austerity and adjustment in Peru. Problems included the underfunded pension system, the posting of ghost employees by the regions to enhance employment-based federal transfers, and the erosion in public salaries, making it difficult to hire and retain qualified workers.

With the support of external donors, Peru initiated two labor adjustment programs in 1991, one for the civil service and one for SUNAT. These were completed in 1993 and 1992, respectively (World Bank 1994b). The civil service program used all three involuntary and voluntary employment reduction methods, separating about 250,000 workers over three years. Induced departures used both lump-sum severance and pension enhancements. We found little evidence of targeting by skill. Targeting by age was implicit in the use of pension enhancements to induce voluntary separation. Poor targeting aggravated the shortage of human resources, with many of the most qualified staff leaving. The poor targeting and accompanying shortages probably led to the significant rehiring of separated workers. Further, federal government staff reductions were offset by increases in employment by regional governments, mostly by rehiring erstwhile federal staff. In total, 163,000 of the originally retrenched workers were rehired. Severance packages of about $1,000 were provided to less than half (112,000) of the workers separated. This limited the direct financial losses associated with the significant rehiring. Our simple measure of the break-even period for this program is 2.6 years, more than the median of 1.82 years for all the programs studied. However, this measure does not reflect the loss of productivity associated with shuffling the same workers in and out of the same positions.

In contrast, the other program in Peru appears to have been a model of good targeting. The SUNAT (tax authority) program also used a mix of voluntary and involuntary reduction methods. Voluntary separations came with an enhanced pension. Involuntary workers were selected on the basis of a written test. Thus targeting was worker-specific and objectively determined. Two-thirds of the work force (2,034 workers) was separated. Subsequently, SUNAT hired 1,309 new workers, again based on a written test. Because SUNAT established objective levels of productivity and competence, little basis remained for rehiring (skilled but severance-induced) separated workers. Rehiring was barred for 10 years, and none was found. The average salary for affected workers increased from $50 per month to $1,000 per month. Deflation of wages using the consumer price index instead of the exchange rate produces an increase of similar magnitude; the instantaneous increase drops from 20 to 18.6 times. Tax collections more than doubled, and so did SUNAT's revenues (2 percent of tax collections). These were insufficient to cover the salary increase, and the scheme incurred a net financial loss of $47 million in present value terms. However, the entire increase and improvement in tax collections can be interpreted as a substantial gain for the

government (and, in principle, the economy).[3] Incorporating the tax collection gains into our calculation of the payback period yields a payback period of only 0.002 year. This highlights the importance of evaluating program performance along multiple dimensions, evaluating not just organization-level financial costs and benefits but also the broader impact of the program. Neither of these two programs emphasized job search, relocation, training, or other forms of assistance to reduce the adjustment costs for the retrenched workers.

ARGENTINA. With external assistance from the World Bank, Argentina undertook retrenchment programs for the federal administration and the railroads (as part of a broader program for public enterprises) during 1990–92 and 1991–94, respectively. In a case study on public sector retrenchment in Argentina since 1990, Robbins (1996) examines issues of adverse selection and post-retrenchment worker status using micro data. Given chronic public sector deficits and endemic inflation, extensive public sector reform was considered essential. Wages accounted for 70 percent of federal expenditure, excluding interest payments and transfers. The level of employee redundancy was estimated at 50 percent (World Bank 1995a). For this reason, staff restructuring was an important component of overall reform.

The federal administration program retrenched 400,000 workers. No explicit targeting by worker is found. Involuntary separations implied some implicit targeting in the selection of redundant workers. Some evidence indicates an age bias. Also, targeting by function was attempted in that the federal government's role was restricted to the provision of security, social services, and economic management. Rehiring was barred by law, and none is found, despite the large scale of retrenchment and the absence of targeting. We find no evidence of rehiring in the source reports (World Bank 1994d, 1995a, 1995c); however, some anecdotal evidence indicates the occurrence of rehiring.

The railroads program separated about 73,000 workers using both voluntary and involuntary reduction methods. An important feature of Argentinean programs is the heterogeneity in compensation amounts. In federal administration, the average severance payment per worker was $3,000, amounting to a one-time cost of $425 million (World Bank 1995a). In railways, the average severance per worker was $12,000, or a one-shot payment of $360 million (World Bank 1995c). Savings in the annual wage bill was expected to be $1 billion in the federal service and $238 million in the railroads. The calculated break-even periods are 0.4 year and 1.6 years, respectively, in the federal administration and the railroads, with the difference reflecting the higher compensation per worker in railroads.

Although difficult to measure, restructuring in both railways and federal administration apparently was characterized by substantial productivity gains.

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3. This discussion neglects the welfare costs (for example, reduction in hours and output) due to increased enforcement of tax collections.

Railways experienced an increase in freight miles per worker and passenger miles per worker of about six to seven times. Federal administration experienced a 50 percent cut in processing time.

UGANDA. In Uganda, high fiscal deficits combined with inadequate pay levels and wage compression led to a civil service labor restructuring program in 1992–94. Concomitantly, the military reduced its size in line with peacetime national priorities and conducted a labor restructuring program in 1992–95. Both were partly supported by external financing. The civil service program employed all three reduction methods, restricting the package offer to a fraction of the workers separated. Separations were targeted by skill and tenure. Some critical jobs and personnel were "ring-fenced," that is, protected from retrenchment. Such workers did not have the option of obtaining enhanced benefits associated with voluntary separation.

The gross number of separations was approximately 150,000. The average compensation per worker was $320, or about twice the annual gross domestic product (GDP) per capita (Uganda Ministry of Public Service 1994). This total expense of $16 million constituted a measured net financial loss because there was no saving on the wage bill. The wage bill increased due to salary revisions for the remaining civil service staff and was intended to improve service performance. Interviews with program advisers revealed that the salary hike was intended to achieve parity between the civil service average wage and the living wage in Uganda so as to motivate the civil service staff and generate productivity increases. Although an evaluation of the civil service staff performance was not available at the time of our data collection, measurement indicators to evaluate the performance improvements were planned by the Economic Development Institute of the World Bank.

The military program was a postwar retrenchment exercise. It used both voluntary and involuntary reduction methods to reduce strength by 44,000 employees. Skill targeting was based on soldier performance and military requirements. Average compensation was $955, provided partly in kind and distributed over several months. The calculated break-even period is 2.7 years. In Uganda, some measurement of post-retrenchment earnings for veterans is available. Actual post-separation earnings for the military programs were up to 71 percent of GDP per capita (World Bank 1995b). Including these earnings of a total $5.4 million per year in Uganda's case yields a calculated payback period of 1.2 years. The rarely observed actual data on post-separation earnings are interesting, particularly because the earnings were lower than the average. Although this evidence is too idiosyncratic to draw general inferences, it highlights the difficulty in generating the appropriate cost-benefit calculations. Using average earnings in the private sector as a proxy (even when it is available) is obviously inappropriate in this case.

An interesting feature of the military program was the safety net nature of the compensation, which enabled veterans to reintegrate into civilian society. Assis-

tance in kind was tailored to the intended post-separation occupation; for instance, farmers were provided land and farm implements. Furthermore, the assistance was known to be temporary (six months), creating an incentive for the veteran to hasten adjustment and thereby limiting program costs.

GHANA. Motivated by a very large public sector wage bill as a fraction of total government expenditures, the government of Ghana initiated a program for the civil service in 1987 with partial financing from the World Bank. The program concluded in 1992. It was driven by voluntary departures induced by additional severance and complemented by involuntary-soft measures—removing ghost workers and enforcing retirement age. Voluntary departure, with compensation, was conditional on employment being noncritical to the performance of the unit. The government thus sought to protect necessary skills. More than three-fourths of the total 73,000 workers separated received the package. Average compensation was $700. The formula of two months of base pay for each year of uninterrupted service exceeded the legally required four months of base pay in most cases. Anecdotal evidence indicated some rehiring in subvented organizations (attached to ministries but not covered under the budgetary process). The calculated break-even period is 1.8 years. Despite a generous package offer, the break-even period is relatively low.

The government planned extensive training through the Program of Action to Mitigate the Social Costs of Adjustment (PAMSCAD) to assist workers making a transition to the private sector. However, assistance for job search and placement and for retraining was lacking. PAMSCAD offered courses in entrepreneurial development and provided inputs, including land for potential farmers. In rural areas, retrenched workers were also eligible to participate in food-for-work schemes. A sample survey of the retrenched workers finds that about 10 percent of them quit the labor force (Alderman, Canagarajah, and Younger 1996). Of the rest, 97 percent were reemployed by the second year, about 20 percent in formal sector wage jobs and the rest in self-employment or informal sector jobs.

INDIA. Fiscal and external payments deficits led India to initiate a stabilization and structural adjustment program in 1991. A program to support public sector labor restructuring was required. This retrenchment support program was directed at public enterprises declared to be sick (with several years of accumulated losses). A voluntary retrenchment program in the sick public sector textile firms separated about 70,000 workers in 1993–94. The average cost per worker was about $17,000. The formula used was 30 days of wages for each year worked, compared with the legally required 15 days of wages for each year of permanent service. The scheme incurred a net loss of $276 million in present value terms, given the exorbitant compensation. The high compensation reflects in part the effects of a rigid law against retrenchment and closure in India (see Basu, Fields, and Debgupta 1996). Given the incentives, the voluntarily departing workers may have had

long tenures, increasing the severance amount granted. No explicit targeting mechanism by tenure or age is found. The maximum skill level among the retrenched workers was that of a supervisor.

Results from a sample survey indicate that all retrenched workers remained in the labor force, and 80 percent were reemployed (PA Consulting Group 1993). Of the total surveyed, 32 percent were in wage jobs, one-fourth of them in the same industry, that is, textiles. The rest (48 percent) were self-employed.

HUNGARY. In Hungary, reform and stabilization programs aimed at a transition to a competitive economic system led to mass dismissals in state enterprises during 1990–92. About 1.7 million workers constituting 8.7 percent of the country's labor force were separated. This is extremely large compared with the scope of other programs (0.2 percent of the labor force in Ghana and 0.01 percent in India). The annual wage saving amounted to $298 million but was exceeded by the increase in the annual safety net expenditures of $858 million. The exercise was clearly financially costly but reflected a fundamental change in the structure of the economy. A comprehensive set of institutions designed to act as a safety net for worker reallocation is very common in Western economies, and Hungary was obviously attempting to follow that model.

Surveys indicate that retrenched workers remained in the labor force (Commander and others 1994). Most of them were reemployed in the private sector, in trade and service industries. The average private manufacturing wage was found to be about 70 percent of the state firm wage (indicating the size of the rent in public sector firms). The nature of the labor market adjustment appeared to change as the transition process proceeded and accelerated. Early on, many of the retrenched workers left voluntarily and left the labor force (for example, through voluntary retirement). Others left voluntarily and transited directly to other jobs. However, as involuntary layoffs increased, a larger fraction of the retrenched workers entered unemployment. Moreover, the available evidence suggests that unemployed workers had an increasingly difficult time finding jobs. Early in the transition, in February 1991, the outflow rate from unemployment implied a steady-state duration of unemployment of 7 months. By November 1992, the implied steady-state duration was 50 months.

Aggregate Factors

Another means of evaluating the programs is to look at relevant macroeconomic indicators prior to and during the program, including indicators of fiscal posture. Examining such macro indicators provides a rough independent check of the factors that led to a retrenchment episode. Further, evaluating macro indicators prior to and during the program provides another means of evaluating the impact of the program. In many cases, the actual retrenchment program is too small by itself to have important macro effects. Exceptions are the programs in Eastern Europe (for example, Hungary) in which there was massive public sector downsizing. However, even in cases where the specific program

analyzed was too small by itself to have macro effects, the program may have been part of a larger effort to restructure and downsize the public sector. The results that follow can be interpreted in this light.

For each of the programs surveyed, we acquired data on the unemployment rate, the real GDP growth rate, the ratio of the current budget deficit to GDP, the ratio of domestic debt to GDP, the ratio of foreign debt to GDP, and the ratio of government spending to GDP. Several sources were used for this purpose, including the Penn World Tables (Summers and Heston 1991), the cross-country labor market database generated by Rama (1995), World Bank (various issues), and International Monetary Fund (various issues). To remove the influence of idiosyncratic effects across countries, all variables are characterized in terms of deviations from country-specific means. Country-specific means for each variable are calculated from data for 1980–92. The data are not complete for all variables and all countries over this entire horizon. The unemployment rate series is probably the worst in this regard. Considering deviations from country-specific means mitigates the problems with limited data availability. However, appropriate caution should be used in considering these results (particularly for unemployment), with the additional usual caveats that considerable measurement error is likely in the aggregates available by country. Table 12 presents the patterns of these variables for the five years prior to initiation of the retrenchment program in each country and during the program. For example, for a specific country, if the retrenchment program began in 1990 and ended in 1992, the prior year calculations reflect data for 1980–89 and the calculations during the program reflect data averaged over 1990–92.

Unemployment rises and GDP growth rates fall in the years leading up to a program (table 12). The unemployment rate appears to fall somewhat during programs, while GDP growth remains below average. These patterns are roughly consistent with the view that retrenchment programs are often precipitated by economic crises. The evidence on fiscal indicators is somewhat mixed at first glance. The government share of GDP rises steadily prior to the onset of a program and falls during the program. Somewhat surprisingly, there is no accompanying pattern for the deficit-to-GDP ratio or the debt-to-GDP ratio. For both of these domestic fiscal indicators, there is an improvement in the fiscal posture preceding the program. However, in part this appears to reflect the rising foreign debt-to-GDP ratio that precedes a program and continues during a program. Putting these pieces together is consistent with the view that these retrenchment programs are often part of a more general austerity program that is supported in part by foreign assistance.

Missing Pieces: Measurement and Characterization of Adjustment Costs

For evaluation, one of the biggest missing pieces is associated with the conceptual and measurement problems involved in quantifying private and social adjustment costs. Although quantification is beyond the scope of readily available information, a few qualitative observations can be made regarding the cross-

Table 12. Conditions before and during Retrenchment Programs: Deviations from Country-Specific Means, 1990s

Indicator	Five years before program	Four years before program	Three years before program	Two years before program	One year before program	During program
Unemployment rate	−0.01	−0.26	−0.05	1.09	0.87	−0.18
Real GDP growth rate**	−0.05	0.82	−0.70	−3.25	−0.41	−2.08
Deficit/GDP **	0.012	−0.005	−0.008	−0.010	−0.012	−0.034
Domestic debt/GDP **	−0.036	−0.049	−0.041	−0.036	−0.063	−0.129
Foreign debt/GDP	−0.050	−0.058	0.026	0.055	0.098	0.140
Government spending/GDP **	0.020	0.021	0.021	0.014	0.001	0.007

** Indicates that the F-test for the null hypothesis that all of the coefficients in the row are equal is rejected at the 5 percent level.

Note: Values are based on 41 retrenchment programs in 37 countries. The deficit numbers are equal to expenditures less revenues and ignore any grants and/or loans.

Source: Authors' calculations based on a variety of sources including the Penn World Tables (Summers and Heston 1991), World Tables (World Bank, various issues), International Finance Statistics (International Monetary Fund, various issues), and Rama (1995). See text for methodology.

country variation in labor market adjustment costs. Specifically, qualitative evidence suggests that it is important to consider the impact of the formal and informal sectors. The discussion that follows on the formal and informal labor market is inadequate on a number of dimensions and does not reflect the rich body of research that has been conducted on the role of formal, informal, and rural sectors for labor market dynamics in developing countries (see Mazumdar 1989 for an overview of this research). Our point here is simply to highlight the potential importance of these considerations for cross-country differences in the nature of labor market adjustment. In countries in which the informal sector plays a large role (for example, Ghana), many of the retrenched public sector workers found employment relatively quickly, albeit rarely in the formal wage sector. By contrast, in the transition economies, retrenched workers from public sector enterprises faced increasing difficulty in leaving unemployment because of difficulties in finding employment in the formal wage sector.

Stated very roughly, these observations suggest the following potentially important difference across countries in the relevant labor market adjustment. One set of countries seems to yield relatively quick adjustment, with the informal sector absorbing retrenched public sector workers. Other countries seem to yield long adjustment, with retrenched workers from public sector enterprises experiencing long spells of unemployment while seeking jobs in the formal private sector. These differences are further reflected in the mix of policies observed across countries. For example, in Africa and to some extent in Latin America, many of the programs surveyed involved direct compensation and relatively few changes in the formal worker safety net. By contrast, in transition economies, the resources for retrenched workers were devoted primarily to the worker safety net.

This contrast is probably overstated in several respects. First, employment in the informal sector may involve substantial underemployment. Second, workers reported to be officially unemployed are arguably often engaged in some unreported work in the informal sector. Nevertheless, even this rough characterization highlights the potentially important role of differences across countries in the structure of economies and, in turn, the differences in the nature of labor market adjustment costs.

We have learned a great deal from industrial economies (and some transition economies) about labor market flexibility and adjustment by examining the flow of workers and jobs (see, for example, Davis, Haltiwanger, and Schuh 1996). For example, some industrial economies, including the United States and Canada, exhibit high rates of flow into and out of unemployment, while others, including France and Italy, exhibit low rates (see OECD 1993, 1996). The variation in the rates of flow into and out of unemployment translate into striking differences in the importance of long-term unemployment across countries. In the United States the percentage of long-term unemployed (more than 12 months) in the early 1990s was about 6 percent of total workers, while the equivalent figure in Italy was 71 percent. Even this limited and indirect evidence yields two immediate

inferences for the analysis of public sector retrenchment. First, the low outflow rates from unemployment and the accompanying importance of long-term unemployment in some countries imply that the magnitude of the adjustment costs are potentially very large. Second, the variation across countries is substantial, implying that evaluation of a specific program in a specific country will depend critically on the nature of the labor market adjustment in that country.

IV. CONCLUDING REMARKS

This survey and analysis of cross-country experiences with retrenchment reflects the gathering and processing of a wealth of information about individual programs. The nature of the compensation packages, the employment reduction methods used, the nature of targeting, the worker safety net components of the program, the financial costs and benefits, and the nature of adjustment (including the presence of significant rehiring of the same workers) have been documented and examined in detail. One of the primary objectives and thus contributions of this article has been to gather all of this information into one place in an easily accessible manner.

Several interesting findings emerge from analysis of the basic facts. Theory suggests the importance of individually tailoring programs to account for worker heterogeneity and to avoid adverse selection problems. Consistent with this view, we found that programs were much less likely to exhibit problems with rehiring if they used targeting on the basis of skills and age, multiple methods of employment reduction, and a combination of compensation packages that included enhancements of the safety net for assisting the reallocation of workers. We also found that programs with this multidimensional approach and with targeting tended to be financially expensive. However, both quantitative and qualitative information suggests that there is a potentially large payoff in productivity gains and in lower adjustment costs.

Our analysis of the financial indicators revealed considerable heterogeneity in financial viability across the programs. Many of the programs had a rapid financial payoff in the sense that the wage bill savings from retrenchment quickly covered the financial costs of the programs resulting from worker compensation and assistance. Alternatively, a nontrivial fraction of the programs were clear financial losers. However, we emphasize that although simple financial indicators are of obvious interest, they are inappropriate for evaluating the relative success of programs because they omit many of the potentially relevant private and social costs and benefits.

Unfortunately, many of the relevant private and social costs and benefits are difficult to quantify, given data (and conceptual) limitations. Especially difficult to quantify are the individual and economywide (social) adjustment costs that are incurred as part of restructuring programs. The data required to assess these adjustment costs are generally not available, and this is accompanied by difficult conceptual issues. This problem has both micro and macro dimensions. On the

micro side, little effort has been made to collect data systematically on the post-separation experiences of retrenched workers. On the macro side, characterizing and understanding the nature of these adjustment costs requires understanding of the myriad factors (for example, institutions) that affect the processes of labor market adjustment within individual countries. The large observed differences across even industrial economies provide prima facie evidence in support of the need for this type of information. In countries with massive public sector retrenchment episodes, the labor market adjustment process is endogenous to the retrenchment program itself. Given the importance of the issues, more resources should be devoted to developing the data necessary to evaluate these adjustment costs.

Table A-1. Public Sector Retrenchment, by Country and Program, 1990s
(number of workers)

Number	Region, country, and case	Time period	Employment reduction	By instrument			Separations	Rehires	New hires
				Involuntary-hard	Involuntary-soft	Voluntary			
	Africa								
1	Benin Civil Service	1991–94	10,061	1,040	5,721	3,300	10,061	0	0
2	Burkina Faso Joint Railway Line	1994[a]	1,585	—	—	—	1,585	0	0
3	Cameroon Civil Service	1989–94	6,500	2,804	—	3,696	6,500	0	0
4	Cape Verde Public Enterprises	1992–97	247	0	—	247	247	0	0
5	Central African Republic Civil Service	1987–90	1,100	0	2,275	725	3,000	1,900	0
6	Congo Civil Service	1995[a]	8,000	—	8,000	0	8,000	0	0
7	Ethiopia Military	1991–95	541,200	—	—	0	547,200	6,000	0
8	Ghana Civil Service	1987–92	73,810	0	14,000	59,810	73,810	0	0
9	Kenya Civil Service	1994–97	30,800	—	25,000	5,800	30,800	0	0
10	Malawi Civil Service	1994[a]	—	—	—	—	—	—	—
11	Mauritania Public Enterprises	1990–94	1,900	—	—	—	1,900	0	0
12	Namibia Military	1991–94	49,500	57,000	0	0	57,000	7,500	0
13	Senegal Civil Service	1989–91	4,357	0	1,800	4,300	6,100	0	1,743
14	Sierra Leone Civil Service	1992–97	27,452	20,852	1,100	6,000	27,952	500	0
15	Uganda Civil Service	1992–94	91,339	11,339	75,000	5,000	91,339	0	0
16	Uganda Military	1992–95	44,211	11,000	8,000	9,000	44,211	0	0
	Asia								
17	Bangladesh Jute Sector Public Enterprises	1994–95	22,250	0	4,000	21,250	25,250	3,000	0
18	Cambodia Civil Service	1995/96[b]	50,000	—	—	—	50,000	0	0
19	China Shenyang Region Reform	1994–2002	7,000	—	7,000	0	7,000	0	0
20	India Public Enterprises	1993–94	69,466	0	0	69,466	69,466	0	0

No.		Period							
21	Lao PDR Civil Service	1989–93	21,600	—	—	—	21,600	0	0
22	Pakistan Public Enterprises	1991–93	7,495	0	0	7,495	7,495	0	0
23	Pakistan Sindh Region Reform	1993–97	6,500	0	—	6,500	6,500	0	0
24	Sri Lanka Civil Service	1991–92	49,000	0	0	68,000	68,000	0	19,000
	Europe								
25	Albania Public Enterprises	1992	253,000	253,000	0	0	253,000	0	0
26	Hungary Public Enterprises	1990–92	1,661,000	—	—	—	1,661,000	0	0
27	Kazakhstan Public Enterprises	1993	172,959	40,959	132,000	—	172,959	0	0
28	Macedonia Public Enterprises	1988–93	112,000	42,000	0	70,000	112,000	0	0
29	Poland Public Enterprises	1990–93	547,300	547,300	0	0	547,300	0	0
30	Russian Federation Coal Sector	1996[b]	72,300	—	—	—	72,300	0	0
31	Turkey Public Enterprises	1993–94	35,000	0	—	35,000	35,000	0	0
	Latin America								
32	Argentina Public Enterprises	1991–94	72,818	0	42,818	30,000	72,818	0	0
33	Argentina Federal Administration	1990–92	405,995	0	424,095	0	424,095	0	18,100
34	Bolivia Mining—Public Corporation	1991–94	4,251	0	0	4,599	4,599	348	0
35	Brazil Civil Service	1990–91	0	100,000	0	0	100,000	100,000	0
36	Chile Civil Service and Parastatal Organizations	1973–77	91,100	91,100	0	0	91,100	0	0
37	Colombia Tourism and Transport Ministry	1990–92	12,000	0	0	12,000	12,000	0	0
38	Ecuador Civil Service	1992–94	40,000	0	0	40,000	40,000	0	0
39	Mexico SOCEFI—Ministry of Trade and Industry	1989–92	4,150	0	2,000	3,000	5,000	0	0
40	Peru Civil Service	1991–93	100,595	0	—	112,000	263,654	163,059	850
41	Peru SUNAT—Tax Collecting Authority	1991–92	725	0	—	—	2,034	0	1,309

— Not available.

Note: In several cases, the number of workers separated by instrument does not add up to total separations, owing to partial availability of information.

a. Ongoing.

b. Proposed.

Source: Authors' calculations.

Table A-2. *The Financial Costs of Public Sector Retrenchment, by Country and Program, 1990s*

Number	Region, country, and case	Financial costs (millions of dollars)				Cost per worker (dollars)[a]
		Total cost	Severance payments	Enhanced pension	Safety net	
	Africa					
1	Benin Civil Service	21	21	0	0	6,424
2	Burkina Faso Joint Railway Line	—	—	—	—	—
3	Cameroon Civil Service	7	7	0	—	1,997
4	Cape Verde Public Enterprises	3	2	0	0	10,260
5	Central African Republic Civil Service	—	—	—	—	—
6	Congo Civil Service	—	—	—	—	—
7	Ethiopia Military	200	0	0	200	365[b]
8	Ghana Civil Service	42	42	0	—	700
9	Kenya Civil Service	20	0	20	—	3,448
10	Malawi Civil Service	20	20	0	0	—
11	Mauritania Public Enterprises	9	9	0	—	4,910[c]
12	Namibia Military	38	13	—	25	658[b]
13	Senegal Civil Service	80	80	—	0	13,166[c]
14	Sierra Leone Civil Service	2	2	0	0	353
15	Uganda Civil Service	16	16	—	—	320[d]
16	Uganda Military	42	42	0	—	955[c]
	Asia					
17	Bangladesh Jute Sector Public Enterprises	56	56	0	—	2,621
18	Cambodia Civil Service	50	50	0	—	1,000[c]
19	China Shenyang Region Reform	0	0	0	—	0
20	India Public Enterprises	1,188	1,140	—	48	17,108
21	Lao PDR Civil Service	10	10	—	—	470[c]
22	Pakistan Public Enterprises	25	25	0	—	3,318
23	Pakistan Sindh Region Reform	—	—	—	—	—
24	Sri Lanka Civil Service	71	0	71	0	1,040
	Europe					
25	Albania Public Enterprises	6	0	0	6	24[b]
26	Hungary Public Enterprises	859	0	0	859	517[b]
27	Kazakhstan Public Enterprises	—	—	—	—	—
28	Macedonia Public Enterprises	50	0	50	—	714
29	Poland Public Enterprises	7,669	0	5,538	2,130	14,012[b]
30	Russian Federation Coal Sector	—	—	—	—	—
31	Turkey Public Enterprises	—	—	—	—	—

Table A-2 *(continued)*

Number	Region, country, and case	Financial costs (millions of dollars)				Cost per worker (dollars)[a]
		Total cost	Severance payments	Enhanced pension	Safety net	
	Latin America					
32	Argentina Public Enterprises	360	360	0	0	12,000
33	Argentina Federal Administration	425	425	0	0	1,002[b]
34	Bolivia Mining—Public Corporation	74	74	0	0	16,000
35	Brazil Civil Service	—	—	—	—	—
36	Chile Civil Service and Parastatal Organizations	—	0	—	—	0
37	Colombia Tourism and Transport Ministry	—	—	—	—	—
38	Ecuador Civil Service	200	200	0	—	5,000
39	Mexico SOCEFI—Ministry of Trade and Industry	—	—	—	—	—
40	Peru Civil Service	530	112	418	0	4,735
41	Peru SUNAT—Tax Collecting Authority	2	1	1	0	1,131[c]

— Not available.

a. Amount of severance per (voluntarily retrenched) worker.

b. Cost per worker; workers separated involuntarily.

c. Average severance amount per worker (for all retrenched workers).

d. Average severance using all workers (excluding the 42,000 ghost workers).

Source: Authors' calculations.

Table A-3. The Financial Benefits of Public Sector Retrenchment, by Country and Program, 1990s
(millions of dollars)

Number	Region, country, and case	Total	Wage bill savings (annual)	Separations	Wages		Other[a]
					Rehires	New hires	
	Africa						
1	Benin Civil Service	0	0	—	—	—	—
2	Burkina Faso Joint Railway Line	—	—	—	—	—	—
3	Cameroon Civil Service	—	—	—	—	—	—
4	Cape Verde Public Enterprises	—	—	—	—	—	—
5	Central African Republic Civil Service	8	8	—	—	—	—
6	Congo Civil Service	—	—	—	—	—	—
7	Ethiopia Military	542	—	—	—	—	542
8	Ghana Civil Service	24	24	24	—	—	—
9	Kenya Civil Service	6	6	6	—	—	—
10	Malawi Civil Service	10	10	10	—	—	—
11	Mauritania Public Enterprises	—	—	—	—	—	—
12	Namibia Military	34	—	—	—	—	—
13	Senegal Civil Service	30	30	—	—	—	—
14	Sierra Leone Civil Service	1	1	1	—	—	—
15	Uganda Civil Service	0	0	—	—	—	—
16	Uganda Military	17	17	17	0	0	—
	Asia						
17	Bangladesh Jute Sector Public Enterprises	18	18	—	—	0	—
18	Cambodia Civil Service	-126	-126	18	—	144	—
19	China Shenyang Region Reform	3	3	3	0	0	—
20	India Public Enterprises	83	83	83	0	0	—
21	Lao PDR Civil Service	9	9	—	—	—	—

No.		1	2	3	4	5
22	Pakistan Public Enterprises	350	18	18	—	332
23	Pakistan Sindh Region Reform	—	—	—	—	—
24	Sri Lanka Civil Service	-157	-157	—	—	—
	Europe					
25	Albania Public Enterprises	—	—	—	—	—
26	Hungary Public Enterprises	298	298	—	—	—
27	Kazakhstan Public Enterprises	—	—	—	—	—
28	Macedonia Public Enterprises	—	—	—	—	—
29	Poland Public Enterprises	1,548	1,148	1,148	—	400
30	Russian Federation Coal Sector	—	—	—	—	—
31	Turkey Public Enterprises	—	—	—	—	—
	Latin America					
32	Argentina Public Enterprises	237	237	237	—	0
33	Argentina Federal Administration	1,063	1,000	—	—	63
34	Bolivia Mining—Public Corporation	0	0	—	—	0
35	Brazil Civil Service	0	0	—	—	0
36	Chile Civil Service and Parastatal Organizations	—	—	—	—	—
37	Colombia Tourism and Transport Ministry	—	—	—	—	—
38	Ecuador Civil Service	—	—	—	—	—
39	Mexico SOCEFI—Ministry of Trade and Industry	—	—	—	—	—
40	Peru Civil Service	222	222	—	—	—
41	Peru SUNAT—Tax Collecting Authority	-15	-15	1	0	16

— Not available.

a. Includes program-specific gains such as a reduction in arms imports in Ethiopia and release of real estate in Pakistan. For details, see individual country summaries (which are available on request from the authors).

Source: Authors' calculations.

Table A-4. Performance Indicators for Public Sector Retrenchment Programs, by Country and Program, 1990s

Number	Region, country, and case	Break-even period (years)	Net financial gain or loss	Payback period (years)	Net economic gain or loss
	Africa				
1	Benin Civil Service	—	-21	—	—
2	Burkina Faso Joint Railway Line	—	—	—	—
3	Cameroon Civil Service	—	—	—	—
4	Cape Verde Public Enterprises	—	—	—	—
5	Central African Republic Civil Service	—	—	—	—
6	Congo Civil Service	—	—	—	—
7	Ethiopia Military	0.40	342[a]	0.30	365[a]
8	Ghana Civil Service	1.82	—	1.66	—
9	Kenya Civil Service	3.60	—	3.02	—
10	Malawi Civil Service	2.00	—	—	—
11	Mauritania Public Enterprises	—	—	—	—
12	Namibia Military	1.10	48[b]	0.40	115[b]
13	Senegal Civil Service	—	-409	—	—
14	Sierra Leone Civil Service	1.87	—	—	—
15	Uganda Civil Service	—	-16	—	—
16	Uganda Military	2.70	—	1.20	—
	Asia				
17	Bangladesh Jute Sector Public Enterprises	3.40	—	—	—
18	Cambodia Civil Service	—	-1436	—	—
19	China Shenyang Region Reform	—	29	0.00	93
20	India Public Enterprises	—	-276	—	—
21	Lao PDR Civil Service	1.10	—	—	—
22	Pakistan Public Enterprises	1.44	501[c]	—	—

No.		Col 1	Col 2	Col 3		
23	Pakistan Sindh Region Reform	0.00	—	—	—	—
24	Sri Lanka Civil Service	—	-1,802	—	—	—
	Europe					
25	Albania Public Enterprises	—	—	—	—	—
26	Hungary Public Enterprises	—	-561	—	—	—
27	Kazakhstan Public Enterprises	—	—	—	—	—
28	Macedonia Public Enterprises	—	—	—	—	—
29	Poland Public Enterprises	—	-6,121	—	—	—
30	Russian Federation Coal Sector	—	—	—	—	—
31	Turkey Public Enterprises	—	—	—	—	—
	Latin America					
32	Argentina Public Enterprises	1.56	—	—	—	—
33	Argentina Federal Administration	0.41	—	—	—	—
34	Bolivia Mining —Public Corporation	10.00[d]	—	10.00[d]	—	—
35	Brazil Civil Service	—	—	—	—	—
36	Chile Civil Service and Parastatal Organizations	—	—	—	—	—
37	Colombia Tourism and Transport Ministry	—	—	—	—	—
38	Ecuador Civil Service	—	—	—	—	—
39	Mexico SOCEFI —Ministry of Trade and Industry	—	—	—	—	—
40	Peru Civil Service	2.60	—	—	—	—
41	Peru SUNAT —Tax Collecting Authority	—	-47	0.002	—	—

— Not available.
a. Including savings in arms imports.
b. For three-year program duration, defense expenditure savings reversed thereafter.
c. Including privatization proceeds.
d. Not calculated (World Bank 1994a).
Source: Authors' calculations.

Table A-5. **Economic Costs and Benefits of Public Sector Retrenchment Programs, by Country and Program, 1990s**
(millions of dollars)

Number	Region, country, and case	Economic costs		Economic benefits		
		Total	Nonfinancial (production lost)	Total	Nonfinancial (production rise)	
					Organization	Worker
	Africa					
1	Benin Civil Service	21	—	—	—	—
2	Burkina Faso Joint Railway Line	—	—	—	—	—
3	Cameroon Civil Service	7	—	—	—	—
4	Cape Verde Public Enterprises	3	—	—	—	—
5	Central African Republic Civil Service	—	—	8	—	—
6	Congo Civil Service	—	—	—	—	—
7	Ethiopia Military	200	0	565	—	23
8	Ghana Civil Service	42	—	26	—	2
9	Kenya Civil Service	20	—	7	—	1
10	Malawi Civil Service	20	—	10	—	—
11	Mauritania Public Enterprises	9	—	0	—	—
12	Namibia Military	38	—	101	0	67
13	Senegal Civil Service	80	—	30	—	—
14	Sierra Leone Civil Service	2	—	1	—	—
15	Uganda Civil Service	16	—	0	—	—
16	Uganda Military	42	—	23	—	5
	Asia					
17	Bangladesh Jute Sector Public Enterprises	56	—	18	—	—
18	Cambodia Civil Service	50	—	-126	—	—
19	China Shenyang Region Reform	0	0	15	12	—
20	India Public Enterprises	1,188	—	83	—	—

No.					
21	Lao PDR Civil Service	10	—	9	—
22	Pakistan Public Enterprises	25	—	18	—
23	Pakistan Sindh Region Reform	—	—	—	—
24	Sri Lanka Civil Service	71	—	-157	—
	Europe				
25	Albania Public Enterprises	6	—	0	—
26	Hungary Public Enterprises	859	—	298	—
27	Kazakhstan Public Enterprises	—	—	—	—
28	Macedonia Public Enterprises	50	—	—	—
29	Poland Public Enterprises	7,669	—	1,148	—
30	Russian Federation Coal Sector	—	—	—	—
31	Turkey Public Enterprises	—	—	—	—
	Latin America				
32	Argentina Public Enterprises	360	—	237	Quantitative rises
33	Argentina Federal Administration	425	—	1,000	Quantitative rises
34	Bolivia Mining—Public Corporation	74	—	—	—
35	Brazil Civil Service	0	—	0	0
36	Chile Civil Service and Parastatal Organizations	—	—	—	—
37	Colombia Tourism and Transport Ministry	—	—	—	—
38	Ecuador Civil Service	200	—	—	—
39	Mexico SOCEFI—Ministry of Trade and Industry	—	—	—	—
40	Peru Civil Service	530	—	222	—
41	Peru SUNAT—Tax Collecting Authority	2	0	933	947

— Not available.
Source: Authors' calculations.

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