

LABOR ADJUSTMENT
IN AN EVOLVING MARKETPLACE

by

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Chapter1: Introduction and Overview

This thesis is about the process of employment adjustment. The specific issue is jobs and job security. Concern about both have led policymakers in many countries to legislate regulation preventing job loss and so protect means of livelihood and economic welfare. Regulation for job security and severance payments may protect labor but slows labor adjustment. Yet, at times market forces necessitate adjustment larger than that permitted by regulatory frameworks. In many countries this adjustment takes the form of retrenchment programs, specially in the public sector where de facto job security is perpetual. This one-time adjustment accounts for substantial (latent) redundancy or labor hoarding. However, accumulating excess labor and limiting adjustment is costly for firms and may have significant adverse effects. Both continual adjustment in the presence of job security regulations and episodal adjustment via retrenchment programs are studied. The application for the former is India with description of the regulatory and economic framework and direct measurement of adjustment costs; followed by econometric estimation of the impact of adjustment costs on employment adjustment. Several public sector retrenchment programs are examined over 37 countries. Some of the key issues are discussed below.

Economists argue that job security motivated regulation is restrictive. Some find that it is counter-productive because it slows reallocation and subsequent job creation. Others find that it increases employment. Bentolila and Bertola (1990) simulations using aggregate European data find that separation costs impact the separation margin more than the hiring margin. Net employment may increase in the long run despite mandated severance payments. Hopenhayn and Rogerson (1993) simulations using parameter estimates from establishment-level US data find that a firing tax would reduce labor turnover, employment, and average labor productivity in the long run. Blanchard (1997) summarized that “firing restrictions lead to a more sclerotic labor market, a market with lower turnover and lower productivity; but it is not clear at all that they lead to high unemployment.” The diverse results follow partly from the data - aggregate versus establishment - and partly from the differing specifications modeling adjustment costs.

In general, the standard symmetric convex costs model is the most widely used with aggregate and industry data whereas asymmetric piecewise linear and lumpy adjustment cost models are being used with microeconomic data. A survey of the various models is presented by Hamermesh and Pfann (1996). Gauging the impact of adjustment costs is best accomplished with establishment level panel data

wherein any discontinuities in the labor demand decision rule and the impact of idiosyncratic firm level shocks can be accounted for. This is also important in case of mandated severance payments and job security regulations that directly affect only the separation margin, i.e., these have asymmetric effects. With industry data, using these models is inappropriate since the discontinuities, heterogeneity, and asymmetries would be largely aggregated away. Moreover, using the standard convex costs model with industry data retains value in that it accounts for net adjustment costs that are also substantial.

The idea here is to unravel the effects of adjustment costs, specifically that of mandated severance payments and job security measures, on the process of employment adjustment. In examining this issue, most studies focus on labor market institutions. Here, the attention is also on product markets. If substantial changes occur in the product markets, as in industry deregulation and/or economy-wide reform, the effects of job security policy and mandated severance payments may be masked by the impact of these changes. Or it may be that these costs have no adverse impact on employment. Given that only 28 million employees of total employment of over 400 million are in the organised sector which is subject to the job security regulations, any impact may be of marginal

value to start with. However, it is the organised sector, specially manufacturing industries that may have the potential for higher employment generation.

Understanding whether adjustment costs may be dampening job creation is hence important. Although use of industry data as opposed to establishment data limits analysis, investigating the issue of job security while accounting for the concurrent impact of product markets' liberalization should shed some more light on how it works.

A job security regime has been in place since 1976. Gradual deregulation continued from late seventies to 1991 when a liberalization program was initiated. Apart from job security and mandated severance payments, other institutional (unions, wage-setting) and technological adjustment costs (transaction costs, shopfloor rearrangements) operate in some measure in India. However, the single most visible change in the past two decades has been liberalization in product markets. Below are brief descriptions of the Indian economy with product market changes, and the job security regime.

1.1 The Indian Economy

India is a large democracy with GDP in year 2000 (year 1970) of about \$380

(\$94) billion at 1993-94 prices but a low per capita income of \$375 (\$175). With low growth of per capita incomes a principal development objective was poverty reduction through employment generation. Successive five-year development plans underscored the need for progressive reduction of unemployment especially in the rural areas and in cottage industry. This emphasis was driven also by the consideration to encourage wide-spread participation in the development process. Adoption of big bang development theories led to a large government presence in the production sector. The Indian economy became a mixed economy with a substantial public sector (21 percent in 1973–74 to 32 percent in 1997-98) that controlled almost all of the core sector, namely, mining, oil, power, transport and a dominant part of heavy manufacturing, for example, steel and capital goods, and financial services. A large private sector operated in consumer goods and shared the financial sector. Almost all firms were subject to quantity controls through extensive licensing. Foreign competition was limited with phases of ownership dilution of subsidiaries of foreign firms. Protection through prohibitive tariffs and binding quotas was granted on the basis of the infant industry argument. An elaborate and complicated system of taxes, subsidies, and transfers grew from years of such policy practices. Consequently special interest groups emerged which sought to maintain the special privileges.

Economic performance was disappointing with annual growth rates averaging about 3 percent during 1960s and 1970s. This focused attention on the causes of lethargy in the Indian economy leading to several research committees during the seventies. From late-seventies, India began gradual deregulation allowing firms to rationalize costs and expand in related products. From 1983, firms were allowed to expand production and enter closely allied product lines, a process called broad-banding. From 1989, selected industries were delicensed, that is, entry restrictions diluted substantially. Such selective mechanisms continued till July-August 1991. A full-scale adjustment and liberalization program was launched assisted partly by the IMF and the World Bank. The 1991 program aimed at both stabilization and structural adjustment. It attempted to correct the fiscal and balance of payments deficits created largely during the latter half of 1980s, in part due to large foreign short term borrowing, and to build a legal and policy framework to allow restructuring. In 1991, delicensing was extended to all (except a short negative list) industries. Foreign trade and investment regimes were liberalized. Growth responded, rising to about 5 percent per year in 1980s and around 6 percent per year in 1990s. However, per capita growth rates remain sub-5 percent. With about a quarter of the population below poverty line, growth acceleration with job

creation remains a key economic objective.

There is a shift of emphasis from socialist, poverty-alleviation, import-competing development strategy to market-oriented, poverty removal & improving standard of living, and globally competing growth strategy. Promoting productive employment growth alongwith allowing greater mobility in industrial employment and developing safety nets for retrenched/displaced labor are being considered. This is expected to lead to improved reallocation, improved labor market functioning and growing human capital. In the attempt to develop safety nets is an implicit acknowledgment of the need to allow greater labor adjustment. There is also a concurrent need to assess the costs and benefits of the job security policy in order to enable modifications, if deemed desirable.

1.2 The Worker Separation Regime

The socialist and nationalist accent to policy peaked during mid-1970s. During this time the labor law was strengthened and forms the current regime that first came into force March 1976. It requires industrial establishments to seek written permission of the government for any separations. Prior to this, severance pay was fifteen days pay per year of service. Since then, severance is subject to negotiation

between employers and workers as separations must be induced or bought. To this extent, the new regime is that of mandated severance payments.

As per the Industrial Disputes Act (IDA) 1947, retrenchment of workers with more than 240 days of service requires one month notice in writing stating reasons for retrenchment and 15 days' average pay per each year of service as compensation. The 1976 Amendment to IDA-1947 required "lay off, retrenchment and closure illegal except with the written permission of the government." Initially it covered establishments employing more than 300 workers on an average day in the 12 months' prior to the amendment. Another amendment in 1982 extended coverage to establishments with 100 or more workers. The penalty for retrenchment or closure without permission includes a fine and/or a prison sentence.

According to Mathur (1989), the number of closures diminished during 1980s, lock-outs increased, and unions put up effective opposition to "casualization" of workers. However, adjustment came via increasing recourse to induced voluntary quits, since this required no government permission. This is costlier and one month pay for each year of service is common. Voluntary retrenchment programs, enabling shedding hoarded and excess labor, document the severance pay formulae

in chapter four.

The continual and episodal forms of adjustment are dealt with on two levels. First, chapter 2 starts by describing key characteristics of India's labor market and employment situation; documents legal, economic, and social framework; and investigates the impact and magnitudes of employer and worker adjustment costs. The labor market institutions - labor law, unions, wage-setting, labor administration, support (such as pension) institutions - are discussed. Given this framework, the impact of labor adjustment on workers, employers and the economy is evaluated. Chapter 3 examines econometrically parameters of labor adjustment based on ASI industry data from 1973 to 1997. Second, chapter 4 also begins with description of 41 public sector retrenchment programs over 37 countries and then provides empirical insights based on these 41 observations. Chapter 5 concludes. Study limitations and suggestions for further research are also discussed. The emphasis is on using establishment or unit-level or firm-level panel datasets. The industry data based estimates are revealing but the magnitudes may well vary substantially at the unit level.

Chapter 2: Labor Adjustment - Framework and Evaluation

2.1 Introduction

India is a labor abundant country. In over 50 years since independence in 1947, agricultural employment remains dominant at more than 50 percent (see table 2.1A). Further, despite labor abundance, employment has not kept pace with GDP growth (see table 2.1B). While GDP growth picked up from about 3 percent per annum up to 1970s to about 5.8 percent in 1980s and 1990s, employment growth has been at most 2.4 percent per annum. Even this rate was achieved during an investment boom in 1992-97 after economic reforms in 1991. As per Planning Commission (2001) the employment elasticity to GDP for all sectors has declined from 0.53 (during 1977-78 to 1983) to 0.41 (1983 to 1993-94) and further to 0.15 (1993-94 to 1999-2000).

Organised sector employment offering quality employment, that is, a living wage with medical and retirement benefits, decent working conditions, and some employment-tenure security grew at just over 2 percent per year in most years until 1983 (see table 2.2). Since then, this growth has dwindled and since 1998 has been negative. Only one year, 1996, saw spectacular (given other years' performance) employment growth of 5.6 percent. This was in the private sector during the

investment boom. For the key contributing sector of manufacturing, employment elasticity has fallen from 0.67 (1977-78 to 1983) to 0.33 (1983 to 1993-94) and further to 0.26 (1993-94 to 1999-2000). Although services' sector employment elasticity are still higher than manufacturing, these are also decreasing, for instance, the best performing financial sector elasticities are 1.00 to 0.92 to 0.73 for the corresponding periods.

Though the services sector would continue to absorb persons, these persons are overwhelmingly likely to be the educated and the skilled. The avenues for the semi-skilled and the unskilled, with at most secondary education, are to learn on the job in manufacturing and grow. Planning Commission (2001) reports that over 80 percent of the urban population and around 90 percent of the rural population possess no skill as per the National Sample Survey Organization (NSSO) data for 1993-94. Given declining employment elasticity in manufacturing, where are these persons to go? Quite a few find relief in rural wage employment programs wherein over 4 million person-years of employment per year has been generated during the 1990s. To juxtapose this with regular employment growth, if manufacturing employment elasticity were to bounce back to 0.67 and GDP growth is 6.5 percent per year, then using manufacturing employment of 48 million in 1999-2000 as base,

increase of just over 2 million manufacturing jobs is obtained. However, these jobs lift persons out of poverty and enable their growth, hence their importance.

The situation becomes more urgent given that both the public sector and agriculture are shedding labor. Agriculture shedding labor is the usual consequence of development and of more attractive opportunities emerging elsewhere. Public sector labor shedding has its genesis in over-employment. The excess labor cannot be sustained due to fiscal deficits (government) and increasing competition post-reforms (public sector enterprises). See chapter 4 for more details on public sector retrenchment.

The surplus labor phenomenon extends beyond the public sector to the private sector. The genesis here lies in protected product markets and even more protected labor markets. The extent of redundancy in the organised sector in 1990-91 is estimated to be a conservative 16 percent (PRAGYA 1999). With the organised sector employment being about 27 million in 1990-91 (table 2), redundancy works out to over 3 million workers. With normal growth, industrial restructuring induced reallocation of workers may be accommodated within the sector from loss-making activities to value-adding activities. This has an added effect of using industry-specific skills of displaced workers. However, with accumulated surplus

labor of this magnitude, any redeployment within the sector/industry would likely be swamped. Since the government is itself in re-sizing mode and industrial enterprises in technological upgradation and catch-up (with international standards) phase, opportunities in other industries for displaced workers would be scarce. Enterprises also face increasing competition, external and domestic, following deregulation and liberalization of (i) entry with the abolition of licensing in 1991 in most sectors, and (ii) of foreign trade and investment. Indian enterprises have gone through years of cost-cutting that among other things (soft interest rate regime, lower oil prices) helped these to become profitable during 1990s and early 2000s despite hardening competition.

This chapter investigates issues in labor adjustment in India, beginning with the framework - legal, economic, and social - within which this adjustment takes place. The legal framework discusses the key labor law - the Industrial Disputes Act in 1947 - along with other germane labor laws. The economic framework describes the myriad labor market institutions such as wage-setting, unions, and labor administration that influence employment adjustment. It also outlines formal institutions that aid workers during unemployment spells and during retirement; the former are important for continual adjustment and the latter for voluntary

retrenchment (frequently amounting to voluntary early retirement) based adjustment. These influence worker adjustment costs and indirectly employer adjustment costs.

2.2 Framework - Labor Adjustment

2.2.1 Legal Framework - Labor Laws

The state's intervention in the labor market in India dates back to 1920. Starting then three laws were enacted, namely, the Trade Disputes Act in 1920, the Industrial Employment Standing Orders Act in 1946, and the Industrial Disputes Act in 1947. Several amendments have modified and expanded the scope of this last key law. These are listed in a chronological sequence in table 2.7 and are discussed below.

The Trade Disputes Act 1920 established courts of enquiry and conciliation boards but provided for no machinery for settling of industrial disputes. It forbade strikes in public utility services without a month's notice in writing. No norms dealing with involuntary separation or other industrial disputes were set. Subsequently, in 1929 this act was amended and provisions for state intervention in peacefully settling industrial disputes were made through the conciliation apparatus.

During World War II, as emergency measures, the Defense of India Rules empowered the government to appoint industrial tribunals and enforce the tribunal awards. In 1946 the Industrial Employment Standing Orders Act provided for devising, framing, and certifying of standing orders covering service conditions; and making these known to the workers. Throughout these changes, the British government in India followed a policy of “laissez faire” with interventions being selective.

The government of independent India enacted the Industrial Disputes Act 1947. It embodies essential principles of the Defense of India Rules regarding industrial disputes and certain principles of the Trade Disputes Act 1929 about investigation and settlement of industrial disputes. It sought to achieve social justice on the basis of collective bargaining, conciliation, arbitration, or finally compulsory adjudication. The instruments for these processes were to be works committees, joint management councils, recognized unions; regional and national labor commissioners; regional and national industrial tribunals, and labor courts. Strikes and lockouts were prohibited while proceedings remained pending in the tribunals. Over the years up to 1976, several amendments added new requirements, such as maintenance of muster rolls by the employer, compensation for layoff and formula

for retrenchment based on the length of service.

In 1976, the Industrial Disputes Act was made stringent in that any retrenchment required prior permission from the appropriate government. This was further amended and restricted in 1982 by broadening the applicability and by bringing closures within the ambit of prior permission also. Thus, changing the use of labor in response to demand conditions was no longer the domain of a producer but firmly in the realm of an industrial dispute.

Other acts germane to labor adjustment are the Contract Labor (Regulation & Abolition) Act 1970, the Trade Unions Act 1926, and the Sick Industrial Companies Act.

The Industrial Disputes Act (IDA) 1947 and Key Amendments

In the first few years, the IDA 1947 specified and established the legal mechanisms defining industrial disputes, to address them, and to resolve them. In 1953, several textile mills were reportedly planning closing down of one shift. In most mills, worker rotation was not the norm, hence workers were assigned to one shift and remained in it. Further, textile mills were the largest employer in the organised sector, largely setting the terms and practices of labor use and labor

relations. Closing of one shift meant that all workers in that shift would be rendered unemployed. In response to an imminent public disaster, the government amended the law.

Newly added was chapter VA that specified compensation in case of lay-off at 50 percent of wages and dearness allowance (inflation linked) for 45 days during any 12 months. The eligibility was that the worker's name was borne on the establishment muster rolls and service was continuous for at least one year. Also added was the requirement of muster rolls to be made available for entry by the employer since entry recording the worker's availability for work at the establishment was mandatory for lay-off compensation. However, the law also provided for exceptions to the general provision for lay-off compensation: (i) employer offered alternate employment in the same or any other establishment, (ii) worker did not present himself for work at the appointed time, and (iii) the lay-off was due to strike or slow-down of production in another part of establishment.

Regarding retrenchment, employers were required to give one month's written notice stating reasons for retrenchment. Mandated was compensation at fifteen days' average pay for each year of continuous service completed or any residual

part in excess of six months. Retrenchment compensation was to follow a simple yardstick of length of service on the grounds of a humane public policy and the consideration that involuntary employment may result in general economic insecurity. This was not applicable to closures. Employers responded by resorting to closures to address economic redundancy.

In 1956, to check indiscriminate resort to layoff and retrenchment via closures, an IDA 1947 amendment provided that termination of employment due to closure or transfer be considered as retrenchment. Thus, compensation was legally required for closures also. Subsequent to retrenchment, the employer was to offer an opportunity for re-employment of retrenched workers if further employment proposed. Layoff compensation was to extend beyond 45 days to all days laid off, unless an express agreement between the employee and the employer limits it to the statutory 45 days.

Further, the recovery of dues to workers by the government may be treated in the same manner as arrears of land revenue or as public demand by the government on an application to it by the worker/s. This included compensation for layoff and retrenchment as also money due under settlements and awards.

Occurrence of redundancy due to market conditions continued and employers resorted to closures as also layoff and retrenchment. In an effort to save jobs, another IDA 1947 amendment in 1972 required employers to give 60 days' notice to state governments prior to closure. The idea was to enable the government to take remedial steps to prevent job loss. Frequently, the state response was nationalization of the unit and continued operation of the loss-making unit. The employer was bought out but the resources remain locked in an unproductive activity. Employment, albeit in a loss-making but state-owned unit, delayed transition to a productive job. An implicit social insurance from the government (soft budget constraint for the unit) reduced worker adjustment cost and incentive to move while uncertainty about future jobs with little training avenues also reduced potential benefit from moving.

In 1976, chapter VB was added to IDA 1947. The key provision "lay off, retrenchment and closure illegal except with the written prior permission of the government" covered establishments employing more than 300 workers on an average day in the 12 months' prior to the amendment. In 1982, another amendment to IDA 1947 extended coverage to establishments with 100 or more workers. The penalty for retrenchment or closure without permission included a

prison sentence and a fine. This extreme form of job security - prior permission required for any layoff - altered the form and magnitude of adjustment in the labor markets as discussed in the next section on impact. The IDA 1947 specified that retrenchment means the termination by employer of the service of a worker for any reason other than disciplinary action; excludes termination upon voluntary retirement, superannuation, non-renewal of a contract, continued ill-health, and cases where the appointment letter stipulates discharge from service without notice or reasons.

Employers' resorted to increasing the workforce mainly by using contractual workers as opposed to hiring permanently in order to limit adjustment costs during a downturn. This was opposed by workers and unions. Subsequently, judicial rulings deemed non-renewal of a contract as retrenchment and liable for retrenchment compensation. With most avenues for adjustment blocked, the employers used Voluntary Retirement Schemes (VRS) and its versions wherein workers were induced to exit by offer of compensation. The formula was along the lines of that specified under the law. However, depending upon the financial health of the firm and its prospects, the days of average pay per year of service mostly varied from 30 to 45 days.

Employers facing closure of the unit also sought to force the issue using lockouts. Though illegal, this form of retrenchment bailed out the employer through government intervention (nationalization). However, the workers were left hapless and the resources remained locked in. The land of most of the older textile mills could have been sold and dues to creditors and workers settled. However, owing to suspected criminality, this was banned in the 1970s and has only been allowed in May 2005 following a Supreme Court ruling to that effect. As discussed in the economic impact sub-section, this offers relief to workers some of whom have been waiting for over 10 years.

Other Labor Use related Acts

The **Contract Labour (Regulation and Abolition) Act 1970** was intending to regulate the practice of contract labor to prevent exploitation. Supreme Court judgements served to establish, however, that where outsourcing services are performed on the premises, the act makes the employer liable to giving permanent status to such workers who perform these services. The Contract Labor Act 1970 is proposed to be liberalized - allowing for outsourcing of peripheral activities without attendant risk of required absorption as permanent employees, thus retaining

flexibility for the employer while allowing the outsourcing agency and staff to specialize more and generate greater efficiency gains and reduced costs.

The **Trade Unions Act 1926** allows any seven workers in an enterprise to form a trade union and register it. This has led to multiple unions in one unit. The employers are empowered to choose the union that will represent the workers, giving them the power to use the multiplicity to their advantage by selecting a weaker union. Further, half of the office bearers of the union may be outsiders further eroding representativeness of the union.

The above discussed laws provide a high degree of protection to workers. The **Sick Industrial Companies Act (SICA)** affords protection to entrepreneurs. Under this act, sick or loss making companies would be referred to the Board for Industrial and Financial Reconstruction (BIFR). The BIFR would recommend either rehabilitation through assistance to save jobs or closure for unviable units. In practice, closures happened as an extreme measure after years of rehabilitation failed to produce results. This also allowed crooked managements time to divert funds from the unit. Ultimately, the units would be rendered unrevivable and the jobs would be lost. The workers' adjustment to productive jobs and hence more

stable employment is needlessly prolonged. SICA's adverse effects are alleviated to some extent by allowing creditors, namely, banks to take control of debtor firms' assets if firms should default on amortization payments for an extended period. Settlement of outstanding dues accords priority to worker dues.

2.2.2 Economic Framework - Labor Institutions

Producers can either adjust wages or employment. Adjusting wages would clear the labor market and obviate the need for massive wage employment support programs. However, efficiency wages prevail in almost every segment of the labor market. Further, wage-setting in India being largely exogenous to employers, their primary response is in adjusting employment.

Wage-setting

Wages are subject to several regulations - minimum wages, acts relating to payment of wages and payment of bonus (a statutory minimum of 8.33% to a maximum of 20% of annual wages, thereby raising labor cost by an additional month). The government's overarching role dilutes the role of bilateral employer-employees negotiations or collective bargaining. Another direct influence is through establishment of tripartite wage boards for some industries whose primary role is working out a wage structure. Increments to wages (through

dearness allowance) in the organised sector are indexed to inflation.

Further, informally, public sector being the dominant employer in the organised sector (of 28 million employed in the organised sector, about 16 million are in the public sector), it influences wage movements in the private sector too. Although central public sector undertakings (PSUs) have some autonomy and collective bargaining is allowed, actual agreements have to be consistent with the detailed guidelines issued by the Department of Public Enterprises (DPE, the nodal coordinating interface between the PSUs and the government). The state PSUs have independent guidelines but emulate the central PSUs. In practice, both the wage boards and the DPE use as reference points the Central Pay Commissions' (set up periodically) recommendations for salaries of central government employees. This ripple wage-setting effect emanating from a central government institution extends to the private sector too.

In the informal or unorganised sector, the central and state governments intervene by fixing minimum wages for an eight-hour work day applicable to certain occupations where workers are considered vulnerable. Minimum wage varies across states, industries and occupations. Awareness of minimum wage

appears to be low and multiplicity makes it confusing. Further, since the unorganised sector is dispersed and workers not unionised, the minimum wage may not be/is frequently not binding.

Through direct and indirect influences of the government over wage-setting, the market condition that emerges is that individual employers have little flexibility in adjusting wages. Thus, employers' response in labor adjustment is toward employment adjustment and less to wage adjustment. Impeding workforce flexibility are regulations restricting separation. Thus, the wage bill, normally a variable component of costs, has become a fixed cost.

Unions and Contractors

Unions are a pervasive presence in the organised sector. Most units have an internal union or affiliation to an external union. Union membership increased 150 percent from 1966 to 1979 and stagnates thereafter. In early 1980s, the unions operating in the Bombay textile mills struck work for 20 months asking for higher wages (real wage growth was almost zero) and better working conditions. The mill owners refused to negotiate and ultimately the workers returned without much change in their conditions.

Originating from unions formed pre-independence are three main federations. The Indian National Trade Union Congress (INTUC) is affiliated to the Congress (I) political party (that is credited with securing India's freedom from colonial era and currently governing); the All India Trade Union Congress (AITUC) is a wing of the Communist Party of India (CPI) and the Congress of Indian Trade Unions (CITU) that of the Communist Party of India (Marxist) or CPM; and the Bhartiya Mazdoor Sangh (BMS) is allied to the the Bhartiya Janata political Party (BJP) that was in power until 2003. Guided by the self-interest of currently employed unionised workers, the unions have used their affiliations to block labor law reform. They demand a safety net for unemployment and redeployment first.

In the unorganised sector employing more than 350 million workers, the contractor acts as an interface between workers and employers. Now, contractors are required to be registered with the Labor Commissioner's office. For workers displaced from the organised sector, the contractor can be a source of support since jobs and number of days for which jobs are secured, all flow via a contractor.

Labor Administration - Labor Commissioners

The national and regional labor commissioners are the first point of interface of government with workers and with employers on labor issues. They are entrusted with the implementation of labor laws. They also provide the first conciliation platform. During employment distress, illegal separation, and unpaid dues the labor commissioner can provide redressal. The use of their offices depends upon the education and awareness level of labor.

Retirement and Disability Funds

Both disability and retirement support are linked to employment. During unemployment spells, there would be no coverage. Disability, partial or total, through accidents on the job is covered by the Workmen's Compensation Act, 1923. Incapacitation due to sickness or due to injury as also maternity leave is covered by the Employees' State Insurance Act 1948.

Safety net for retirement exists in several forms. Gratuity is payable since 1972 to workers if in continuous service for 5 years. From May 1994 the coverage extends to supervisors and managers.

The chief mechanism for retirement support is a contingency fund called the **Employees Provident Fund (EPF)**. Law requires the institution of mandatory

provident funds for employees in factories and establishments. Since its inception in 1952, the coverage has steadily expanded. Even so, it covers less than 7 percent of factories and establishments. The purpose is to make provisions for retirement needs of the employee as well as those of the dependents in case of early death. Contributions required from employees and employers are fixed by the government. Effective May 1, 1997, the rate is 12 percent of wages with a lower rate of 10 percent for five industries. The central government, on the recommendation of the board of trustees of the Employees Provident Fund Organisation (EPFO), declares the rate of interest to be credited annually to the accounts of provident fund members. The EPF of private enterprises may be self-managed or be managed by the EPFO on payment of management fees.

Final withdrawals from the EPF are allowed at retirement or prematurely at the time of resignation. In effect, the EPF operates only for the employed. This sufficed in a protected market where employment tenure mostly lasted until retirement. Partial withdrawals are allowed for illness, invalidation, etcetera; and for discharging social responsibilities such as marriages of dependents, higher education of children, construction or purchase of a house/dwelling.

The **Employees Pension (EP)** scheme was introduced effective November

1995. Members of an earlier family pension scheme as well as of EPF were allowed to join this scheme. Upon its introduction, the earlier pension scheme ceases to operate and the benefits and entitlements of members remain protected and are continued under the EP scheme. Eligibility is ten years of service with benefits commencing as early as 50 years of age and vesting fully at 58 years of age. No additional contributions from either the employee or the employer are required. The pension fund is set up and a 8.33 percent of wage share of the employer's contribution to the employee's EPF is diverted to it. Further, the government contributes 1.16% of members' wage. Withdrawal of own contributions is permitted.

The scheme provides for a monthly pension to the employee or dependents as the case may be for (i) superannuation at 58 years of age, retirement, permanent total disability, (ii) death during service or after superannuation, retirement, disability, and (iii) children and orphan pension. The employees have an option to accept an admissible pension or reduced pension with return of capital.

A third scheme in this family is the **Employees Deposit Linked Insurance Scheme, 1976**. It provides that in the event of death of a member, the person entitled to receive EPF accumulations would be paid an additional amount

calculated on the basis of the last 12 months' balance in the employee's EPF account.

The organised sector schemes cover only a minuscule section of the unorganised sector. The informal segments therefore have no formal safety net supporting them. A **Social Security Group Insurance Scheme** operated by the state-owned Life Insurance Corporation (LIC) offers some insurance to unorganised sector workers in the event of death, permanent total disability, or loss of limbs. Half the contribution is paid from a social security fund. The central government operates five welfare funds funded from a cess on producers in the corresponding sector. Since 2001, the central government operates a pilot scheme for 20,000 agricultural laborers offering life-cum-accident insurance, money-back and the superannuation benefits.

Transition, Training and Search Support

No unemployment insurance system exists for either organised or unorganised sector workers. Discussions inform that a pilot unemployment scheme is being drawn up by the Employees' State Insurance Corporation. To deal with massive redundancy and to accommodate the IDA 1947, VRS compensation packages are

offered. As stated earlier, the formula to compute VRS is along the lines of that specified under the law. However, depending upon the financial health of the firm and its prospects, the days of average pay per year of service mostly vary from 30 to 45 days.

Vocational training at the national level is vested with the Directorate General of Employment and Training (DGET), Ministry of Labour, the nodal department for formulating policies, laying down standards, conducting trade testing and certification, and directly running several training institutions. At the state level, the state government departments perform these functions for vocational training.

The key institution for imparting vocational training is the **Indian Training Institute (ITI)**. It has 4274 centers, 1654 in the public sector and the rest 2620 in the private sector. The trainee capacity is 628,000 seats. According to Planning Commission (2002), there exist about 19 million dropouts after class VIII and another 2.2 million after class X or about 21.2 million children looking for vocational training every year! The available formal training capacity is only 2.3 million or a gap of 18.9 million needs to be filled. To fill the gap, the ITI system would require modernization and expansion. Supplementary programs such as the nodal agencies-EACs under NRF or CRR, and leveraging of existing capacity as

envisaged under CII Skills Development Initiative would also be required. These are discussed below.

The **National Renewal Fund (NRF)** was established in February 1992 and remained formally in operation from 1992-93 until 2000-01. Its objectives were to provide funds (i) for retrenchment and/or closure compensation, where necessary, to affected workers both in public and private sectors, (ii) for retraining and redeployment of displaced workers, and (iii) for employment generation schemes as part of safety net development for both organised and unorganised sectors. The NRF received funds essentially from budgetary allocations though it was open to contributions from financial institutions, insurance companies, state governments, and industrial undertakings. It was administered by an Empowered Authority in the Department of Industrial Development, Ministry of Industry (now Ministry of Commerce and Industry) with representatives from several ministries, one of employers, and two external experts of industrial relations. It considered schemes recommended by either central and state governments or Board of Industrial and Financial Reconstruction (BIFR). The BIFR is the authority that determines closure or rehabilitation of companies/units declared sick (loss-making for at least three consecutive years). The scheme was thus open to part of the private sector.

To implement retraining and redeployment schemes, the NRF worked with Employee Resource Centers (ERC). An ERC documented details about retrenched workers, provided counseling, and disseminated information regarding retraining and redeployment possibilities. Any PSU availing of NRF funds was directed to establish an ERC. More than 30 ERCs were set up during NRF operation. The retraining was provided by the Employee Assistance Centers (EAC) that were operated by designated nodal agencies at locations where substantial concentration of displaced workers was expected. Other than organizing training, an EAC surveyed affected workers, assessed wage and self-employment opportunities, provided counseling and escort services to workers, and provided management information services for NRF. Some of the EACs were Associated Chambers of Commerce and Industry (ASSOCHAM) at Kanpur (restructuring textiles firms' hub), Confederation of Indian Industry (CII) at Bombay (also textiles), Gandhi Labor Institute at Ahmedabad (textiles), Small Industries Service Institutes at Indore (textiles), and National Small Industries Corporation at Calcutta.

To implement employment generation schemes, Area Generation Councils (ARC) were established at Ahmedabad, Indore, and Kanpur.

The successor to NRF is the **Counseling, Retraining, Redeployment (CRR) scheme** from 2001-02 and aimed at assisting the rationalised employees of central public sector enterprises (CPSEs). It includes a sensitization program. Selected nodal agencies counsel VRS workers, impart training and reorientation, develop curriculum/materials, prepare feasibility reports, market surveys, post-training follow up interface with credit institutions, support in self-employment, regular liaison with CPSEs, convene meeting of the coordination committee. The CPSEs help by clearing all dues of the rationalised workers before release. Further, they provide valuable input in identifying workers' retraining needs. The cost per 40 day module is Rupees 7900/ of which Rupees 2400/ is paid at the rate of Rupees 60/ per day to the trainee.

The Confederation of Indian Industry (CII), a major industry association is leading a "**CII-City & Guilds Skills Development Initiative**" on a pilot basis to train and place workers - new entrants and lateral movers. It has drawn up a fairly long list of skills available. City & Guilds is reportedly the world's largest vocational training and awarding body. It is expected to provide technical assistance as well as certification reflecting international standards. CII intends to leverage spare capacity in the existing training apparatus, e.g., using ITIs outside regular hours and during weekends. The cost is targeted at Rupees 5000/ including

training and certification to benchmarked global standards approved by CII. In this program, there is no free-riding since from the very outset the costs are being shared among all potential employers, with an industry association playing the role of the coordinator. It helps in integrating the labor market across regions (and languages and sub-nationalities that exist in the Indian sub-continent, for example, a Bihari worker from the east may be employable in southern Kerala without a hefty deduction to a labor contractor) and internationally too.

To effectively deal with rural unemployment, the **National Rural Employment Guarantee (NREG)** scheme is being proposed, for about 200 districts, and to be extended to all 604 districts of India. Its formulation is controversial, the contentious issues being coverage, eligibility, minimum number of days of wage employment to be specified, and the wage level. Also under consideration is an urban equivalent of NREG with a fixed per person expense of Rs. 10,000. Of this part is earmarked for training and rest for subsequent on-the-job training.

2.2.3 Social Framework - Support Institutions

Social networking among family, friends, and relatives offers critical support in times of crises. From better placed members, it affords access to credit and provides

information on job possibilities as well. In India, social networks are characterized by workplace, place of residence as also by class, caste, region of origin, and religion. Traditional segments based on caste and gender are deeply entrenched in rural areas. Surveys of urban labor markets have found some evidence of “systematic correspondence” between inherited (caste, gender, urban/rural, father’s education) and acquired (own education) characteristics on the one hand and labor status on the other hand. Occupational rigidities perpetuated by caste are eroding but the speed is debatable since little data is available (caste data not recorded in census since 1931.)

Shopkeepers or neighborhood-grocers provide credit for consumption that helps ward off distress. The longer a worker stays at one place, higher is the trust quotient and consequent access to consumption credit.

In rural areas, the local government or the Panchayati Raj institution with its head the “sarpanch” play a role in securing employment. The Panchayat is instrumental in provision of amenities such as drinking water, sanitation, electricity, roads, and documents such as the ration card (provides access to subsidized food). In times of displacement, the Panchayat could mobilize support and thus influences social security. In urban areas, to a limited extent, this role is played by the unions

in the organised sector and the contractor in the unorganised sector.

2.3 Impact of Labor Adjustment

2.3.1 Legal Impact - Enforcement

The IDA 1947 provisions slow employment adjustment. Prior permission is rarely granted. Then, employers can adjust the workforce by seeking recourse to courts or by unilateral action that would be disputed by workers. Examining disputes' data should provide insights, specially in the absence of direct employer adjustment costs.

The number of disputes, strikes and lockouts, and associated loss of mandays have varied over the years, increasing and decreasing (see table 2.3). The more striking fact is that the proportion of lockouts in total disputes has risen from about 15 percent until 1983 to more than 20 percent in 1980s, more than 30 percent in 1990s, and beyond to 40 percent in 2000s. Moreover, the intensity of lockouts as reflected in the share of mandays lost due to lockouts has also risen dramatically from about 20-30 percent in 1970s to about 60 percent in most of 1990s and 2000s. The major reason stated by employers are wages, indiscipline, and others with retrenchment cited less than 5 percent. However, the timing of the change offers a

clue. The IDA 1947 current regime essentially dates back to 1982 when the prior permission requirement for retrenchment was extended to all units with 100 or more workers. The pointer to (latent) redundancy or excess labor as the cause of increasing lockouts proportion is quite indicative though clear evidence from the data is not there. Direct loss from cost of mandays lost rose from under Rupees 900 million in 1982 to Rupees 3900 million in 2002, almost the same in real terms. The indirect loss may be in terms of falling employment elasticity.

A survey study by Ruddar Datt (2000) called “Lockouts in India” covered 42 cases in the state of West Bengal and found that employers mis-stated reasons to be indiscipline and others instead of retrenchment when indeed the lockout was aimed at downsizing. Putting both this and the above evidences together, the increasing incidence and intensity of lockouts could be attributed as a response to redundancy.

With retrenchment related disputes increasing, dispute resolution via the labor courts and tribunals become important. Table 2.4A shows that the percent share of disputes and applications disposed off by courts and tribunals has been variable over the years but the declines are more so after 1993. Is this indifferent enforcement limited to the IDA 1947? Table 2.4B shows that inspections of premises under the Factories Act 1948 and the Shops and Establishment Act have

also been declining since late-1980s/early-1990s. Convictions under the Factories Act have declined substantially. Prosecutions under the Shops and Establishment Act have also reduced. Similarly, certification under the Standing Orders Act have varied but declined more during late 1990s/early 2000s. In this environment of weakening enforcement, a measure that has helped to expedite law enforcement and dispute resolution is the use of lok adalats (people's courts), these helped reduced case pendency. Delayed enforcement or delayed processing of requirements or protracted dispute resolution under different labor laws is causing costs to build up - time delays, legal costs, managerial costs, production loss, missed opportunities.

2.3.2 Economic Impact

Determination of adjustment costs and their impact is gauged through evaluation of pre- and post-restructuring outcomes: earnings, employment, and other worker outcomes. Results are compiled here based on several survey studies on worker outcomes commissioned by the Ministry of Labour, Government of India. Simple measures of adjustment costs are computed. Data on productivity, output, and employment in downsized units and the costs borne by the system (labor administration, judicial costs) are not available. These are evaluated qualitatively. For a complete evaluation, the entire spectrum needs to be covered.

Nonetheless, several insights are obtained from the analysis here.

Characterizing Downsizing and VRS

Common patterns from the Ministry of Labour Survey Reports

Among reasons for undertaking downsizing and VRS program, the employers cited demand deficiency, increase in (price) competition, modernizing existing facilities, and expanding business while rationalising costs. **Competitive pressure** to improve efficiency causes churn of firms wherein some firms remain weak and need to be pushed out, specially those units operating below economic scale. Released workers from weaker units usually have a high probability of being absorbed in the stronger units due to some usable specificity of skills. Other resources released - scrap, machinery and land - get better utilized in expanding productive activities. This churn is normal among different units within an industry. However, with accumulated (latent) redundancy or excess labor within a sector, the absorption capacity within an adjusting industry is impaired. To account for large-scale (latent) redundancy, redeployment has to be across sectors. With (latent) redundancy pervasive across sectors, redeployment is a challenge. As shown in table 2.6, post-VRS most workers are self-employed and in the informal or unorganised sector. Of those employed, most are wage earners in casual jobs. Excess labor has accumulated due to protective product and labor markets. In the

survey studies available, table 2.6 shows that it varies from 30 percent to 100 percent (closure candidates). Recall that in 1990-91, the extent of (latent) **redundancy** in the organised sector is 16 percent.

Reasons for workers accepting VRS included **poor financial health of the firm**, a perception of fear psychosis fed by the management, age and other factors. Most VRS schemes are aimed at workers above 40 years of age. Nevertheless, table 2.6 shows that there is a significant (in some cases, dominant) proportion of workers above 50 years of age. This has implications for both re-training and redeployment. However, most workers are also educated to the secondary level affording them higher employability.

From all survey reports it emerges that the **VRS money was used in non-productive activities** such as repaying debts, children's marriages, and house-building. While all are legitimate uses of the lump sum, these generate no income. A major reason for mounting adjustment costs is the failure of management to provide adequate financial counseling in the use of VRS money. In the TISS (2001) study, although 54 percent of the MNC sample had invested the VRS money in a return generating activity, only 14 percent of the NTC sample had done so.

Then, redeployment even if in low-paying unorganised sector assumes greater urgency. Evidence indicates that most displaced workers (95%) are either self-employed or employed in the informal sector (increasing casualization) or not working. Only 5 percent could secure formal wage employment. In adjusting to post-VRS reduced earnings, **expenditure was reduced** (45% MNC, 21%NTC), including on health and children's education. A significant number (more than 10 percent) of NTC mill workers had children drop out of school.

Other data on VRS and downsizing are not available.

Counseling, Training and Search Assistance

Common patterns from the Ministry of Labour Survey Reports

In the cases studied, table 2.6 shows that some workers were provided counseling and retraining. Among those who could not avail of this benefit, the major reason was “no information” about avenues of training under NRF. TISS (2001) reported that the advanced training institute of DGET failed to attract a single worker from the NTC mills in Bombay. Where the workers could avail of training, in Indore, the incentive was the stipend of Rs. 2400/ over 40 days. The training itself is found to be unrelated to the activity taken up post-VRS and post-training. Indore textile mill workers displaced due to VRS/lockouts/closures

are primarily relocated in the informal sector. The conditions in the informal sector are thus important for the success of restructuring and reform.

From secondary data

On a macro level, the NRF assisted 107 thousand workers by 1997-98 (table 2.5) with over Rs. 18 billion expenditure. About 90 percent of this was utilized for VRS compensation of covered workers as per PRAGYA (1999) report. The average compensation works out to Rs. 142,000/ per worker. Experience so far indicates that NRF, ERCs, EACs, and ARCs were not effective in aiding redeployment. Of 107 thousand workers assisted from the NRF, only about 5 thousand workers were deployed (table 2.5) by 1997-98. Reorienting existing mechanisms is required to address the retraining, skill enhancement, and job search needs of displaced workers. Labor reallocation in India is impeded by the absence of appropriate labor institutions aiding worker transition to another job or activity.

Social (Income) Security

Along with training and search assistance, income security during the transition to a productive activity through an unemployment benefit for a specified period help. An instance is the Textile Workers' Rehabilitation Welfare Fund (TWRFS) scheme of financial assistance: 75 percent of wage is given in the first year, 50

percent in the second year, and finally only 25 percent in the third year. Such a benefit must be fully funded either through contributions or taxes. However, unemployment spell assistance for organised sector does not exist. The Employees Provident Fund Organisation (EPFO) allows partial withdrawals for several events (house-building, dependents' marriages, children's higher education) but not for unemployment spells. The key to smoother transition in both formal and informal sectors is segregation between employment security and income/social security, with employment security becoming employment mobility.

Adjustment Costs - Worker and Overall Economy

Using the data from the survey studies, we find that worker adjustment costs are substantial. Comparing pre-separation earnings to post-separation earnings **the loss of earnings in constant 2002 prices is calculated to vary from 53 percent to 77 percent** (see table 2.6). One case had a loss of only 6 percent because the private mill had been brought to closure point and the wages were close to the informal sector wages. The huge loss in earnings points to dismal alternate earnings. This is compounded by the absence of investing VRS money in income generating assets. Most of the workers are above 50 years of age, so the loss of limited productive years may be acceptable.

However, the loss in earnings compelled expenditure cuts including in health and children's education expenses. A significant proportion of workers in one case had children drop out of school and join the labor market. We use average labor cost per manday in the ASI-census sector as a proxy for organised sector earnings, and in the ASI-sample sector as a proxy for unorganised sector earnings in the year of adjustment, that is, 1997. We calculate that the **loss in earnings of children owing to dropping out of school is a large 46 percent** (see table 2.6). This generational effect where income loss is perpetuating down generations may not be widespread. However, the huge self-earnings loss of workers may have such effects.

Apart from legal restructuring using VRS compensation to induce worker separation, two other mechanisms of adjustment have emerged - illegal restructuring resorting to lockouts and declared restructuring subject to formal industrial dispute resolution. The proportion of lockouts in industrial disputes (table 2.3) is increasing rapidly. [Two out of eight cases captured the practice (table 2.6) of employers using lockouts as a de facto means of downsizing. It gets more credence from and the Datt (2000) finding that firms mis-state indiscipline as cause

of the dispute when in truth it is redundancy and retrenchment.] The third method is the legal but cumbersome one of declaring the cause of dispute to be retrenchment.

Employer adjustment costs by resorting to lockout and subsequent bailout via BIFR under the SICA law are the least among the three options. Employee adjustment costs are the least in disputed restructuring. Where unions are strong, this outcome may dominate. In both these cases the government labor machinery incurs costs. Also, the assets/resources remain locked in. In the VRS option, both employer and workers incur costs, government incurs none, and the resources are freed up for reallocation. The mechanisms of adjustment are changing to outsourcing instead of expanding operations, inducing voluntary worker exit with enhanced severance payments instead of simple separations, and lock-outs instead of closure/exit. Thus adjustment seems to have been possible albeit at a higher cost.

2.3.3 Social Impact

Displacement from a wage/salary job with fair working conditions to variable low earnings in casual employment or self-employment amidst worse working conditions would impact economic well-being and perceptions of self-worth, standing in the family and society. It may engender negative or positive feelings

toward VRS and restructuring. From the case studies, such feelings did emerge but were addressed by social networks, mainly, family. However, in one case of a lockout, 57 workers committed suicides. Not only is this an economic and social waste, it influences the future of democratic governments, and thus can undermine the support to reform itself in India.

2.4 Concluding Remarks

To sum up, in India there exists a great concern about the adverse impact of job insecurity on workers. This underlies the IDA 1947 provisions and guides many of the other policies discussed above that have been set in place regarding the labor market. In other countries, notably Western European, this concern has also led to high mandated severance payments but not quite so extreme a version of requiring prior permission for any layoff or retrenchment.

Adjustment costs of restructuring are substantial for both workers and employers. Post-separation, **the workers' loss of earnings varies from 53 percent to 77 percent. A generational effect also exists - due to parental job loss and consequent children dropping out of school, the loss in earnings of children is a**

large 46 percent. Employer adjustment costs are high in that costlier means of adjustment are adopted to enable restructuring.

Transition support structure seems geared to one-time adjustment as embodied in one-time (sometimes repeated) VRS schemes. There exists an ongoing restructuring process in the economy and hence continual dynamic support to displaced workers (e.g. market-driven retraining and placement) is necessary. Apart from training/search support the provision of a fully funded unemployment insurance is also a pressing requirement.

Though the future benefits in terms of productivity, output and employment growth cannot be determined without panel data on restructuring firms, qualitative conclusions may be drawn. The tradeoff between slow adjustment-lower cost-lower incremental labor absorption and higher adjustment-higher cost-higher incremental labor absorption (that is, employment elasticity) exists. It can be partially ameliorated with efficient functioning of transition support institutions.

Chapter 3: Labor Adjustment - an Empirical Evaluation

3.1 The Issues and Literature

This chapter focuses on the econometric estimation of the size of adjustment costs and their impact on employment in India. The effect of exogenous events, namely, (i) the changes in the job security and mandated severance payments' regime in 1976, (ii) the expanded coverage of job security regime in 1982 as well as the deregulation ("broadbanding") process begun about 1982, and (iii) the liberalization and economic reforms' program in 1991 on adjustment costs and employment is gauged over-time. Further, these effects' variation by average employment size is also obtained. The discussion centers on labor. Though employment refers to all employees, here the emphasis is on workers. In the literature discussion, workers and employees may be treated as synonymous. Workers are treated as a homogenous input post-training and hours are fixed. Capital and investment demand are ignored (see data limitations below). Substantial evidence (Hamermesh (1993), chapter 7) indicates that estimates of employment dynamics are not biased if the adjustment of capital is ignored. (Anecdotal evidence in India indicates that after job security measures are enforced, some substitution of capital for labor may have taken place. The paper abstracts

from this aspect.) Below is a discussion of the nature and types of adjustment costs. The sections following describe the data; present the model and regression equations; and the results.

3.1.1 Nature of adjustment costs

Net costs of adjusting labor demand are those of changing the level (or number) of workers in any productive unit. These include costs due to disruptions in production (new equipment, shopfloor rearrangements) and other similar costs not linked to the identity of the workers. Gross costs of adjustment are related to the flows of workers, i.e., to the identity of workers. These include hiring costs (search costs - advertising, screening, interviewing), training costs, separation costs (severance payments, unemployment benefits), and overhead personnel department costs dealing with recruitments and separations.

Net costs are internal and implicit in nature. Lost output is not measured. Training of new workers by senior workers may reduce average efficiency during the transition period of adjustment. Costs unrelated to production and external in nature, for example, severance payments, may be measurable. Hamermesh and Pfann (1996) survey presents the following “extremely tentative conclusions” - (i) external costs of adjusting labor demand are large, amounting to as much as one

year of payroll cost for the average worker; (ii) the average adjustment cost rises very rapidly with the skill of the worker; and (iii) costs of hiring exceed costs of separations.

Adjustment costs may arise from the economic environment (factor markets, technology, product markets) the firm faces. However, these may also arise directly or indirectly from government policies such as mandated severance payments and mandated advance notice of layoffs.

3.1.2 Alternative Structures of Adjustment Costs

Several forms have been proposed in the literature, under assumptions about the expectations formation process and that given the expectations-process, the only reason for slow adjustment is the cost associated with changing labor demand.

The most used structure of adjustment costs in the literature is that of symmetric convex adjustment costs, usually restricted to be quadratic. Convexity is imposed on marginal adjustment cost and implies that it is increasing in labor demanded. Continuity and differentiability ensure that changes in market conditions, however small, will lead the firm to adjust labor demand continually. Symmetry around zero ensures that the marginal cost of increasing labor is the same as that of an

equal-sized decrease. Sargent (1978) formulated a symmetric quadratic adjustment cost function and resultant linear labor demand based on it with the assumption of rational expectations. The quadratic approximation and symmetry imply that even in the presence of unit-specific shocks, the linearity of labor demand function allows its aggregation across units. Thus, this form may be applied to aggregated data with no other consideration and yet retaining its theoretical basis.

The symmetric quadratic form is a convenient tool. However, data from several countries point to differences in magnitude and persistence between positive input adjustments and negative ones. A non-linear functional form that has the quadratic model nested within is proposed by Pfann and Verspagen (1989). It has a parameter that captures asymmetry, which if negative implies that marginal cost associated with a negative adjustment or separation exceeds that of a positive adjustment and vice-versa. If the parameter is zero, it implies that there is no asymmetry and the symmetric convex costs model applies. Though non-linear, the model can be used with aggregate data with the assumptions of no idiosyncratic shocks and a fixed number of firms. Then, a Taylor-series expansion of the firm's adjustment function around zero net employment change and subsequent aggregation of these across firms is identical to the Taylor-series expansion of the aggregate (of firms)

adjustment cost function. The quadratic convex cost structure mostly abstracts from attrition.

Nickell (1978) discussed piecewise linear adjustment costs that are more relevant for asymmetric gross costs or per worker costs such as severance payments and interviewing. Gross adjustment costs such as severance payments are distinct and differ in magnitude from recruitment costs such as interviewing. Further, these are state dependent, that is, severance payments are incurred only for separations and hiring costs are incurred only for hiring. Both separations and hiring may take place simultaneously. In Nickell's model, at any point, the firm is either expanding or contracting in response to a corresponding product demand shock over the business cycle. Attrition is assumed to be zero. His model analyzed regulatory adjustment costs in the context of the business cycle assuming perfect foresight. Demand variations over the business cycle are therefore known. Labor use then varies in terms of employment or hours, though the number of shifts is fixed at one. According to the paper, empirically, differences between the convex costs model and the linear costs model "would tend to be washed out" at the aggregate level but may be picked up at the industry level. These costs engender a discontinuity in the optimal decision rule. In the presence of idiosyncratic shocks and firm

heterogeneity, this form requires unit level data. Application to aggregated data amounts to assuming away firm heterogeneity. Using industry data captures inter-industry variation but still loses firm heterogeneity.

In most recent studies of adjustment costs, there is an emphasis on delineating net costs from gross costs. This stems from prior evidence (Hamermesh and Pfann (1996)) that the two are different in magnitude and impact, and partly from evidence on employment flows. Job flows - jobs created and destroyed, by continuing firms and by entrants and exiters - underlying the net result, that is, change in employment stock behave quite differently to net change. Davis and Haltiwanger (1998) document job flows for most developed countries and several developing countries. The salient features across economies remain that gross job flows - job creation and job destruction - co-exist in almost every time period and sector, are substantial, persistent, asymmetric and concentrated at relatively few plants. The key factor is the existence of heterogeneity among firms as reflected in the predominance of idiosyncratic factors as opposed to aggregate and sectoral factors. Gross adjustment costs are related to gross worker flows. Worker flows exceed job flows to the extent of any attrition. Net costs are related to net employment change.

Models of adjustment costs described above deal mostly with net costs as opposed to per worker costs. The symmetric convex costs based model is based on net employment change. The asymmetric convex costs model recognizes that the costs associated with a net negative or a net positive change may be different and hence also examines net costs though asymmetric. The piecewise linear costs model explicitly accounts for gross costs - recruitment costs versus separation costs, each per worker. The symmetric convex costs model, despite its limitations, is the most widely used specification with aggregate macroeconomic data (Hamermesh and Pfann (1996)) and is suitable for disaggregated industry data.

3.1.3 Evidence on adjustment costs

The evidence on adjustment costs, both for labor demand and investment demand is discussed at length by Hamermesh and Pfann (1996). Here, the emphasis is on mandated severance payments related papers. Two major approaches emerge. One uses simulations based on statistics or estimates of parameters, and the other is the more direct parametric estimation.

Bentolila and Bertola (1990) model a forward looking monopolist firm subject

to separation costs and demand uncertainty. Their simulations using aggregate European data find that separation costs impact the separation margin more than the hiring margin. Net employment may increase in the long run despite mandated severance payments, if the shocks faced by the firms are highly persistent and worker attrition is high. With more persistent shocks, the need to alter labor demand is lower. With higher worker attrition, the need for separations is reduced. It is unclear what happens if the shocks are more variable and/or attrition is lower. Hopenhayn and Rogerson (1993) model a competitive firm also subject to a firing tax and idiosyncratic productivity shocks in a general equilibrium framework. They perform simulations using parameter estimates from establishment-level US data and find that a firing tax would reduce labor turnover, employment, and average labor productivity in the long run. The opposing results could be due, in part, to assumptions about market structure (monopolist versus perfect competition) and inclusion of the entry-exit process in the latter study.

Attempts to explain these contrary conclusions include accounting for other labor institutions that might be simultaneously operating in conjunction with a tax on labor adjustment. Bertola and Rogerson (1996) analyze the process of wage-setting. They argue that relative-wage compression in Europe may be part of

the puzzle. It is conducive to higher employer initiated job turnover. Both institutions together can explain similar job flows in US and Europe but higher unemployment rates in Europe. Cabrales and Hopenhayn (1997) allow firms to choose between two coexisting types of contracts - permanent and temporary. Their calibrations using Spanish data find that with the inclusion of temporary contracts, there is a substantial increase in reallocation but not in aggregate productivity.

Inferring of adjustment costs within labor demand estimation is attempted by Fallon and Lucas (1991) based on the symmetric quadratic convex cost specification and using disaggregated industry data from India. Job security is instituted via requirements of prior government approval for separation and severance payments for any separations since March 1976. Fallon and Lucas use a difference approach by introducing a dummy variable for regime change to gauge the impact of the severance requirements. They find a significant one-time reduction in labor demand (intercept) but no significant fall in the speed of adjustment.

3.1.4 Objectives

This paper attempts to unravel the effects of adjustment costs on employment

while accounting for (i) the changes in the job security and mandated severance payments' regime in 1976, (ii) the expanded coverage of job security regime in 1982 as well as the deregulation ("broadbanding") process begun about 1982, and (iii) the liberalization and economic reforms' program in 1991, and (iv) average employment size. The hypotheses are that average employment and speed of adjustment (a) decrease after job security provisions are more restricted and (b) increase post-economic reform in product markets despite no further change in labor law restrictions. Labor demand is systematically related to the degree of competition; and, the speed of adjustment is also affected by the degree of competition. The effects are greater for larger firms. Note that after 1982, with changes in both job security regime and product markets, the net effect can go either way.

3.2 Data

3.2.1 Dataset

The study dataset comprises the Annual Survey of Industries (ASI) series from 1973 through 1997. The unit of observation is a factory in case of manufacturing industries. It covers registered factories/plants, i.e., units with 10 or more workers in plants using electric power or 20 or more workers in plants using no electric

power (and as registered under sections 2m(1) and 2m(11) of the Factory Act, 1948.) It consists of (i) a census of firms with over 50 employees with power (99 without power) and (ii) a sample of the remaining registered plants or factories with 10-50 employees with power (20-99 employees without power.) The reference period for annual coverage of premises is the preceding 12 months. The cut-off point is a registered factory working on any day of the preceding twelve months, and in any part of which a manufacturing process is being carried or ordinarily so carried on. The information generated from the ASI data includes number of workers and number of employees besides the economic profile of the plants. Though the data is collected at plant level, it is publicly available, up to 1997-98, only at the 3-digit industry level of disaggregation.

Study Universe

ASI is classified using the national industrial classification (NIC), that changes from NIC1970 to NIC1987. NIC1970 is applicable to years 1973 through 1988.

NIC1987 applies to years 1989 through 1997. Developing a consistent set of series

across the 25 years led to merger of several industry groups. These are as follows.

ASI classification merges some two industry groups of NIC1970 into one group of NIC1987, for example, NIC70-228 and NIC70-229 merge into NIC87-229. To generate a comparable series, data of industries NIC70-228 and NIC70-229 for years under NIC1970 classification (1973-1988) are merged and a 25-year consistent series is obtained for such industry groups.

ASI classification splits a NIC1970 industry group into two NIC1987 groups, for example, NIC70-253 splits into NIC87-253 and NIC87-256. For these cases, a

25-year consistent series is obtained by merging the split NIC1987 industry groups into one series corresponding to the NIC1970 group.

Some industry groups had missing observations (the entire set of 30 variables) due to ASI data suppression policy wherein data for any industry group with two or less number of factories is not reported in that year. Such industries (11 in number) have been entirely dropped. Also omitted are several new groups included in NIC87 for which no earlier data are available. The truncated dataset is 84% (73%) of the universe (ASI manufacturing) in terms of output for initial-year 1973-74 (end-year 1997-98). The figure in terms of employment (as measured by number of workers) is 85% (78%).

Deflation to constant price data

Each industry group data is deflated using the wholesale price index (WPI) corresponding to that industry. The WPI is the most broad-based deflator available. The CPI is available for industrial workers but not according to industry groups. The GDP deflator can be computed from available national accounts data at the 2-digit level of disaggregation rather than the 3-digit level possible with the WPI. The WPI series has two bases, 1970/71 and 1982/83. The 1970/71 WPI series is spliced to 1982/83 WPI series at the industry group level and the series so obtained

is used to deflate the 25-year NIC1987-classification industry data series.

Data Limitations

The dataset is rich in that it includes labor, capital, other inputs, output, value added variables. However, it is available at present at a disaggregated industry level instead of at unit level. Any model based on such a dataset assumes away or ignores idiosyncratic shocks at the factory level. As Davis and Haltiwanger (1998) and Roberts and Tybout (1996) point out, in both developed and developing countries, idiosyncratic shocks are important. Significant variation in economic outcomes may be driven by these shocks. Further, there is a large possibility that the structure of adjustment costs may be lost in industry averages that can be examined with this dataset. Second, the annual frequency may be more than the frequency of decision-making of factory managers, i.e., the economic period may be less than an year (quarterly or semi-annual). Nonetheless, industry level data capture substantial variation, and any variation at an annual level is only likely to understate patterns evident at higher frequency data. Thus, examining this dataset should be quite instructive. Also, the capital series is a financial measure. Appropriate economic capital stock or corresponding investment series exist at macroeconomic level but are not yet available by disaggregated industry. The

model adopted hence omits capital but includes output.

3.2.2 Data Description

Summary statistics

Summary statistics of key variables across industry and year are provided in Table 3.1. Value of output is rescaled from lakhs (hundred thousand) to thousands to better represent the output values at the lower end of the range. In all variables, the range and standard deviation are quite large. To the extent that estimation is in log-linear form (as is the norm for labor demand estimation), the large range doesn't complicate the results.

Job flows

Employment numbers may reveal only part of the story. Following the methodology developed by Davis and Haltiwanger (1992), computations of manufacturing job flows during 1973/74 - 1997/98 show that job flows in India at 3-digit industry level are large (see Tables 3.2 and 3.3). The 1973-1997 average job creation is 5.5 percent of employment (US four-digit data based manufacturing number is 2.5 percent of employment), job destruction is 3.8 percent (US: 3.6 percent), and net employment rate is 1.7 percent (US: -1.1 percent). Further, job reallocation rate footnote is 9.4 percent and excess job reallocation rate is 6.6 percent. Thus, 70 percent of job reallocation is excess, that is, 70 percent of the

turnover is over and above the rate required to accommodate the net change in employment. Yet, somewhat paradoxically, substantial labor adjustment costs exist in India and increased from 1976. This co-existence of high labor turnover and high labor adjustment costs seemingly point to the limited relevance of adjustment costs for reallocation.

A closer look, however, reveals more. Table 3.2 shows period averages for:
pre-1976 (1973-75) or pre- labor law restrictions
1976-82, immediate period following labor law changes with no change in the product markets' regime
1983-90, period of gradual deregulation of product markets
1991-97, period post-July/August 1991 liberalization package.
1976-97, complete period post-labor law changes

Excess job reallocation fell from 7.9 percent during 1973-75 (pre-resstrictions) to 5 percent during 1976-82 (immediately after 1976 job security measures) but rose to 7.8 percent during 1983-90 (gradual deregulation) falling to 6.4 percent during 1991-97 (post liberalization program). Similarly, after separation restrictions and induced higher severance requirements are imposed in 1975 (1975/76 - March 1976), both job creation and destruction rates fall in the 1976-82 period. Net employment is about the same. During 1983-90 job destruction rate recovers and surpasses the pre-restrictions level. Unlike job destruction and excess job reallocation, job creation rate does not bounce back and remains depressed. Over

1991-97, job creation rate is higher at 5.8 percent but remains quite below the rate prior to job security restrictions of 7.4 percent. Overall, in 1976-97, job destruction rate recovers but job creation rate falls and remains lower, with net employment rate halving to the previous period's levels. So, there seems to be a dampening effect of adjustment costs on employment if not on job turnover.

Part of the story may lie in product markets reform - gradual deregulation in 1980s and a liberalization package in 1990s creating more productive capacity in response to suppressed demand. With higher demand, job creation will rise and job destruction may fall. However, in that case, excess job reallocation would remain about the same since the flows are accommodating net employment creation. A rise in excess job reallocation points to variation in both flows - creation and destruction. So, the story in India appears to be more than the expanding demand after liberalization. Though the evidence is very limited, it nonetheless points to a shift in labor restructuring activity despite the continuance of a strong job security and high adjustment cost regime.

3.3 The Model and Regression Equations

Estimations are based on the symmetric quadratic convex cost form. This is a

widely used specification with aggregate macroeconomic data (Hamermesh and Pfann (1996)) and is used here with the disaggregated industry data. It is suitable for studying the effects of adjustment costs on employment in India while accounting for (i) the changes in the job security and mandated severance payments' regime in 1976, (ii) the expanded coverage of job security regime in 1982 as well as the deregulation ("broadbanding") process begun about 1982, and (iii) the liberalization and economic reforms' program in 1991, and (iv) average employment size. Estimates of the reduced form labor demand function, that is, coefficients of wage, output, mandays, speed of adjustment, and, changes in average employment and speed of adjustment due to regime changes and employment size are obtained. The estimating equations are briefly derived below.

3.3.1 Symmetric Quadratic Convex Adjustment Costs

The underlying theory is based on (Sargent (1978)) the standard value maximization by a firm given production function technology and labor-adjustment cost function, and ignoring capital. The firm maximizes the present value of the stream of expected future profits

$$\begin{aligned} \max_{L_t} V_t &= E_t \sum_{i=0}^{\infty} R^i \left[Q_{t+i} - w_{t+i} L_{t+i} - AC_{t+i} \right] \\ Q_{t+i} &= F(L_{t+i}) - \omega_{o,t+i} L_{t+i} - 0.5 \lambda L_{t+i}^2 \\ AC_{t+i} &= 0.5c L_{t+i}^2 \end{aligned}$$

where $R = 1$ is the discount factor, F is the production function with parameters, $\omega_{o,t+i}$ being a random parameter having a zero mean and positive variance, w is the wage, and AC is the adjustment cost, c is adjustment cost parameter. R is assumed to be constant. The Euler equation is

$$R E_t L_{t+i-1} = \frac{1}{c} [R - 1] L_{t+i} - L_{t+i-1} - c^{-1} w_{t+i} - \omega_{o,t+i}, \quad i = 0, 1, \dots$$

and the solution or decision rule for labor demand is

$$L_t = L_{t-1} - c^{-1} E_t \sum_{i=0}^{\infty} R^i [w_{t+i} - \omega_{o,t+i}]$$

Decision-makers in the firm are assumed to be risk-neutral and have rational expectations, based on the information available at time t about the path of shocks. Simplifying assumptions about the process generating shocks to forcing variables are made. A first order autoregressive process is used as a reasonable approximation to the unknown correct form for these shocks. Then, optimal

forecasting implies replacing expected values with their lagged values. Let the autocorrelation parameters be ρ_w and ρ_q . Then the path of labor demand relating current period employment to its lagged value and a vector of forcing variables, wages and productivity shocks can be described as

$$L_t = \rho_w L_{t-1} + c + \rho_w^{-1} w_t + \rho_q^{-1} o_{o,t}$$

Sargent (1978) fits his model to data that are deviations from means and trends (partly accounts for omitting capital). This maximization is equivalent to minimizing the present value of the stream of expected costs (Hamermesh and Pfann (1996)). Based on the standard simplifying assumption that deviations from optimal profits are quadratic both in adjustment costs and in deviations of the actual demand for labor from the optimal path, this yields

$$\min_{L_t} E_t \sum_{i=0}^{\infty} R^i [0.5 (L_{t+i} - L_{t+i}^*)^2 + 0.5c (L_{t+i} - L_{t+i}^*)^2]$$

where L_{t+i}^* constitutes the optimal path in the static optimization without adjustment costs, i.e., $c = 0$. The above assumption implies that the firm is a price-taker in all its markets. The estimating version is

$$L_t = 1 - \alpha(L_t - L_{t-1})$$

is a non-linear function of R , c , and α . Given the assumptions, linearity of this equation allows for aggregation even if firms face different shocks. Then, adjustment costs are implied by α , the closer it is to one, the higher are the adjustment costs and lower is the speed of adjustment.

3.3.2 The Regression Equations

In this paper, recall that output is included though capital and investment demand are ignored (since appropriate series are not yet available and relying on evidence indicating that the estimates of employment dynamics are not biased if adjustment of capital is ignored). Thus, the forcing variables included in L_t are the real wage and output. Further, since the model uses employment and not labor-hours the variable mandays per worker is also included as a regressor. In India, manday is a fixed number of hours and labor-use varies with number of mandays and number of workers (employment). It is assumed that the first dimension of labor adjustment is number of mandays and second that of number of workers. Hence, employment and labor (workers) demand does not affect lagged mandays. The symmetric quadratic convex cost model is readily amenable to

aggregation across units as discussed above. Thus, an industry labor demand function is the basis of the log-linear regression equation. Then, with first-order autoregressive processes generating shocks to forcing variables in L_{it} and their expected values replaced by their lagged values, the estimating version for industry $i = 1, \dots, N; N = 136$ in period $t = 1, \dots, T; T = 25$ is

$$\ln L_{it} = \alpha_0 + \alpha_1 \ln L_{it-1} + \alpha_2 u_{it}, \quad i = 1, \dots, N; \quad t = 1, \dots, T$$

$$\ln L_{it} = \alpha_0 + \alpha_1 \ln w_{t-1} + \alpha_2 \ln Q_{t-1} + \alpha_3 \ln H_{t-1} + \alpha_4 \ln L_{it-1} + u_{it}$$

$$\ln L_{it} = \alpha_0 + \alpha_1 \ln \bar{L}_{it} + \alpha_2 \ln L_{it-1} + u_{it}$$

$$u_{it} = \rho u_{it-1} + \epsilon_{it}$$

$$\epsilon_{it} \sim \text{i.i.d. } (0, \sigma^2)$$

Rational expectations based on autoregressive processes imply bona-fide use of the lagged values of forcing variables and hence serially uncorrelated disturbance in the labor demand equation. However, the error u_{it} here allows for some serial correlation with i.i.d. errors. L is demand for workers, Q is output, w is wage, H is hours, ρ is the measure of adjustment costs. Note that the autoregressive parameters of the forcing variables are embedded within their coefficients.

The estimation procedure is a **difference-in-difference** approach based on size (average employment size) and period dummies. Also, as a measure of evolving competition (protected and licensed production yielding to increasing deregulation

from 1982 and substantial delicensing in 1991), price-cost margins are generated and interacted with lagged employment and size dummies.

The primary differences are due to size dummies. The secondary differences in these size-differences are due to the regime changes captured by the period dummies. To the above equation are added these size dummies. Average employment size is the number of workers in an industry divided by the number of factories in that industry. This is used to generate **two size dummies** (i) for size 100 and above, $S1$ takes the value one and above, and (ii) for size 300 and above, $S3$ takes a value one and above. $S3$ captures industries that come within the ambit of the 1976 job security restrictions (that is, all units with employment 300 workers and above). $S1$ represents industries that are further included in job security restrictions in 1982 (that is, all units with employment 100 workers and above). The size dummies are cumulative, hence their estimated coefficients indicate marginal effects. Being based on average employment size rather than actual employment size may make these size dummies more restrictive than the usual classification of large, medium, and small units of interest with unit-level panel data. $S1$ and $S3$ are the increments in effect of adjustment costs due to size differences. Then, the estimating equation is

$$\ln L_{it} = \beta_0 - \ln \bar{L}_{it} + \beta_1 \ln L_{it-1} + \beta_2 S1 + \beta_3 S3$$

$$\beta_0 = \beta_1 \ln L_{it-1} + \beta_2 S1 + \beta_3 S3 - \ln \bar{L}_{it}$$

$$S1 = 1 \text{ if size} = 100, \text{ zero else}$$

$$S3 = 1 \text{ if size} = 300, \text{ zero else}$$

The coefficient for wage is expected to be negative and that of output to be positive. The coefficient for mandays may be positive or negative depending upon whether workers and mandays are complements or substitutes. β_0 is expected to be positive, that is, some adjustment costs exist prior to the job security restrictions and that speed of adjustment is slow. β_1 and β_2 would be positive if larger industries find it harder to adjust employment. Similarly, average employment coefficient β_0 is expected to be positive and, β_1 and β_2 also positive as larger firms are expected to have higher average employment.

There are **three period dummies**, (i) $P1$ is the period dummy that takes value one for all periods from 1976 onward representing job security regime from 1976; (ii) $P2$ is the period dummy that takes value one for all periods from 1983 onward reflecting the expanded coverage of job security regulations in 1982 (in the tables, it is called Year82 dummy to refer to 1982 regime changes as well as the deregulation or “broadbanding” process begun about 1982), and (iii) $P3$ is the

period dummy that takes value one for all periods from 1991 onward reflecting the economic reforms and liberalization in 1991. Again, the period dummies are cumulative, hence their estimated coefficients indicate marginal effects. These period dummies are interacted with the size dummies. Below is a version of the estimating equation presented with size dummies and only one period dummy (to avoid notational clutter).

$$\ln L_{it} = \alpha_0 + \alpha_1 S1 + \alpha_2 S3 + \alpha_3 P1 + \alpha_4 S1.P1 + \alpha_5 S3.P1 - \ln \bar{L}_{it} + \alpha_6 S1 \ln L_{it-1} + \alpha_7 S3 \ln L_{it-1} + \alpha_8 P1 \ln L_{it-1} + \alpha_9 S1.P1 \ln L_{it-1} + \alpha_{10} S3.P1 \ln L_{it-1}$$

$S1 = 1$ if size = 100, zero else
 $S3 = 1$ if size = 300, zero else
 $P1 = 1$ if year = 1976, zero else

Post-1976: Due to job security restrictions and consequent higher severance payments, adjustment costs in general will rise and an increase in the adjustment cost parameter α_3 or a positive marginal effect α_8 is expected. Further, α_5 (size 300 and post-1976 restrictions) should be positive since the restrictions apply particularly to size 300 and above. The intercept terms or average employment parameters α_4 and α_{10} may be negative indicating a one-time downward shift of the labor demand function for all industries and specially for those with size 300 and above. α_6 (size 100 and post-1976 restrictions) may be positive or

insignificant and $\beta_{S1.P1}$ may be negative or insignificant. So, the marginal effects for industries with size 100 and above may be negligible.

Post-1982: $\beta_{S1.P2}$ (size 100 and post-1982) is expected to be positive on account of job security coverage expanding to units with employment 100 and above but negative on account of deregulation. $\beta_{S1.P2}$ is expected to be negative due to expanded job security coverage and positive otherwise. The net effect may be positive or negative. Similarly, other coefficients may be negative or positive.

Post-1991: If the impact of liberalization in product markets filtered to labor markets, a reduction in adjustment costs, i.e., negative β_{P3} , $\beta_{S1.P3}$, and $\beta_{S3.P3}$ are expected, even though there is no change in the job security regime. β_{P3} , $\beta_{S1.P3}$, and $\beta_{S3.P3}$ may similarly be positive.

Since gradual deregulation in product markets (protected and licensed production yielding to increasing deregulation from 1982 and substantial delicensing in 1991) continued over several years, a competition measure every period to capture the evolutionary change is more appropriate. Herfindahl indexes by industry in India could not be found. Thus, as an inverse measure of gradually evolving competition, **price-cost margins** (PCM, G_{it-1}) are also generated and interacted with lagged employment and size dummies. A truncated version of the estimating equation without period dummies is shown below.

$$\ln L_{it} = \beta_0 + \beta_1 S1_{it} + \beta_2 S3_{it} + \beta_3 \ln G_{it-1} + \beta_4 S1_{it} \ln G_{it-1} + \beta_5 S3_{it} \ln G_{it-1} + \beta_6 \ln L_{it-1} + \beta_7 S1_{it} \ln L_{it-1} + \beta_8 S3_{it} \ln L_{it-1} + \beta_9 \ln G_{it-1} \ln L_{it-1} + \beta_{10} S1_{it} \ln G_{it-1} \ln L_{it-1} + \beta_{11} S3_{it} \ln G_{it-1} \ln L_{it-1} - \ln \bar{L}_{it}$$

$S1 = 1$ if size = 100, zero else
 $S3 = 1$ if size = 300, zero else

The premise here is that a higher degree of competition makes the need to adjust more urgent and may thus blunt the impact of adjustment costs and increase the speed of adjustment. So, the change in $\ln L_{it}$ due to competition (PCM) is negative (positive) or that β_3 is expected to be positive. The PCM coefficient, β_3 , will be positive or negative depending upon whether employment increases or decreases with greater price-cost margin. Higher PCM being associated with increasingly imperfect competition and excess capacity, it is expected to be negative. The interactions of PCM and size dummies would reflect these effects coupled with labor hoarding effects.

3.3.3 GLS and System-GMM Estimators

The estimates are obtained using GLS with errors robust to heteroskedasticity and autocorrelation. In the presence of any disturbance autocorrelation, the lagged variables (lagged dependent variable, lagged output; usually wage also, not in India application, see chapter two) are endogenous and need to be instrumented. In the

absence of external instruments, lagged first differences can serve as instruments for levels equation. However, with substantial sluggishness in employment, the correlation of these instruments with regressors is weak. Shea R-squared (Shea (1997)) is about 0.01 only indicating poor instrument relevance.

A more comprehensive set of instruments is obtained by using the system GMM estimator. Efforts to account for group effects in dynamic panel data estimations with autoregressive panel series produced the first-differenced GMM estimator. The strategy is first-differencing the equation and using lagged levels as instruments for the pre-determined and endogenous variables in first differences. Though sound, the technique performed poorly in that for panels where the series are highly autoregressive, this estimator is found to have large finite sample bias and poor precision. An alternative is found in the system-GMM estimator (Blundell and Bond (1998)), where equations in first differences use lagged levels as instruments as before and additionally levels equations are instrumented using lagged first differences. The system GMM estimator adds moment conditions based on initial conditions restrictions (jointly stationary means of the regressand and the regressors, to ensure that the respective first differences are uncorrelated with group effects). When the additional moment conditions are valid, the system GMM

estimator is found to reduce bias and improve precision (Blundell, Bond and Windmeijer 2000). System-GMM allows for some serial correlation in the residual disturbance, with the lags specified for instruments increasing by the order of serial correlation. The number of moment conditions reduces correspondingly.

To exploit the rich instrumentation possible with the system-GMM technique, these GMM estimates are obtained. However, owing to the use of average employment size dummies and period dummies, only a parsimonious specification is feasible. The interactions of size and period dummies with the forcing variables are excluded. This parsimonious specification is estimated with both GLS and GMM to enable appropriate comparisons. In so doing, the first three years' observations are lost. These are 1973-1975, the years prior to the job security restrictions' regime change in 1976. The impact of these 1976 restrictions alone is thus not directly available with the GMM instruments.

3.4 Results and Findings

The estimates of model I (symmetric quadratic convex adjustment costs) based equation are presented in Table 3.4. As noted in the data description above, an year, say 1973, in this dataset refers to the period April73-March74. The equation is

estimated for three periods - 1973-1975, the period before the job security restrictions become mandatory; 1973-1982, the period after restrictions but before the job security provisions' coverage is extended and gradual deregulation become operational; and, 1973-1997, the full period for which data are available.

Size dummies are called Size100 and Size300. These dummies are interacted with wages, mandays, output, and lagged workers to assess the impact of regime changes on the relevant regression coefficients. Thus, there are three panels in the base regression for 1973-75: (i) effects for all employment sizes, (ii) marginal effects for size 100 and above, and (iii) further marginal effects for 300 and above. Period dummies are called Year76, Year82, and Year91. All these dummies are interacted with the entire first set of three panels including wages, mandays, output, lagged workers, and their interactions with size dummies. Year dummies from 1979 onward when a regime (new government) change and before the gradual deregulation process is operational and industry dummies at 2-digit level are also included.

The wage coefficient is statistically significant and negative as expected. The estimate for output is also significant and positive. Mandays (proxy variable for

hours) coefficient is significant and positive. The constant term representing average or autonomous employment is significant and positive. The coefficient for lagged workers that captures the effect of adjustment costs (extent of sluggishness in adjustment and opposite of the speed of adjustment) is significant and positive. Note that, this coefficient is high and larger in absolute terms than that of wage, mandays, or output. The evidence for 1973-1975 indicates the existence of adjustment costs even before the job security restrictions came into effect. Size effects are significant. Average employment is substantially higher for size300 industries (but negative for size100 industries). The lagged employment coefficient for size300 industries is negative implying that larger size in India may be associated with lower adjustment costs or higher speed of adjustment.

Most industry and year dummies are insignificant. The results for wage, mandays, output, and lagged workers remain unchanged in the different model specifications. Following is the discussion on size and period dummies and their interactions. It focuses on average employment and the speed of adjustment.

3.4.1 Changes in the speed of adjustment - GLS

The impact of the labor restrictions through the period dummy “Year76” is very significant for average employment and quite high (the intercept or the coefficient

for Year76). Recall that in the log-linear labor demand equation, this coefficient is log of average employment. Calculations indicate a fall in average employment of about 28 percent (reduces to about 25 percent when the full sample period is taken). The speed of adjustment is the opposite of the coefficient on lagged employment. The coefficient of lagged workers interacted with Year76 is a significant 0.032 or 3 percent (significance declines in the full sample period). Further, the size300 and lagged workers interaction is very significant. It is 0.377 indicating a large 38 percent (36 percent in full sample period) increase in sluggishness or a corresponding decrease in the speed of adjustment over and above the 3 percent found for all sizes. **Post job security restrictions in 1976, (i) there is a one-time fall (about 28 percent) in labor demand and (ii) a fall in the speed of adjustment (3 percent) and additionally so (38 percent) for large industries.**

Fallon and Lucas (1991) had found a significant negative coefficient on the period dummy (here, Year76) but no significant change in the speed of adjustment. Note that the interactions of Year76 with wages, mandays, and output are all highly significant and opposite to the signs without interaction. This is consistent with the theoretical model - when θ increases, the coefficients magnitude decreases - and lends considerable support to a significant increase in θ and hence fall in λ or speed of adjustment.

Using the full sample period 1973-1997 and all dummies, results are somewhat unexpected for Year82. The coefficient of lagged employment, size300 and Year82 dummy interaction is significant, about 0.15. This increase in sluggishness is expected for size100 industries (insignificant here) since job security regime coverage extended to units with employment 100 and above (from 300 and above in 1976). Nonetheless, this does indicate increasing adjustment costs for larger industries with increasing coverage. Further, there is a small decrease in sluggishness (-0.026) in lagged employment and Year82 interaction; perhaps the impact of deregulation on industries with size below 100 or those not specifically covered by job security regime. Unlike the case of Year76 and Year82 period dummies, the only significant result for Year91 is the large increase in average employment for size300 or large industries. Until 1997, there is no significant effect of lagged employment-Year91 interactions. So, there is some evidence of increase in employment but no corresponding decrease in sluggishness.

The coefficients of price-cost margin and its interaction with lagged workers are insignificant. However, the size dummy interactions are very significant. For size100, the results are as expected - PCM decreases average employment and

increases the sluggishness in adjustment, i.e., a positive coefficient of lagged employment-PCM-size100. Paradoxically, the results are opposite for size300 - PCM-size300 dummy has a positive coefficient (increases employment) and PCM-size300-lagged employment has a negative coefficient or there is a decrease in sluggishness.

Competition thus has differing impacts. **For medium sized (size100) firms, it increases average employment and decreases sluggishness with opposing results for larger (siz300) firms (lower average employment and higher sluggishness). Effects of pre-existing labor hoarding (requiring shedding of excess labor lowering average employment and net employment change) may be responsible.**

3.4.2 Changes in the speed of adjustment - System GMM Results

The results for system-GMM estimations are shown in table 3.6 and the corresponding GLS results in table 3.5. Before presenting the estimates, note that the over-identifying conditions fail to be rejected using the Hansen test or are tested as valid. Though the absence of autocorrelation of the first order in first differenced residuals is rejected (as expected, if the level equations have i.i.d. errors), no-AR(2) fails to be rejected or that no serial correlation in the levels' equation disturbance is valid. The regressions are thus well specified. Second, both tables 3.5 and 3.6 use

the parsimonious specification. Even so, all relevant variables cannot be instrumented given sample size. With restricted lags for the instruments, along with base regressors there are two distinct sets of variables that are instrumented. One set includes additionally Year82 period dummy with its interactions. The second set includes additionally Year91 dummy and its interactions.

Recall that there are no observations for the pre-1976 period. Results pertain to 1976-1982 and 1976-1997 periods. Hence, a direct before-after comparison is not possible. For both periods and with either set of instruments for the 1976-1997 period, GMM-lagged employment coefficient is very significant and high, the magnitude being slightly smaller than corresponding significant GLS estimates. GMM-size effects are obtained for size100 industries whereas in corresponding GLS these are obtained for size300 industries. Both indicate higher average employment and lower sluggishness for larger industries. The magnitude of GMM estimate is many times over those of GLS.

Additional results are obtained for the full sample with Year82 and Year91 period dummies and the second set of instruments. **GMM-estimates for size100-Year82 show a large fall in average employment and for**

size100-Year82-lagged employment show a large increase in sluggishness. This is expected since the coverage of job security restrictions expanded to size100 industries in 1982. However, this result is not obtained using the first set of instruments, the estimates are insignificant. With corresponding GLS, these results are obtained for size300 industries as also in the full specification GLS and in both, the magnitudes are smaller. Further, there is a decrease in sluggishness or the coefficient of lagged employment-Year82 interaction is negative for small firms. This is not obtained with parsimonious GLS but is found in full GLS model.

Year91-lagged employment GMM estimates are significant but opposing with the two sets of instruments. No significant results for Year91 and its interactions are obtained in corresponding GLS. Similarly, no significant results for PCM and its interaction with lagged employment are obtained in either GMM or corresponding GLS. Note that parsimony led to exclusion of PCM-size dummies' interactions which produced results in the full GLS model.

3.5 Concluding remarks

Overall, there is evidence that after job security restrictions in 1976, (i) there is a one-time fall (about 28 percent) in labor demand and (ii) a fall in the speed of adjustment (3 percent) and additionally so (38 percent) for large industries. Weaker

evidence indicates increasing adjustment costs for larger industries with increasing coverage and lower adjustment costs for smaller ones excluded from coverage.

GMM-estimates post-Year82 for size100 industries show a large fall in average employment and a large increase in sluggishness; and a decrease in sluggishness for smaller firms. This is expected since the coverage of job security restrictions expanded to size100 industries in 1982. The liberalization package in 1991 generates a one-time boost to labor demand for large firms but no clear reversal in sluggishness of labor adjustment.

For medium sized (size100) firms, competition increases average employment and decreases sluggishness with opposing results for larger (size300) firms (lower average employment and higher sluggishness). Effects of pre-existing labor hoarding (requiring shedding of excess labor lowering average employment and net employment change) may be responsible.

Industry data used with GLS and system-GMM estimation techniques provides interesting results. Using the system-GMM estimators helps to instrument for endogeneity in the labor demand equation. GMM estimates strengthen the GLS results and provide additional results.

Chapter 4: Public Sector Retrenchment Programs

4.1. Introduction

The retrenchment of public sector employment is an increasingly pervasive phenomenon.¹ Many advanced countries, developing economies, and transition economies have recently faced the issue of downsizing of public sector employment.

The reasons underlying the downsizing vary considerably across countries. For some it is a general move towards 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 the retrenchment 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.

While these studies are quite useful, it is difficult to draw common lessons from these country specific studies and there is relatively little analysis comparing the experiences across countries.² In this paper, we compile and analyze information on the recent retrenchment experiences across a large number of countries and retrenchment episodes.

Comparing and contrasting the experiences across countries is a formidable task.

1

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.

2

Important exceptions are Svejnar and Terrell (1991) which provides a very useful comparison across six countries for retrenchment in the transport sector, and Lindauer and Nunberg (1994) which provides a book-length discussion of civil service reform. Our study benefitted substantially from the insights in both of these publications.

Beyond the usual problems of cross country comparisons, there are no central databases with the requisite information compiled that permits such analysis. Accordingly, we compiled and collected our own information from a myriad of sources but primarily from internal World Bank documents and interviews of staff members at the World Bank with operational information about retrenchment experiences in individual countries.³ Our analysis is based upon 37 countries and 41 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 we consider exceeds 5 million, with a somewhat smaller net employment reduction. The discrepancy reflects the fact that some programs exhibited significant rehiring of the separated workers who departed and/or new hires by the public sector. In the analysis that follows, we look closely at the characteristics of programs that involve significant rehiring and new hires. While the latter may be part of a coherent plan to restructure the public sector workforce, the former is clearly not an indicator of success.⁴

Evaluating the costs and the benefits of the individual programs in a more comprehensive fashion is inherently difficult. In principle, the requisite information includes the compensation packages offered, the relative productivities and wages of the

3

Details regarding the collection of information is provided in section 3. A complete listing of individual country summaries is available upon request.

4

The converse is not true i.e. the absence of rehiring is not synonymous with success. Also, conceivably a restructuring could involve separating employees en masse and subsequently rehiring those with necessary specific skills or rehiring at temporary terms or both. No program in our sample intended such purposive rehiring.

displaced workers in the public and private sectors, as well as the adjustment costs borne directly by the affected workers and the entire economy. Measurement of much of this is well beyond the scope of available information, particularly the nature of the adjustment costs. Nevertheless, we can document considerable details about the magnitude and forms of compensation used in retrenchment programs, the wage bill savings, and 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.

The chapter proceeds as follows. Section 2 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 in this section is deliberately simple and borrows heavily from the existing literature. Our objective here is primarily to provide guidance for 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 3 outlines the methodology used to collect information for the individual countries and to compile the information in a systematic fashion. Section 4 presents the analysis of the information collected as well as some detailed discussion of individual countries to illustrate the patterns that emerge. Section 5 contains concluding remarks.

4.2. Conceptual Framework and Measurement Issues

To provide some guidance for the type of factors relevant for comparing and analyzing retrenchment programs across countries, it is useful to sketch out a simple conceptual framework. This framework helps us organize our analysis and discussion of the information we have collected. While the discussion in this section borrows heavily from the existing literature,⁵ our characterization of the relevant issues emphasizes some points that are neglected in the literature. Further, since our ultimate objective is to quantify the relevant measures using data across countries, our focus in this discussion is on the interaction between the conceptual and measurement issues that must be confronted.

Consider the relevant incentives (private and social) for the retrenchment decision for the marginal worker. Let:⁶

P_{private} = Present discounted value of the worker's productivity in private sector

P_{public} = Present discounted value of the worker's productivity in public sector

$C_{\text{individual}}$ = Present discounted value of adjustment costs born by the individual in relocating from public to private sector (e.g., job search costs, relocation costs, time spent unemployed).

5

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).

6

While 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.

C_{social} = Present discounted value of adjustment costs borne by society for the individual to relocate from public to private sector (i.e., adjustment costs borne by individual *plus* spillover effects e.g., congestion effects).

W_{public} = Present discounted value of earnings of the worker in public sector.

W_{private} = Present discounted value of earnings of the worker in private sector.

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:⁷

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

An individual worker will choose to stay on a public sector job as long as:⁸

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

If workers are paid more than their marginal product in the public sector (i.e., $W_{\text{public}} > P_{\text{public}}$), then it is easy to imagine that both (1) and (2) hold simultaneously -- that is, it is

7

The discussion here and the subsequent analysis primarily focuses on the reallocation of workers from the public to the private sector taking into account the relevant productivities, 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 the interaction with the worker reallocation deserves further attention.

8

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.

in society's interest for the marginal worker to relocate but it is not privately optimal.⁹

A number of *additional* factors are potentially important in evaluating the optimality of a retrenchment program. One factor is the expenditures incurred to pay public workers wages 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 not impact efficiency. Under these strong assumptions, these terms should not appear in equation (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 and/or fiscal crisis may imply that other government services are adversely affected by retaining redundant workers. To incorporate these effects in a modified version of (1), suppose that there is a distortions-based loss function $L(.)$ which is an increasing function of the transfers to workers. Taking into account these distortionary losses in (1) would yield that retrenchment is optimal if:

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

where COMP reflects the present discounted value of the compensation or other

9

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 in this context. 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. Since worker safety net enhancements are often part of a retrenchment program, explicit consideration of the role of differential capital market access is quite relevant.

assistance programs that accompany the retrenchment.¹⁰

One problem faced by policymakers (and shared in our analysis) is measuring the components above in (1), (2) and (3). Many of the components are very difficult to measure and/or difficult to observe in the presence of worker heterogeneity (e.g., 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 (i.e., barriers to adjustment in terms of hiring and firing costs), the worker safety net, informal vs. formal sector development, and the method, scope and speed of retrenchment. Social adjustment costs will be greater than the private adjustment costs to the extent there are spillover or externality effects of worker displacement. The spillover/externality effects include the impact of final goods demand spillover effects from reduced consumption expenditures by affected workers, congestion externalities among job searchers, and social disruption (e.g., national strikes) induced by the affected workers.¹¹ 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 not economy-wide spillover effects.

¹⁰

A related issue is whether the nature of the distortions from the transfers depends not only the net present value of the transfers but also the timing. 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.

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For further discussion of the congestion externalities among job seekers that might be important see, e.g., 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 to other sectors through final good demand spillover effects, see, e.g., Cooper and Haltiwanger (1996).

As noted, the nature and magnitude of these adjustment costs are very difficult to measure and as will become clear we have relatively little quantifiable information on adjustment costs that we can use in our comparison across countries. The most direct evidence available are from recent studies of privatization in transition economies (see, e.g., the studies in Commander and Coricelli (1995)) for which the massive restructuring implies that adjustment costs take center stage. Even in these latter studies, the information on the nature of the adjustment process is often quite limited. In general, and particularly in these transition economies, characterizing these adjustment costs is at the heart of the debate regarding gradualism versus a big push in the efforts to reduce the role of the public sector in the economy.

Another difficult measurement/conceptual problem is evaluating the pre and post retrenchment productivity of workers in the public sector. While there may be widespread agreement that there are redundant public sector workers, quantifying this is extremely difficult.¹² Further, some of the need for retrenchment may reflect more of a need of restructuring than simply downsizing. For example, low morale and productivity of public sector employees may reflect poor organizational structure and/or wage compression. Thus, a program may involve organizational structure and wage structure changes that appear to be financially expensive but are well-motivated by such factors. This raises concerns about the use of simple financial indicators that do not adequately incorporate such factors to evaluate the need and success of a program. In terms of (3), this discussion implies that the public sector productivity term needs to be broadly

¹²

The nature of the measurement problems in evaluating pre and post retrenchment productivity will vary depending on the type of public sector employment (i.e., civil service, military, or public sector enterprises producing goods and services).

interpreted. 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 above problems of measurement and assessment, it is often politically necessary to implement the retrenchment scheme via a voluntary program. This necessitates the provision of some incentive payment in form of severance pay, pensions, etc. (denoted INCENTIVE below) such that for an individual worker:

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

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 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. Alternatively, individuals with better outside opportunities and/or low adjustment costs are more likely to leave -- other things 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 information. This tension is at the center of the debate about the pros and cons of voluntary and involuntary

retrenchment programs. As noted above, voluntary programs have the advantage that they yield some favorable voluntary selection of workers with good outside opportunities and/or low adjustment costs without requiring the policy maker 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 compression¹³. Involuntary programs potentially permit specific targeting of groups of workers on observable characteristics but don't take advantage of favorable voluntary selection on unobservable worker 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, morale problems given wage compression, etc.) since 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/voluntary), whether the scheme involves targeting (e.g., skill or age biased), and the nature of labor market flexibility and the safety net. Many of these same factors

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For a discussion on optimal schemes using either different types of severance contracts or alternatively auctions, see Levy and Mclean (1996).

are important (e.g., 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 (e.g. W_{public} and INCENTIVE) are relevant to characterize the magnitude of the transfers.

4.3 Data Collection

The survey of public sector retrenchment programs across developing and transition countries was carried out on two dimensions. The first involved collection of internal World Bank documents relating to the macro-economic and public sector adjustment in these countries. A preliminary portrait of the issues relating to each country was drawn using myriad types of World Bank Documents¹⁴. These were, in turn, supplemented by a variety of external sources. The second step was interviewing World Bank officials associated with the retrenchment programs to obtain more direct information and assessment. The interviews typically yielded further acquisition of relevant documents. The countries, the retrenchment programs and the associated officials were selected using the World Bank electronic management information system (MIS) and the adjustment lending database called ALCID. See appendix Table 4A.1 for a list of surveyed programs/countries. The projects and loans listed on the World Bank

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Type of the World Bank documents included: Staff Appraisal Report (SAR), Memorandum and President's Recommendation (MOP), President's Report (PR), Supervision memorandum, Project Completion Report (PCR), Implementation Completion Report (ICR), Project Performance Audit Report (PPAR), Operations Evaluation Studies, Country Economic Memorandum (CEM), Sector and other economic reports.

MIS go back to mid-eighties.¹⁵ The interviews were conducted for more than eight weeks during the summer of 1995.

The interview transcripts, documents, reports and articles relating to each program were synthesized and summarized using a uniform outline. 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 are available upon request.¹⁶

As will become apparent, the information collected and assimilated ranges from quantitative information about the 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 varies substantially across programs. This blend of quantitative and qualitative information yields that the analysis that follows 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 as one learns the details of each individual program. These institutional and idiosyncratic factors serve as an additional important caution for interpreting the analysis of basic patterns that follows

¹⁵

The selection of programs was mostly restricted to this list. In general, World Bank staff mobility with movements away from early programs reduced usefulness of such interviews.

¹⁶

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

in sections 4.4.1-4.4.5.

4.4 Survey and Analysis of Cross country Evidence

4.4.1 Basic Facts

We begin the analysis of the information we have collected by characterizing some basic facts about the programs for which we gathered information. Tables 4.1-4.2 present summary statistics about the programs we surveyed (summary information on each program is provided in Table 4A.1 in the appendix). As noted in the introduction, our analysis is based on 41 programs in 37 countries. The World Bank has not historically provided direct assistance for public sector employment retrenchment programs¹⁷. 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, 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 4.1 makes clear that total separations are greater than the total employment reduction reflecting rehiring and new hires. Most programs did not experience rehiring of the same workers that had departed but a nontrivial fraction (20 percent) experienced significant rehiring. New hires are 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 with a massive public sector

¹⁷

As of February 1997, the World Bank allowed lending for severance payments provided it entails no organization closure.

retrenchment program. This program is a clear outlier on a number of dimensions (discussed below) but we felt it was important to include large programs among the transition economies as points of contrast. The method of employment reduction is categorized 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, and voluntary refers to programs in which employment reductions were achieved through workers voluntarily quitting (e.g., early retirements). As is evident from the table, involuntary-hard reductions dominate total employment reductions. However, this is primarily driven by the massive involuntary reductions in Eastern Europe. In contrast, the use of voluntary and involuntary-soft measures are the prevailing patterns in Latin America, Asia, and Africa.

Table 4.2 indicates that the total financial costs of the program are large (exceeding 12 billion dollars) with the average program having total cost of 400 million dollars.¹⁸ The financial costs took a variety of forms including severance payments, increased pension liabilities, and enhancements to the worker safety net (which we use a shorthand term of 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, the scope and mix of the packages varied considerably across countries. As the patterns

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The total cost is driven in part by enormous increases in pension and safety net expenditures in Poland. The increases for Poland reported in Table 4A.1 are, from all accounts, real but they do 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 percent of programs that exhibit various characteristics.

across continents show, the transition economies in Eastern Europe relied heavily on the worker safety net, while countries in the Southern Hemisphere and Asia relied much more heavily on direct compensation (severance pay and enhanced pensions, i.e., payments made directly to workers) to workers. The latter pattern is particularly striking for severance pay (Asia-92 percent, Latin America-74 percent, and Africa-51 percent of total costs). In section 4.4.6, we return to this observation in the context of discussing the likely differences in the nature of labor market adjustment costs across countries.

A wide variety of circumstances led to the retrenchment programs across countries. The most prominent factors leading to retrenchment were fiscal crises and as part of a general effort to reduce the size of government in the economy. However, in some cases, the compelling factors appeared to be more 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” -- workers on the payroll who did not exist but someone was collecting the paycheck) was another common complaint. Finally, the downsizing of the military played a prominent role as well. Not surprisingly, many programs had multiple factors leading 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 is viewed as a one-time event correcting a perceived relatively narrow problem (e.g., ghost workers, productivity/morale problems due to wage compression) in a particular public sector agency or enterprise. These one-time event cases typically used some form of direct compensation (i.e., severance and enhanced

pension) and accordingly were more likely to use voluntary methods of retrenchment. In contrast, in some countries, the public sector retrenchment is part of a fundamental change in the role of the public sector in the economy (e.g., the transition economies). In the latter cases, there is typically much greater attention to institutional changes in the programs (e.g., unemployment benefits, relocation assistance, training assistance) that act as the safety net for worker reallocation.

Much of the detailed information we collected involves the method used for employment reduction, the nature of compensation provided and the degree of targeting. Summary information on these characteristics is provided in Tables 4.3-4.5. Many programs (but less than half) used both involuntary and voluntary reduction methods. Relatively few programs used all three methods. While voluntary programs appear to be the most popular in terms of the percentage of programs with a voluntary component, most employment reductions were actually achieved via involuntary methods¹⁹. The removal of ghost workers played a relatively minor supporting role in the employment reductions but was quite prevalent amongst the African countries in our survey.

Table 4.4 indicates that the primary form of direct compensation to workers was some form of 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.

¹⁹

The inclusion of Hungary in our 41 programs has a clear influence on employment-weighted results. For the most part, our results are depicted on a unweighted basis so that outliers such as Hungary do not play a disproportionate role.

As discussed in section 2, 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 are those that restricted the program along detailed occupational or skill groupings. For example, the restructuring of the workforce in the tax administration in Peru was based on new and continuing workers passing a written test. Age-biased programs are primarily those that focused on voluntary retirement (and associated pension enhancements) as the means for retrenchment. Neutral programs are those that offered 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 used a mix of packages that induced selection on both types of criteria.

Table 4.5 indicates that targeting on the basis of skills or age (in the latter case primarily through early retirement programs) is important but not pervasive. Almost 20 percent of the programs used no 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.

4.4.2. The Relationship Between Rehires, New Hires and Other Program Characteristics

Based upon the discussion in section 2, tailoring a program to individual characteristics using some form of targeting is likely to be important to avoid losing the most productive and *or* essential workers. The absence of targeting may yield excessive

losses of workers in key areas and/or with key skills and thus necessitate either rehiring some of the same workers²⁰ who departed (a sure sign of poor targeting) or new hiring. Using the information we have collected, we have examined the simple bivariate relationships between the likelihood of rehires and new hires and other program characteristics (including the nature of targeting).

Table 4.6 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 are much less likely to use skill or age targeting. For example, only 25 percent of programs with rehiring also used skill targeting while more than 60 percent of programs without rehiring used skill targeting. The flip side of this is that more than 60 percent of the programs with rehiring did no targeting while less than 10 percent of programs without rehiring did no targeting. 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 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 (i.e., 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 4.7 examines the analogous relationships between new hires and program

²⁰

In many programs, workers are rehired by the same organization/unit. In some cases, they are rehired by a different branch of the public sector.

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 hiring should be interpreted or treated in a like manner with rehiring. Rehires of the same workers who departed is much more likely an indicator of problems with the program but new hires may involve some intended restructuring of the workforce.²¹ The results on age targeting and pension enhancements suggest that for some programs the intent was to replace older, incumbent workers with new workers.

4.4.3 Summary Financial Indicators

One summary financial indicator that we consider is a measure of the simple, financial break-even period reflecting the number of years that a program requires before breaking even on financial costs and benefits. The break-even measure is calculated as follows. Financial costs are the present discounted value of the compensation package or safety net expenses incurred. 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 via severance payments so this present discounted value is easy to calculate. However, in cases in which the costs are in the form of continuing safety net or pension liabilities, we generated appropriate present discounted value measures of the financial

²¹

As noted in the introduction, rehiring of the same workers that have been 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 rehire specific workers. We found no evidence for such purposive rehiring.

costs.²² Financial benefits are measured as the presented 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 the 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 presented discounted value of financial costs.

For purposes of comparability of measures across countries, a common (10 percent) discount rate is used. 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 programs.

As seen from Table 4.8, across the programs we surveyed, a non-trivial fraction (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 rising compensation for retained workers. Accordingly, some programs (e.g., Peru SUNAT) yielded no wage bill savings given the rehires, new hires and/or increase in compensation. For the programs for which we could calculate a finite break-even period, the average break-even period is 2.27 years with the median 1.82 years, the maximum 10 years and the minimum 0 years. Programs with immediate break-even periods (zero years) are those with involuntary reductions without direct compensation or other assistance programs

22

For some programs, the evaluation of the program by World Bank staff had already yielded such calculations.

How should this simple financial indicator be interpreted? If nothing else, it provides an indicator of the financial viability of the programs and Table 4.8 indicates that many of the programs yield relatively rapid financial payoffs. However, as discussed in section 2, 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 equation (3). For purposes of discussion, suppose we treat the loss function in (3) as a simple linear function such that a dollar of expenditures on public sector programs yields a dollar in distortionary losses. Then, equation (3) can be written as:

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

Thus, we see that the break-even period measure is essentially providing an evaluation of the program based upon only the first two terms of equation (5). A comprehensive evaluation, even in these crude terms, requires calculating all of the terms in equation (5).

Unfortunately, data limitations imply that we cannot measure all of the components of (5) and thus cannot literally evaluate programs on this basis. However, for some programs we can go a few steps further which is instructive. In particular, for some programs we can estimate the wages that retrenched workers received in the private sector. Assuming that workers are paid their marginal product in the private sector, ignoring adjustment costs and assuming that productivity of the redundant (retrenched) workers is zero in the public sector, permits a crude implementation of the terms in (5) using this additional information. In particular, for programs that we had this information, we calculated a modified break-even measure (denoted for labeling purposes

the “economic” payback period) using this additional information. Literally, the “economic” payback period is the number of years it requires for the benefits from the reduced public sector wage bill to be such that present discounted value of costs equals the presented 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 upon retrenched workers’ earnings in the private sector, for programs with measurable increases in productivity in the public sector (e.g., PERU SUNAT) we included such effects in the benefits. As seen from Table 4.8, the average calculated economic payback period is 2.1 years and the median is 0.8 years across the programs for which we could generate the measure.²³

Part of the motivation for calculating comparable summary financial and related indicators across programs is to permit relating these financial indicators to other program characteristics. Table 4.9 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 4.10 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 divided programs into two groups -- those in the lower and upper tail of the

²³

Sufficient information was available to calculate the payback period indicator for 20 percent of the programs.

distribution relative to the median break-even period (which is 1.82 years). The results from Tables 4.10 reinforce those from Table 4.9. 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 (either through severance payments or pension enhancements).

Interestingly, some of these patterns change substantially when we examine the payback period distribution. As seen in Table 4.11, once we incorporated even crude information about productivity gains into the calculation, we no longer find that targeting is especially expensive in terms of implying 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 have relatively rapid financial payoffs. Alternatively, a non-trivial fraction are financial losers. However, caution must be used in interpreting such financial indicators as measures of 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 we made to incorporate relevant economic costs and benefits indicates that the inferences based upon narrowly defined financial indicators may be quite misleading.

4.4.4 Highlights of Individual Programs

We now turn to summarizing the experiences for a selected set of individual programs. The objective here is threefold. First, consideration of individual programs provides a more comprehensive view of the scope and heterogeneity across programs.

Second, the discussion of individual programs permits illustration of some of the key patterns detected in the discussion of basic patterns. Third, our summary tables and related analyses admittedly leave much out. 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 available data²⁴. However, in some cases, qualitative information about these issues are available which sheds some additional light.

Programs in six countries (Peru, Argentina, Uganda, Ghana, India, and Hungary) are highlighted. Key characteristics are presented in Table 4.12. In the discussion, the ordering of the country/program cases reflects a rough attempt to select cases that highlight the role of the following issues: (i) targeting; (ii) productivity gains; and (iii) worker safety net and labor market adjustment. This ordering is only approximate since all of these issues are present for every program. In the summary statistics in Table 12, bold entries in the table highlight the relevant key issue that motivates our inclusion of this program for special discussion.

PERU: Two programs were initiated as part of a broader exercise of fiscal austerity and adjustment. Among the problems were the under-funded pension system, the posting of “ghost” employees by the regions to enhance employment based federal transfers, and erosion in public salaries making it difficult to hire and retain qualified workers.

24

In general, productivity measurement in service sector, specially public sector is difficult. Most work uses quantitative or technical measures. See Griliches (1992).

With the support of external donors, Peru initiated two labor adjustment programs in 1991, one for the Peru civil service and the other for the Peru tax administration authority called SUNAT. These were respectively completed in 1993 and 1992.²⁵ The civil service program used all three involuntary and voluntary employment reduction methods - separating about 250,000 workers over three years. Induced departures employed both lump-sum severance and pension enhancements. Little evidence on skill targeting was found. 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 the separated workers.²⁶ In total, 163,000 workers of the originally retrenched workers were rehired. Severance packages of about \$1000 were provided to less than half (112000) 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 was 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 the shuffling of the same workers in and out of the same positions.

Interestingly, the other program in Peru appears to be a model of good targeting.

The SUNAT (tax authority) program also used a mix of voluntary and involuntary

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The primary source of information on these two programs is a World Bank (principal external donor for both projects) document: World Bank, 1994. Peru Public Expenditure Review. Report No. 13190-PE

²⁶

Further, federal government staff reductions were offset by increases in employment by regional governments with most of it re-hiring of erstwhile federal staff.

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 workforce (2034 workers) was separated. Subsequently, SUNAT hired 1309 new workers, again based on a written test. Since productivity and competence were objectively established and necessary skills acquired afresh, little basis remained for rehiring (skilled but severance-induced separated) workers. Rehiring was barred for ten years and none was found. The average salary for affected workers increased from US\$50 per month to US\$1000 per month²⁷. 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 US\$47 million in present value terms. However, the entire increase/improvement in tax collections can be interpreted as substantial gain for the government (and in principle the economy²⁸). Incorporating the tax collection gains into our calculation of the payback period yields a payback period of only 0.002 years. This highlights the importance of evaluating program performance along multiple dimensions, not just organization-level financial costs and benefits but the broader impact of the program. It is worth noting that neither of these two programs emphasized job search, relocation, training or other forms of assistance to reduce the adjustment costs for the retrenched workers.

²⁷

Deflating wages using the CPI instead of the exchange rate returns an increase of similar magnitude. The instantaneous increase would drop from 20-fold to 18.6 times.

²⁸

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

ARGENTINA: With external assistance from the World Bank, Argentina undertook programs for the federal administration and the railroads (as part of a broader program for public enterprises) during the years 1990-92 and 1991-94 respectively²⁹. 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. Employee redundancy level was estimated at 50 percent³⁰. Thus, staff restructuring was an important component of overall reform.

The federal administration program retrenched 400,000 workers. No explicit targeting by worker was 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 was found³¹, despite the large scale of retrenchment and the absence of targeting. The railroads' program separated about 73,000 workers using multiple methods. It used both voluntary and involuntary reduction methods. An important feature of Argentinean programs is the heterogeneity in compensation amounts. In federal administration, average severance payment per worker was US\$

29

See Robbins (1996) for a case study on public sector retrenchment in Argentina since 1990. This paper examines issues of adverse selection and post-retrenchment worker status using micro data.

30

World Bank, 1995. Argentina Public Sector Reform Project Completion Report. Report No. 14781.

31

In the source reports (Reports no. 14781, 14809 and the World Development Report 1994,) we found no evidence of rehiring. However, some anecdotal evidence indicates occurrence of rehiring.

3000 amounting to a one-time cost of US\$ 425 million ³². In railways, the average severance per worker was US\$12000 or a one shot payment of US\$ 360³³ million in railways . Annual wage bill saving was expected to be US\$1000 million in the federal service and US\$238 million in the railroads. Calculated break-even periods were 0.4 years and 1.6 years respectively in the federal administration and the railroads, with the difference reflecting the higher compensation per worker in railroads.

While difficult to measure, some evidence suggests that the restructuring in both railways and federal administration was characterized by substantial productivity gains. Railways experienced an increase in freight miles per worker and passenger miles per worker of about six to seven times. In federal administration, a 50 percent cut in processing time is claimed.

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 size in line with peace-time national priorities and conducted a 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

³²

World Bank, 1995. Argentina Public Sector Reform Project Completion Report. Report No. 14781.

³³

World Bank, 1995. Public Enterprise Adjustment Loan Audit Report. Report No. 14809.

voluntary separation. The gross number of separations was approximately 150,000. The average compensation per worker was US\$320³⁴ or about twice the annual GDP per capita. However this total expense of US\$ 16 million constituted a measured net financial loss since 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 advisors revealed a strong motivation for the salary hike, viz., 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.³⁵

The military program was a post-war retrenchment exercise. It used both voluntary and involuntary reduction methods to reduce strength by 44000 employees. Skill targeting was based on soldier performance and military requirements. Average compensation was US\$955, provided partly in kind and distributed over several months. The calculated break-even period was 2.7 years. In Uganda, some measurement of post-retrenchment earnings for veterans was available. Actual post-separation earnings found for the military programs³⁶ were up to 71 percent of GDP per capita in Uganda. Including these earnings of a total of US\$ 5.4 million per year in Uganda's case yields a

³⁴

Republic of Uganda, 1994. Management of Change, Context, Vision, Objectives, Strategy and Plan: Civil Service Reform.

³⁵

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 EDI of the World Bank.

³⁶

World Bank, 1995. From Swords to Ploughshares: The Uganda Demobilization and Reintegration of Ex-combatants in Uganda. Confidential Mimeo.

calculated payback period of 1.2 years. The rarely observed actual data on post-separation earnings is interesting, particularly given that the earnings are lower than the average. While this evidence is too idiosyncratic to draw general inferences, it does highlight the difficulty in generating the appropriate cost-benefit calculations. Using average earnings in the private sector as a proxy (even when this is available) is obviously inappropriate in this case.

An interesting feature of the military program was the safety net nature of the compensation that enabled veterans to reintegrate into civilian society. Assistance in kind was tailored to the intended post-separation occupation, for instance farmers were provided land and farm implements. Further 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 soft involuntary measures - removing ghost workers and enforcing retirement age. Voluntary departure, with compensation, was conditional on employment being non-critical to the performance of the unit. Necessary skills were thus sought to be protected. 73,000 workers were separated. More than three-fourths of the total workers separated received the package. Average compensation was US\$700. The formula of two months' base pay for each year of uninterrupted service exceeded the legally required four months' base pay in most cases. Anecdotal evidence indicated

some rehiring in subvented organizations (attached to ministries but not covered under budgetary process.) The calculated break-even period was 1.8 years. Despite a generous package offer, the BEP was relatively low.

Regarding assistance to workers to making a transition to the private sector, extensive training through Program of Action to Mitigate the Social Costs of Adjustment (PAMSCAD) was planned. However assistance for job search & placement and for retraining was inactive. Courses in entrepreneurial development were offered. For potential farmers inputs including land were provided. In rural areas retrenched were also eligible to participate in Food-for-Work schemes. A sample survey of the retrenched workers³⁷ found that about 10 percent of the retrenched quit the labor force. Of the rest 97 percent were re-employed 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 over more than two years (1993-94). The average cost per worker was about US\$17000. The formula used was 30 days' wages for each year worked compared with the legally required 15 days' wages for each year of permanent service. The scheme incurred a net loss of US\$276 million in present value terms given the exorbitant

³⁷ Alderman, H., S. Canagarajah and S. Younger (1994).

compensation³⁸ . 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 was found. On skills, the maximum skill level among the retrenched was that of a supervisor.

Results from a sample survey³⁹ indicated that all retrenched workers remained in the labor force and 80 percent were re-employed. 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: Reform and stabilization programs aimed at a transition to a competitive economic system led to mass dismissals in state enterprises during 1990-1992. About 1.7 million workers constituting 8.7 percent of the country's labor force were separated. This is extremely large compared with other programs' scope - Ghana (0.2 percent of labor force,) India (0.01 percent.) The annual wage saving amounting to US\$298 million but was exceeded by the increase in the annual safety net expenditures of US\$858 million. The exercise was clearly financially costly but reflects 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 is obviously attempting to follow that model.

Surveys⁴⁰ indicate that retrenched workers remained in the labor force. Most of

³⁸

The high compensation reflects in part the effects of a rigid anti-retrenchment and anti-closure law in India. For a discussion of this, see Basu, Fields and Deb Gupta, (1996).

³⁹

PA Consulting Group, 1993. Social Safety Net Adjustment Credit Technical Assistance - Final Report . Submitted to the World Bank.

⁴⁰ See, Commander et. al. (1995).

the re-employed were in the private sector, in trade and service industries. The average private manufacturing wage was found to be about 70 percent of state firm wage (providing some indication of 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 (e.g., via voluntary retirement). Others left voluntarily and transited directly to other jobs. However, as involuntary layoffs increased, an increased 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.

4.4.5 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 lead 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. An exception are the programs in Eastern Europe (e.g., Hungary) in which there was massive public sector downsizing. However, even in cases where the specific program we analyzed is 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. Thus, the

results that follow can be interpreted in this light.

For each of the programs we 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/GDP and the ratio of government spending to GDP.⁴¹ 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 1980-92.⁴² Table 4.13 presents the patterns of these variables for the five years prior to the initiation of the retrenchment program in each country and during the program (e.g., for a specific country if the retrenchment program began in 1990 and ended in 1992 the prior year calculations reflect data for 1980 to 1989 while the calculations during the program reflect data averaged over 1990 to 1992).

Unemployment rises in the years preceding a program and GDP growth rates fall in the years leading up to a program. Interestingly, 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.

41

Several sources were used for this purpose including the Penn World Tables, the cross-country labor market database being generated by Rama (1995), the World Bank World Tables, and the International Finance Statistics.

42

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 there is likely considerable measurement error in the aggregates available by country.

The government share of GDP rises steadily prior to the onset of a program and falls during the program. Somewhat surprisingly, there is not an accompanying pattern for the deficit to GDP ratio and the debt to GDP ratio. For both of these domestic fiscal indicators, there is an improvement in the fiscal posture preceding the program. However, this appears to in part 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 are supported in part by foreign assistance.

4.4.6 Missing Pieces -- Measurement and Characterization of Adjustment Costs

The discussion in the above subsections provides a range of information about the experiences of retrenchment programs. In terms of relevant factors for evaluation, one of the biggest missing pieces is associated with the conceptual and measurement problems in quantifying private and social adjustment costs. While quantification is beyond the scope of readily available information, there are a few qualitative observations that can be made regarding the cross-country variation in labor market adjustment costs. Specifically, qualitative evidence suggests that the considering the impact of the formal and informal sectors is important.⁴³ In countries for which the informal sector plays a large role (e.g., Ghana), many of the retrenched public sector workers found employment relatively quickly, albeit mostly not in the formal wage

43

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 (e.g., 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.

sector. In contrast, in the transition economies, retrenched workers from public sector enterprises are facing increasing difficulty 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 terms of the relevant labor market adjustment. One set of countries seem to yield relatively quick adjustment for retrenched public sector workers with the informal sector absorbing retrenched 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 we observe across countries. For example, in Africa and to some extent Latin America, many of the programs we surveyed involved direct compensation and relatively little changes in the formal worker safety net. In contrast, in transition economies, the resources for retrenched workers have primarily been devoted to the worker safety net.

This contrast is likely overstated in a number of 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 informal sector work activity. 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.

What information would we have liked to have to quantify adjustment costs? To be fair, this question is difficult to answer in advanced economies as well as for developed and transition economies. Nevertheless, from advanced economies (and some

transition economies) we have learned a great deal about labor market flexibility and adjustment by examining the flows of workers and the flows of jobs (see, e.g., Davis, Haltiwanger and Schuh (1996)). For example, some advanced economies exhibit high inflows and outflow rates to unemployment (e.g., the United States and Canada) while others exhibit low inflows and outflow rates from unemployment (e.g., France and the Italy).⁴⁴ The variation in the inflow and outflow rates to unemployment translate into striking differences in the importance of long-term unemployment across countries. In the United States the percent of long term unemployed (less than 12 months) in the early 1990s was about 6 percent 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 accompanying importance of long term unemployment in some countries implies 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 the country.

4.5 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. Details about 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

⁴⁴ See, e.g., OECD (1993) and OECD (1996).

significant rehiring of the same workers) have been documented and examined. One of the primary objectives and thus contributions of this paper is to gather all of this information into one place in an easily accessible manner.

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

Our analysis of financial indicators indicates that there is considerable heterogeneity in the financial viability across the programs. Many of the programs have a rapid financial payoff in the sense that the wage bill savings from retrenchment quickly cover the financial costs of the programs from worker compensation and assistance. Alternatively, a non-trivial fraction of the programs are clear financial losers. However, we emphasize that while 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 economy-wide (social) adjustment costs that are incurred as part of restructuring programs. The data required to assess these adjustment costs are generally not available and there are accompanying difficult conceptual issues. This problem has both micro and macro dimensions. First, on the micro side, little effort has been provided to collect data systematically on the post-separation experiences of retrenched workers. Second, on the macro side, characterizing and understanding the nature of these adjustment costs requires an understanding of the myriad of factors (e.g., institutions) that affect the labor market adjustment processes within individual countries. The large observed differences across even advanced economies on this dimension provides prima facie evidence in support of the need for this type of information. Third, 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.

Chapter 5: Conclusions

The direct measurement of adjustment costs establishes the existence of substantial costs for workers. Weaker but disturbing evidence points to generational effects where job prospects of displaced workers' children are adversely affected. The economy while growing seems unable to absorb displaced workers or otherwise provide income security and a cushion against accompanying effects such as on children education. Transition supporting institutions exist in some measure but their coverage is restricted and where these exist, effectiveness is low. Employers are adopting complex means to alter workforce in the backdrop of restrictive law, increasing competition and changing market conditions. These are legal restructuring using Voluntary Retirement Schemes (VRS), illegal restructuring using lockouts, and disputed restructuring with resolution sought through labor courts and tribunals. Though labor adjustment is taking place, the methods are costly. Given cost-cutting pressures from increasing competition, costly adjustment reduces the gains from such adjustment.

The econometric analysis establishes that adjustment is slow. There is evidence that after job security restrictions in 1976, (i) there is a one-time fall (about 28 percent) in labor demand and (ii) a fall in the speed of adjustment (3 percent) and

additionally so (38 percent) for large industries. The extended coverage of the job security regime in 1982 led to these effects becoming larger for covered industries and slightly smaller for uncovered industries based on average employment size. These effects are not reversed by the economic reform package of 1991. No significant increase in speed of adjustment is evident post-1991 though there may have been a one-time boost to labor demand. Though more adjustment and more VRS programs are taking place post-1991, the speed of adjustment has not really increased.

Deregulation begun prior to 1991 and liberalization from 1991 have increased the extent and intensity of competition. Interacting competition measures with adjustment variables sheds better light on the effects. Competition increases average employment and reduces the sluggishness of labor adjustment or increases the speed of adjustment for medium sized industries (size 100 and above by average employment size) but the opposite holds for larger industries (size 300 and above by average employment size). For the latter results, pre-existing labor hoarding may be responsible.

The survey and analysis of cross country experiences with retrenchment reflects the gathering and processing of a wealth of information about individual programs.

Details about 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. Both quantitative and qualitative information suggest that there is a potentially large payoff in productivity gains and in reducing adjustment costs from programs with a multi-dimensional approach. The analysis of financial indicators indicates that there is considerable heterogeneity in the financial viability across the programs - many of the programs have a rapid financial payoff but a non-trivial fraction of the programs are clear financial losers. However, while simple financial indicators are of obvious interest, these 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.

Should the job security regime be liberalized and consequent mandated separation costs be reduced? The debate on this issue has been pending resolution since the initiation of reforms in 1991 in India. Both the economic and political costs are immense. The evidence of substantial adjustment costs and sluggish

employment adjustment here, though modest, urges a qualified yes.

Several issues remain to be examined. The assumption that ignoring capital doesn't bias estimates of labor based on studies of the U.S. economy may be less true for the Indian economy. Within the existing framework here, data on trade unions and on external trade should be incorporated. As of now, the trade union data based on voluntary but intermittent reporting is at best indicative. Data on external trade can be used once the industrial and trade classifications are mapped. Finally, heterogeneity arising from idiosyncratic shocks is lost due to the use of industry level data. The industry data based estimates are revealing but the magnitudes may well vary substantially at the unit level. Some of the ambiguity emerging here may be resolved.

Table 2.1A: Employment Aggregates

Year	Population million	Labour force million	Employ- ment million	Agriculture million	Industry million	Services million	Unemploy- ment rate* percent
1971	548	-	180	130	20	30	-
1981#	685	-	223	148	-	-	-
1983	718	309	303	207	43	52	1.9
1987/88	790	333	324	208	52	64	2.8
1991	816	-	306	186	-	-	-
1993/94	895	382	374	242	58	77	2.0
1999/2000	1004	406	397	238	69	90	2.2
2001	1025	-	403	235	-	-	-

Source: Indian Labour Yearbook, Labour Bureau, Ministry of Labour, Government of India

Notes:

Excludes the state of Assam

* Using usual principal and subsidiary status (upss)

Indian Census data for 1971, 1981, 1991, 2001; Rest- NSSO quinquennial household surveys

Table 2.1B: Growth Rates - Employment and GDP

Period	Reference	GDP	Employ- ment
	Five-year plan	Annual average	Annual average
1951-56	I	3.6	0.39
1956-61	II	4.2	0.85
1961-66	III	2.8	2.03
1967-69	Annual plans	3.9	2.21
1969-74	IV	3.3	1.99
1974-79	V	4.8	1.84
1980-85	VI	5.7	1.73
1985-90	VII	5.8	1.89
1990-92	Annual plans	3.4	1.50
1992-97	VIII	6.5	2.44
1997-2002	IX	5.8	1.07

Source: Planning Commission, Government of India, Five-Year Plan Documents

Table 2.2: Employment in Organised Sector

Year ending as of March31	Organised employment - public sector million	Organised employment - private sector million	Organised employment - total million	Growth - public sector percent	Growth - private sector percent	Growth - total organised percent
1975	12.87	6.80	19.67	-	-	-
1976	13.36	6.84	20.21	3.8	0.6	2.7
1977	13.88	6.87	20.74	3.8	0.4	2.7
1978	14.44	7.04	21.48	4.1	2.5	3.6
1979	15.05	7.21	22.25	4.2	2.3	3.6
1980	15.08	7.24	22.32	0.2	0.4	0.3
1981	15.48	7.40	22.88	2.7	2.2	2.5
1982	15.88	7.61	23.48	2.5	2.9	2.6
1983	16.46	7.55	24.01	3.7	-0.7	2.2
1984	16.86	7.43	24.29	2.4	-1.6	1.2
1985	17.27	7.31	24.58	2.4	-1.6	1.2
1986	17.68	7.38	25.06	2.4	0.9	1.9
1987	18.03	7.36	25.39	1.9	-0.2	1.3
1988	18.32	7.39	25.71	1.6	0.4	1.3
1989	18.51	7.48	25.98	1.0	1.2	1.1
1990	18.77	7.58	26.35	1.4	1.4	1.4
1991	19.06	7.68	26.73	1.5	1.2	1.4
1992	19.21	7.85	27.06	0.8	2.2	1.2
1993	19.33	7.85	27.18	0.6	0.1	0.4
1994	19.45	7.93	27.38	0.6	1.0	0.7
1995	19.47	8.06	27.53	0.1	1.6	0.5
1996	19.43	8.51	27.94	-0.2	5.6	1.5
1997	19.56	8.69	28.25	0.7	2.0	1.1
1998	19.42	8.75	28.17	-0.7	0.7	-0.3
1999	19.42	8.70	28.11	0.0	-0.6	-0.2
2000	19.31	8.65	27.96	-0.5	-0.6	-0.5
2001	19.14	8.65	27.79	-0.9	0.1	-0.6
2002	18.77	8.43	27.21	-1.9	-2.5	-2.1
2003	18.58	8.42	27.00	-1.0	-0.2	-0.8

Sources:

Indian Labour Yearbook, Labour Bureau, Ministry of Labour, Government of India
Economic Survey, Ministry of Finance, Government of India

Table 2.3: Disputes data

Year	Industrial Disputes		Strikes		Lockouts		Strikes-% change		Lockouts-% change		Lockouts-% share		Loss (Rs. Mill)
	No.	Mandays lost	No.	Mandays lost	No.	Mandays lost	No.-% change	Mandays lost - % chg	No.-% change	Mandays lost - % chg.	Of no. disputes	of lost mandays	Mandays lost*Avg. Labor Cost/manday
1970	2889	20563381	2598	14749067	291	5814314	-	-	-	-	10.1	28.3	78.3
1971	2752	16545636	2478	11802589	274	4743047	-4.6	-20.0	-5.8	-18.4	10.0	28.7	68.2
1972	3243	20543916	2857	13748262	386	6795654	15.3	16.5	40.9	43.3	11.9	33.1	-
1973	3370	20626253	2958	13862211	412	6764042	3.5	0.8	6.7	-0.5	12.2	32.8	-
1974	2938	40262417	2510	33643524	428	6618893	-15.1	142.7	3.9	-2.1	14.6	16.4	116.6
1975	1943	21900931	1644	16706369	299	5194562	-34.5	-50.3	-30.1	-21.5	15.4	23.7	113.7
1976	1459	12745735	1241	2798975	218	9946760	-24.5	-83.2	-27.1	91.5	14.9	78.0	239.8
1977	3117	25320072	2691	13410141	426	11909931	116.8	379.1	95.4	19.7	13.7	47.0	286.6
1978	3187	28340199	2762	15423344	425	12916855	2.6	15.0	-0.2	8.5	13.3	45.6	332.0
1979	3048	43853518	2708	35803816	340	8049702	-2.0	132.1	-20.0	-37.7	11.2	18.4	225.6
1980	2856	21925026	2501	12017919	355	9907107	-7.6	-66.4	4.4	23.1	12.4	45.2	310.5
1981	2589	36583564	2245	21208130	344	15375434	-10.2	76.5	-3.1	55.2	13.3	42.0	538.6
1982	2483	74614764	2029	52112874	454	22501890	-9.6	145.7	32.0	46.3	18.3	30.2	878.7
1983	2488	46858464	1993	24921446	495	21937018	-1.8	-52.2	9.0	-2.5	19.9	46.8	-
1984	2094	56025240	1689	39956861	405	16068379	-15.3	60.3	-18.2	-26.8	19.3	28.7	-
1985	1755	29239466	1355	11486803	400	17752663	-19.8	-71.3	-1.2	10.5	22.8	60.7	954.6
1986	1892	32748228	1458	18823648	434	13924580	7.6	63.9	8.5	-21.6	22.9	42.5	837.6
1987	1799	35358372	1348	14026081	451	21332291	-7.5	-25.5	3.9	53.2	25.1	60.3	1404.1
1988	1745	33946925	1304	12529895	441	21417030	-3.3	-10.7	-2.2	0.4	25.3	63.1	1635.2
1989	1786	32663377	1397	10695112	389	21968265	7.1	-14.6	-11.8	2.6	21.8	67.3	-
1990	1825	24086170	1459	10639687	366	13446483	4.4	-0.5	-5.9	-38.8	20.1	55.8	1307.3
1991	1810	26428092	1278	12428333	532	13999759	-12.4	16.8	45.4	4.1	29.4	53.0	1527.2
1992	1714	31258744	1011	15132101	703	16126643	-20.9	21.8	32.1	15.2	41.0	51.6	2019.5
1993	1393	20300653	914	5614515	479	14686138	-9.6	-62.9	-31.9	-8.9	34.4	72.3	2027.9
1994	1201	20983082	808	6651054	393	14332028	-11.6	18.5	-18.0	-2.4	32.7	68.3	2092.6
1995	1066	16289569	732	5719961	334	10569608	-9.4	-14.0	-15.0	-26.3	31.3	64.9	1757.0
1996	1166	20284803	763	7817869	403	12466934	4.2	36.7	20.7	18.0	34.6	61.5	2382.9
1997	1305	16971389	793	6295365	512	10676024	3.9	-19.5	27.0	-14.4	39.2	62.9	2040.6
1998	1097	22061984	665	9349108	432	12712876	-16.1	48.5	-15.6	19.1	39.4	57.6	2679.4
1999	927	26786856	540	10625171	387	16161685	-18.8	13.6	-10.4	27.1	41.7	60.3	4176.7
2000	771	28763121	426	11958694	345	16804427	-21.1	12.6	-10.9	4.0	44.7	58.4	4036.6
2001	674	23766809	372	5562765	302	18204044	-12.7	-53.5	-12.5	8.3	44.8	76.6	4282.5
2002	579	26585919	295	9664537	284	16921382	-20.7	73.7	-6.0	-7.0	49.1	63.6	3907.7

Source: Indian Labour Yearbook, Labour Bureau, Ministry of Labour, Government of India

Notes: Data pertains to work stoppages where at least 10 workers are involved directly or indirectly.

Table 2.4A: Enforcement - Industrial Tribunals and Labor Courts - Dispute Resolution

Year	Central Government Industrial Tribunals and Labour Courts								Percent disputes disposed	Percent applica- tions disposed
	Industrial disputes pending beginning of year	Industrial disputes received during the year	Industrial disputes disposed during the year	Industrial disputes pending end of year	Applica- tions pending as on January 1	Applica- tions received during the year	Applica- tions disposed during the year	Applica- tions pending end of year		
1981	-	-	-	-	-	-	-	-	-	-
1982	1093	558	337	1314	-	-	-	-	20.4	-
1983	1298	643	602	1206	-	-	-	-	31.0	-
1984	1206	834	652	1173	3359	1844	2129	2796	32.0	40.9
1985	1173	603	591	1185	2796	2842	2151	3485	33.3	38.2
1986	1185	909	456	1648	3485	2390	1720	4116	21.8	29.3
1987	1651	1191	509	2333	4131	4469	2042	6564	17.9	23.7
1988	-	-	-	-	-	-	-	-	-	-
1989	2810	1450	803	3457	9142	3943	3891	9224	18.8	29.7
1990	3505	1504	747	4262	9514	1556	3339	7731	14.9	30.2
1991	4266	1440	1005	4701	7731	2535	2143	8123	17.6	20.9
1992	4702	616	403	4915	8165	1783	955	899	7.6	9.6
1993	5093	989	440	5642	9829	816	2432	8213	7.2	22.8
1994	5807	1211	649	6369	8399	1519	1814	8104	9.2	18.3
1995	6369	1310	1275	6404	8104	1842	3934	6012	16.6	39.6
1996	6409	1042	1149	5928	6033	1350	2510	4849	15.4	34.0
1997	6310	1460	977	6793	4776	1114	1990	3900	12.6	33.8
1998	7127	1280	724	7683	4337	1363	1002	4698	8.6	17.6
1999	7576	1622	770	8428	4203	234	499	3939	8.4	11.2
2000	8398	2035	722	9711	3328	1310	835	3803	6.9	18.0
2001	-	-	-	-	-	-	-	-	-	-
2002	-	-	-	-	-	-	-	-	-	-

Source: Indian Labour Yearbook, Labour Bureau, Ministry of Labour, Government of India

Notes: Data pertains to work stoppages where at least 10 workers are involved directly or indirectly.

These statistics are collected on a **voluntary basis** from the primary units. Due to their voluntary nature, the quality of data is not always upto the mark.

Table 2.4B: Enforcement - Other Acts

Year	Factories Act 1948					Shops and Establishments Act						
	Factories on register	Factories Inspected	Percent Inspections	Number of Convictions	Convictions as % of inspections	Shops and Establ no.	Shops and Establ Inspected	Percent Inspections Shops & Establ	Number of prosecutions	Cases disposed off by courts	Amount of fines realized (Rs.'000)	Prosecutions as % of inspections
1970	84426	62200	73.67	8678	13.95	2320218	2050696	88.38	111703	78450	2167063	5.45
1971	88089	63018	71.54	9567	15.18	2404510	2026412	84.28	105358	89121	2735810	5.20
1972	93053	67379	72.41	9320	13.83	2529173	3135065	123.96	105697	82904	2285066	3.37
1973	-	-	-	-	-	2371370	1958748	82.60	96945	94410	2827370	4.95
1974	104680	75547	72.17	9946	13.17	2468137	1946783	78.88	117664	106774	3096046	6.04
1975	112237	79720	71.03	8696	10.91	2584000	-	-	-	-	-	-
1976	110427	79813	72.28	12139	15.21	2691000	1933294	71.84	129784	111604	4062020	6.71
1977	125164	89088	71.18	14338	16.09	3268000	2116729	64.77	177654	119648	4280568	8.39
1978	114071	80054	70.18	13167	16.45	3315000	1991363	60.07	179951	111088	4225743	9.04
1979	122931	79258	64.47	14920	18.82	3614000	1978296	54.74	220631	152634	6217451	11.15
1980	141028	85336	60.51	14814	17.36	3749000	1941097	51.78	221413	151988	5489004	11.41
1981	149893	95804	63.91	15554	16.24	3839000	2101856	54.75	255963	163370	6120948	12.18
1982	128341	85215	66.40	25865	30.35	3358218	2061775	61.39	208497	142192	6082111	10.11
1983	141434	92938	65.71	28049	30.18	3358218	-	-	-	-	-	-
1984	171966	113054	65.74	26911	23.80	3392275	-	-	-	-	-	-
1985	178696	107255	60.02	20224	18.86	3004721	-	-	-	-	-	-
1986	165637	104435	63.05	19400	18.58	3321566	2086835	62.83	167456	157185	8974302	8.02
1987	185096	111660	60.33	26214	23.48	3428856	2173180	63.38	183798	177969	10779696	8.46
1988	128660	64771	50.34	7715	11.91	3401593	2340044	68.79	188991	156014	11147169	8.08
1989	155925	80900	51.88	18566	22.95	3941589	2431273	61.68	213898	198622	13258789	8.80
1990	122070	78969	71.51	6020	7.62	3293342	2172367	65.96	132596	108545	8879175	6.10
1991	89030	67342	75.64	7846	11.65	3899937	2436067	62.46	141092	110012	11105661	5.79
1992	138907	103157	74.26	13650	13.23	3656245	2055961	56.23	129613	101788	11866481	6.30
1993	-	-	-	-	-	3813607	2020591	52.98	142098	119434	14883.73	7.03
1994	84431	63084	74.72	2889	4.58	3767703	1905291	50.57	125716	107902	15467.27	6.60
1995	111742	61216	54.78	3675	6.00	3973776	2059766	51.83	127500	98690	15182.86	6.19
1996	147310	87564	59.44	7723	8.82	5157303	2057470	39.89	154176	125306	17324.97	7.49
1997	86053	58620	68.12	6380	10.88	5472569	2238485	40.90	128179	107441	19317.54	5.73
1998	258440	141930	54.92	8672	6.11	5541409	2136833	38.56	130483	106731	27785.79	6.11
1999	246252	115006	46.70	5378	4.68	5800916	2160467	37.24	115745	106961	17701.02	5.36
2000	88702	50832	57.31	3290	6.47	5536095	2127202	38.42	115092	105387	21547.45	5.41
2001	-	-	-	-	-	6023103	2080560	34.54	105943	990939	24199.06	5.09

See table 2.4A for sources and notes. Some excessively high percentage changes may be based on provisional data and may be disregarded.

Table 2.4C: Enforcement - Standing Orders (Employment) Act

Year	Standing Orders (Employment) Act 1946										
	Number of establishments covered	Number of employees covered	No. establ with certified orders beg. of year	No. empl covered by certified orders beg. of year	Applica- tions for certification: B/F as on January 1	Applica- tions for certification received during-year	Applica- tions for certification disposed during-year	Applica- tions for certification pending end of year	No. establ with certified orders end of year	No. empl covered by certified orders end of year	Percent application s disposed
1970	17289	4103107	10936	3024605	1003	261	236	1082	11011	3209336	18.7
1971	18050	4270037	9283	3017326	1028	229	200	1057	9273	2953962	15.9
1972	-	-	-	-	-	-	-	-	-	-	-
1973	18745	4384403	10654	3447583	1145	291	230	1206	10702	3423249	16.0
1974	18011	3652803	9529	2711364	921	880	886	922	10399	2817040	49.2
1975	18573	3919894	8869	2626824	923	252	272	909	9124	2711932	23.1
1976	19162	4213827	10507	2703510	895	459	389	965	10884	3165424	28.7
1977	16189	3499811	8453	2295211	751	296	214	833	8584	2311033	20.4
1978	16196	3586615	8495	2303386	833	876	211	1498	8704	2351696	12.3
1979	17871	3308485	8769	2478435	653	283	245	681	8952	2536809	26.2
1980	25455	4231811	10617	3376040	961	171	162	970	11053	3943004	14.3
1981	18265	4309188	11076	3515010	370	237	192	1015	11258	3563515	31.6
1982	17509	3572919	8896	2857817	1015	240	175	1080	9078	2926281	13.9
1983	25650	5423826	14838	4329623	1735	447	677	1505	15161	4431945	31.0
1984	29434	5456601	15323	4681486	1751	594	546	1799	15909	4904807	23.3
1985	-	-	-	-	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-	-	-	-	-
1987	40776	5695305	26019	4606395	1829	556	529	1856	26563	4712175	22.2
1988	43992	6107072	26426	4729950	1852	726	658	1920	27089	4789207	25.5
1989	41987	5939797	23763	4763322	1867	628	658	1837	24421	4810413	26.4
1990	43305	5967538	24038	4683810	1833	1771	1509	2095	24646	4762349	41.9
1991	47100	6342735	27082	4966685	2161	738	725	2174	27803	4847477	25.0
1992	42638	5591083	23776	3378160	1334	581	566	1349	24342	4239426	29.6
1993	28410	3976780	13091	3040555	1934	597	455	2076	13291	2854244	18.0
1994	35417	4184413	20625	3074903	1321	469	385	1405	21010	3095465	21.5
1995	30069	3354608	11285	2925828	1957	470	385	2042	11670	2891996	15.9
1996	42566	4999714	11961	2989455	2117	552	562	2107	12503	3049822	21.1
1997	46024	5352919	12823	3201230	2101	530	461	2170	13284	3162004	17.5
1998	42199	5095292	12831	3011426	2070	483	471	2082	13280	3094684	18.4
1999	46115	4808860	12106	2567342	1690	328	354	1664	12460	2613654	17.5
2000	47681	5263181	13019	2822547	1740	444	489	1695	13437	2883562	22.4
2001	68850	6765485	14848	3385791	2068	447	368	2147	15289	3435837	14.6

See table 2.4A for sources and notes

Table 2.5: Workers' Adjustment Assistance - National Renewal Fund (NRF)

Year	Budgeted (Rupees million)	Released (Rupees million)	Total no. workers covered	Total no. workers covered - cumulative	No. workers counseled via EACs*	No. workers retrained via EACs*	No. workers redeployed via EACs*	No. workers covered by EACs* - cumulative
1992/93	8297	5667	38626	38626	-	-	-	-
1993/94	10200	4781	31613	70239	-	-	-	-
1994/95	7000	2508	3979	74218	7500	1500	234	9234
1995/96	-	2096	8946	83164	11493	5644	704	27075
1996/97	-	1906	15264	98428	28862	18927	3898	78762
1997/98	2350	-	8733	107161	-	-	-	-
1998/99	-	-	-	-	-	-	-	-
1999/2000	-	-	-	-	-	-	-	-
2000/01	-	-	-	-	-	-	-	-

Sources:

Indian Labour Yearbooks, 1994, 1995, 1996, 1997, 1998, Labour Bureau, Ministry of Labour, Government of India
 PRAGYA (1999) "Managing the Negative Impacts of Retrenchments and Layoffs", Ministry of Labour, Government of India
 (PRAGYA: 1994/95 data for EACs)

Notes:

* Employee Assistance Centres (EACs): 5 sanctioned in 1994/95 - Bombay, Indore, Ahmedabad, Kanpur, Calcutta

Table 2.6: Adjustment Costs - Labor Restructuring

	<u>Pragya 1999</u> 40 cases**	<u>TISS Study 2001, Bombay</u>	
	Continuing-VRS	MNC Mill Continuing-VRS	NTC Mills Sick -VRS
Workers			
No. employed pre-VRS/lockout/dispute	2000+ on average	-	-
No. displaced in VRS/lockout/dispute	-	2000	20000
No. employed post VRS/lockout/dispute			
Sample size	190	355	251
VRS - average amount (in Rupees '000)	-	500-700	60-250
Worker Dues* held back	na	na	na
Amount - avg./max. Rupees per worker	na	na	na
Time-Years held back	na	na	na
Age: Percent >50 years	24.2	59.5	42.0
Education: Percent ≥ secondary (8+ yrs)	-	72.6	24.8
Assistance			
Counseling (Percent of sample)	-	21.4	4.7
Re-training (Percent of sample)	-	0.0	2.0
Re-deployment help (% of sample)	-	0.0	2.0
Post-VRS employment (% of sample)	92.2	26.2	68.6
Of which percent self-employed	57.3	89.0	70.3
Looking for employment (% sample)	-	21.7	17.3
Post-VRS avg. earnings (2002 Rs./month)#	-	4423	1041
pre-VRS avg. earnings (2002 Rs./month)	-	-	4486
Percent loss - avg. earnings	-	-	76.8
Impact on health - reduced expenses (% sample)	-	15.7	23.5
Impact on children's education	-	Neutral	Adverse
Percent cases - children drop-out	-	1.2	13.8
Percent loss-avg. earnings -children ##	-	46.0	46.0

Sources: Reports prepared for the Ministry of Labour, Government of India

PRAGYA (1999) "Managing the Negative Impacts of Retrenchments & Layoffs"

Tata Institute of Social Sciences (TISS) (2001), "Life After Voluntary Retirement - Examining the Human Face of the Structural Adjustment Programme"

Institute for Human Development (IHD) (2004), "Rehabilitation of Cotton Textile Mill Workers after the Closure of the Mills in Indore"

Notes: na Not Applicable; MNC Multinational company; NTC (STC) National (State) Textile Corp.

* Worker dues may be wages, provident fund, gratuity, and retrenchment or closure compensation

** Covers three industries - textiles, engineering, pharmaceuticals

Inflation adjusted: Pre- & post-VRS earnings in 1991 rupees; deflation using CPI-industrial workers

Loss in earnings by comparing average labor cost per manday in ASI-census (proxy for organised sector) & ASI-sample (proxy-unorganised) in year of adjustment, i.e., 1997 (2002 figure = 45.4%)

Table 2.6: Adjustment Costs - Labor Restructuring (contd.)

	IHD Study 2004, Indore		
	NTC - A Sick -VRS	NTC - B Sick -VRS	NTC - C Sick -VRS
Workers			
No. employed pre-VRS/lockout/dispute	3814	3000	1766
No. displaced in VRS/lockout/dispute	35%, 100%	38%, 100%	100%
No. employed post VRS/lockout/dispute	None	None	None
Sample size	130	82	60
VRS - average amount (in Rupees '000)	125, 200-300	125, 200-300	200-300
Worker Dues* held back	na	na	na
Amount - avg./max. Rupees per worker	na	na	na
Time-Years held back	na	na	na
Age: Percent>50 years	19.2	22.2	60.0
Education: Percent>=secondary (8+ yrs)	----- 52.8% -----		
Assistance			
Counseling (Percent of sample)	-	-	-
Re-training (Percent of sample)	Yes	Yes	Yes
Re-deployment help (% of sample)	Yes	Yes	Yes
Post-VRS employment (% of sample)	51.5	42.0	36.7
Of which percent self-employed	17.9	58.8	27.3
Looking for employment (% sample)	23.9	5.6	14.3
Post-VRS avg. earnings (2002 Rs./month)#	1500	1500	1500
pre-VRS avg. earnings (2002 Rs./month)	3190	3190	4253
Percent loss - avg. earnings	53.0	53.0	64.7
Impact on health - reduced expenses (% sample)	----- 5.7% -----		
Impact on children's education	----- Adverse, no data reported -----		
Percent cases - children drop-out	-	-	-
Percent loss-avg. earnings -children ##	-	-	-

Sources and Notes: see first page of table 2.6

Table 2.6: Adjustment Costs - Labor Restructuring (concl.)

	Private - D Lockout	Private - E Lockout	STC - F Sick -VRS
<u>Workers</u>			
No. employed pre-VRS/lockout/dispute	1100	6000	1600
No. displaced in VRS/lockout/dispute	100%	100%	100%
No. employed post VRS/lockout/dispute	135 reporting	None	None
Sample size	35	122	59
VRS - average amount (in Rupees '000)	None	None	6-150
Worker Dues* held back	Yes	Yes	na
Amount - avg./max. Rupees per worker	-	90000 max	na
Time-Years held back	18 years	12 years	na
Age: Percent>50 years	74.3	59.0	30.0
Education: Percent>=secondary (8+ yrs)	-----	52.8%	-----
Assistance			
Counseling (Percent of sample)	None	None	-
Re-training (Percent of sample)	None	None	Yes
Re-deployment help (% of sample)	None	None	Yes
Post-VRS employment (% of sample)	62.9	82.8	58.3
Of which percent self-employed	22.7	21.8	28.6
Looking for employment (% sample)	25.0	14.3	7.7
Post-VRS avg. earnings (2002 Rs./month)#	1500	1500	1500
pre-VRS avg. earnings (2002 Rs./month)	5293	1595	3190
Percent loss - avg. earnings	71.7	6.0	53.0
Impact on health - reduced expenses (% sample)	-----	5.7%	-----
Impact on children's education	----	Adverse, no data reported	----
Percent cases - children drop-out	-	-	-
Percent loss-avg. earnings -children ##	-	-	-

Sources and Notes: see first page of table 2.6

Table 2.7: Industrial Disputes Act 1947 with Amendments

Date	Section	Coverage	Provision or Institutional Change	Flexibility
1920	Trade Disputes' Act	India	Established Courts of Enquiry, Conciliation Boards; Forbade strikes in public utility services without notice; but, no machinery for settling of "industrial disputes"	+
1929	Trade Disputes' Act	India	State intervention in settling industrial disputes - provided conciliation machinery for peaceful settlement	-
WW-II	Defense of India Rules (temp)	India	Policy of "laissez faire" continued, selective intervention at best Power to appoint industrial tribunals & enforce tribunal awards	-
1946	Industrial Employment (Standing Order) Act	India	Provision for devising, framing, and certifying of standing orders covering service conditions, and making these known to workers	-
1947	Chap 1-VIII: Sections 1-40	India	Embodies essential principles of Rule 81A, Defense of India Rules and certain principles of Trade Disputes Act 1929 about investigation and settlement of industrial disputes. Seeks to achieve social justice on the basis of collective bargaining, conciliation, arbitration, or finally compulsory adjudication. Dismissals, and a decision to grant or decline permission to retrench are industrial disputes. Retrenchment means the termination by employer of the service of a worker for any reason other than disciplinary action; excludes termination upon voluntary retirement, superannuation, non-renewal of a contract , continued ill-health, and cases where the appointment letter stipulates discharge from service without notice or reasons.	-
1947	3	India	Works committee comprising representatives of employers and workmen to be constituted in every industrial establishment employing 100 or more workers. Industry means any business, trade, undertaking, manufacture... Member-workers to be selected in consultation with their trade union. Committee tasked with promoting measures for securing & preserving good relations.	-
1947	3A,3B	Gujarat	Additional: Joint management council instead of works committee, for every industrial establishment employing 500 or more workers. Duties include promoting productivity growth and training workers to understand management responsibilities.	+
1947	3	Maharashtra	Additional: Recognized union, if any, shall appoint its nominees to represent workers	-

Table 2.7: Industrial Disputes Act 1947 with Amendments (contd.)

Date	Section	Coverage	Provision or Institutional Change	Flexibility
1947	3	Rajasthan	Additional: State shall appoint Registrar of Unions for the whole state and assistant registrar for any local area.	-
1947	7, 7A, 7B	India	Labor courts, regional and national industrial tribunals constituted; strikes and lockouts prohibited pending proceedings in tribunals	-
1953	25A-25J (Chapter VA) added	India	Influenced by decisions of judiciary, bipartite and tripartite agreements, and actual implementation of IDA provisions, substantial modifications made.	-
1953	25A	India	New addition: Exemption from liability to pay lay-off compensation or maintaining muster rolls: industrial establishments with less than 50 workers per working day in the preceeding month or those of a seasonal nature	+
1953	25B	India	?? New addition: Eligibility is that worker's name is borne on the establishment muster rolls and service is continuous of at least one year.	-
1953	25C	India	Newly added: Compensation specified in case of lay-off (50% of wages and dearness allowance) - 45 days maximum during any 12 months. Not applicable to closures. Wages as per section S.2(iv)(d) of the Payment of Wages Act. Eligibility is that worker's name is borne on the establishment muster rolls and service is continuous of at least one year.	-
			Immediate provocation for tightening law was imminent downsizing in (cotton?) textiles mills - closing one shift - possibly rendering thousands of workers unemployed with no income.	
1953	25D	India	First time added: Muster rolls entry recording worker's availability for work at the establishment mandatory for lay-off compensation, muster rolls to be made available for entry by the employer.	-
1953	25E	India	New addition: Provides for exceptions to the general provision for lay-off compensation: (i) employer offers alternate employment in the same or any other establishment, (ii) worker does not present himself for work at the appointed time, (iii) lay-off due to strike or slow-down of production in another part of establishment.	+

Table 2.7: Industrial Disputes Act 1947 with Amendments (contd.)

Date	Section	Coverage	Provision or Institutional Change	Flexibility
1953	25F	India	New addition: Retrenchment compensation to follow a simple yardstick of length of service ; on grounds of humane public policy and consideration that involuntary employment may result in general economic insecurity. Compensation formula: 15 days average pay for every completed year of continuous service or any part thereof in excess of six months.	-
1953	25J	India	Employee rights under a contract cannot be derogated by reason of any provision in the Act	-
1956	25C	India	Amended: Layoff compensation to extend beyond 45 days to all days laid off.	-
1956	25FF	India	Amended and added: To check indiscriminate resort to layoff & retrenchment via closures, amendment provided that termination of employment due to closure or transfer be considered as retrenchment.	-
1956	25H	India	Immediate cause was a Supreme Court of India ruling (Hariparshad Shivshanker Shukla vs. A.D. Diwakar, per S.K. Das J) that denied compensation to a worker unemployed due to a closure/transfer. Amended?: Employer to offer an opportunity for re-employment of retrenched workers if further employment proposed.	-
1956	25I	India	Deleted, covered under section 33C: Recovery of dues to workers may be recovered by the government in the same manner as arrears of land revenue or as public demand by govt. on an application to the govt. by the worker/s.	-
1956	33C	India	Added: recovery of money dues to workers under chap VA (lay-off and rerenchment), also money due under settlements or awards	-
1957	25FFF	India	New addition: If closure due to specified "unavoidable circumstances" beyond the employer's control, then retrenchment compensation is reduced to a maximum of 3 months' average pay of the (eligible) worker. Unavoidable circumstances refers to financial difficulties only, or expiry of lease or license on or after April 1, 1967. For construction work, compensation applies only beyond two years of construction project, as per section 25F.	+

Table 2.7: Industrial Disputes Act 1947 with Amendments (concl.)

Date	Section	Coverage	Provision or Institutional Change	Flexibility
1964	25B	India	Amended: Defined "continuous service" for "a period" as all uninterrupted service for that period, including periods of interruptions due to sickness, authorised leave, accident, illegal strike, lockout or cessation of work not due to the worker; deemed to be a year (six months) if worker actually worked for 240 (120) days and for miners 190 (95) days.	-
1964	25FFF	India	Amended: "completed year of continuous service" replaced by "completed year of service" for eligibility for compensation [see 1956, section 25B, and 1957, 25FFF]	-
1964	25FFF	India	Amended: unavoidable circumstances for closure include accumulation of undisposed stocks [see 1957, section 25FFF]	+
1964	25H	India	Amended: Workers to be considered for re-employment if they are citizens of India.	-
1964	25J	India	Amended: Provisions of chap. VA prevail over those of other acts including Standing Orders that are inconsistent with it. If the inconsistent provision more beneficial to worker, it'll override chap VA	-
1965	25C	India	Amended: Compensation specified in case of lay-off	-
1971	25FFA	West Bengal	Employer to give 60 days' notice to state government (West Bengal) for closure - to enable govt. to take measures, if required	-
1972	25FFA	India	Employer to give 60 days' notice to state government for closure	-
1976	25K-255, chap VB	India	Industrial establishments (as per section 25L) employing 300 or more workers: require "prior permission" to lay-off or retrench workers, and for closure	-
1982	25K-255??, (Chapter VB added)	India	Industrial establishments (as per section 25L) requiring "prior permission" to lay-off or retrench workers, and for closure: coverage expanded to 100 or more workers	-

Sources:

2005, The Industrial Disputes Act, 1947 with amendments, BARE ACT with short comments, Professional Book Publishers, New Delhi
 2001, G.B. Pai, Labour Law in India, Butterworths India., New Delhi
 Discussions with experts: Labour administration officials, Jurists, Lawyers

Table 3.1
Summary Statistics
 India: Industry (3-digit) Data, 1973-1997

Variable	Obs	Unit	Mean	Std. Dev.	Min	Max
Factories	3400	Number	645	1067	1	10702
Workers	3400	Number	36921	71490	31	783025
Mandays	3400	Thousand	10695	22214	10	250334
Value of output	3400	Rupees thousand	6772286	14500000	1059	170000000
Wage	3400	Rupees	8706	5240	575	58180
Unit severance pay	3400	Rupees	24292	14140	1090	60867
Unit hiring cost	3400	Rupees	735	362	123	1722
Marginal expected adjustment cost - historical memory	3264	Rupees	9416	6667	123	34073
Marginal expected adjustment cost - five year memory	2720	Rupees	11548	7759	153	49038
Market share	3400	Percent	14	19	0.002	100
Price Cost Margin	3398	Percent	33	12	1.000	96

Source: Author's dataset (truncated version of Annual Survey of Industries, 1973-1997)

Note: Rupee values in constant 1982/83 terms.

Table 3.2
India: Job flows
(Percent of Employment*)
(3-digit Industry Level)

Year	Job creation rate	Job destruction rate	Net employment rate	Job reallocation rate	Excess job reallocation rate
1973	-	-	-	-	-
1974	7.4	4.4	3.0	11.8	8.8
1975	7.4	3.5	4.0	10.9	6.9
1976	6.4	2.9	3.5	9.4	5.9
1977	6.4	0.9	5.5	7.3	1.8
1978	4.5	2.4	2.2	6.9	4.8
1979	7.4	1.7	5.7	9.2	3.5
1980	4.7	3.2	1.5	7.8	6.4
1981	4.6	3.6	0.9	8.2	7.3
1982	5.8	2.7	3.1	8.4	5.3
1983	3.2	6.7	-3.6	9.9	6.3
1984	4.4	6.1	-1.7	10.6	8.8
1985	3.5	7.8	-4.3	11.3	7.0
1986	2.9	3.4	-0.5	6.3	5.8
1987	7.9	3.6	4.3	11.5	7.2
1988	4.0	4.4	-0.4	8.5	8.1
1989	8.0	5.5	2.5	13.5	11.0
1990	4.1	4.4	-0.3	8.5	8.2
1991	4.2	3.9	0.3	8.1	7.8
1992	7.2	2.2	5.1	9.4	4.3
1993	3.7	4.0	-0.3	7.7	7.4
1994	5.8	1.8	4.0	7.6	3.6
1995	10.3	1.6	8.7	12.0	3.3
1996	4.0	5.2	-1.2	9.2	8.0
1997	5.1	6.0	-0.8	11.1	10.3
Average(73-97)	5.5	3.8	1.7	9.4	6.6
Variance(73-97)	3.4	2.9	9.4	3.3	4.9
Correlation with net	0.9	-0.8	1.0	0.1	-0.6
Avg(73-75)	7.4	3.9	3.5	11.3	7.9
Var(73-75)	0.0	0.4	0.5	0.4	1.8
Avg(76-82)	5.7	2.5	3.2	8.2	5.0
Var(76-82)	1.3	0.8	3.4	0.8	3.4
Avg(83-90)	4.7	5.3	-0.5	10.0	7.8
Var(83-90)	4.1	2.4	8.2	4.9	2.7
Avg(91-97)	5.8	3.5	2.3	9.3	6.4
Var(91-97)	5.5	2.9	14.0	2.9	7.1
Avg(76-97)	5.4	3.8	1.5	9.2	6.5
Var(76-97)	3.5	3.3	10.4	3.3	5.3

* Employment is averaged over current and previous year.

Source: Author's dataset (truncated version of Annual Survey of Industries, 1973-1997)

Table 3.3
Job Flows: Comparisons

	JC	JD	JR	NT
Industry - level				
US-4I	2.48	3.63	6.11	-1.15
India - 3I	5.5	3.8	9.4	1.7
Establishment - level				
Canada	10.9	11.1	22	-0.2
USA	8.8	10.2	19	-1.4
Denmark	16	13.8	29.8	2.2
France	13.9	13.2	27.1	0.7
Norway	7.1	8.4	15.5	-1.3
U.K.	10.2	11.5	21.7	-1.3
Chile	12.9	13.9	26.8	-1
Colombia	12.5	12.2	24.7	0.3
Estonia	9.7	12.9	22.6	-3.2
Morocco	18.6	12.1	30.7	6.5

Sources:

Davis and Haltiwanger (1998)

Author's dataset - India

Table 3.4
GLS Estimates: Quadratic Convex Adjustment Costs

Employment	1973-1975 1973-1982		1973-1997		
			With 76-82 dummy	No ind. year dum	Ind. dum only
Constant	0.777 ***	0.741 ***	0.841 ***	0.942 ***	0.896 ***
Wage	-0.102 ***	-0.096 ***	-0.101 ***	-0.106 ***	-0.101 ***
Mandays	0.488 ***	0.218 ***	0.202 ***	0.211 ***	0.207 ***
Output	0.064 ***	0.057 ***	0.052 ***	0.048 ***	0.048 ***
Lagged employment	0.960 ***	0.959 ***	0.959 ***	0.962 ***	0.961 ***
Time	0.115 ***	-0.004 **	-0.002 **	-0.002	0.001
Average Emplt. Size(>=100) dummy	-0.661 ***	0.555	0.352	0.446	0.541
Wage*Size100	0.051 **	0.027	0.031	0.017	0.009
Mandays*Size100	-0.381 ***	0.010	0.020	0.020	0.031
Output*Size100	-0.031 **	-0.066 **	-0.050	-0.043	-0.043
Lagged employment*Size100	0.011	0.019	0.015	0.008	0.007
Average Emplt. Size(>=300) dummy	6.846 ***	2.761 *	2.497	1.885	1.880
Wage*Size300	-0.650 ***	-0.344 **	-0.321 *	-0.269	-0.272
Mandays*Size300	1.069 ***	0.205	0.180	0.152	0.150
Output*Size300	0.547 ***	0.379 ***	0.377 ***	0.381 ***	0.380 ***
Lagged employment*Size300	-0.692 ***	-0.447 ***	-0.441 ***	-0.438 ***	-0.435 ***
Year76 dummy	-	-0.533 ***	-0.634 ***	-0.618 ***	-0.563 ***
Wage*Year76	-	0.077 ***	0.083 ***	0.083 ***	0.074 ***
Mandays*Year76	-	-0.162 ***	-0.155 ***	-0.150 ***	-0.139 ***
Output*Year76	-	-0.045 ***	-0.042 ***	-0.041 **	-0.039 **
Lagged employment*Year76	-	0.032 **	0.034 *	0.030	0.031
Average Emplt. Size(>=100)*Year76	-	-0.552	-0.219	-0.307	-0.349
Wage*Size100*Year76	-	-0.016	-0.012	-0.006	-0.002
Mandays*Size100*Year76	-	-0.005	-0.004	-0.018	-0.025
Output*Size100*Year76	-	0.056	0.028	0.025	0.026
Lagged employment*Size100*Year76	-	-0.014	-0.007	-0.002	-0.003
Average Emplt. Size(>=300)*Year76	-	-3.564 *	-3.177	-2.706	-2.822
Wage*Size300*Year76	-	0.455 **	0.397 *	0.356	0.372 *
Mandays*Size300*Year76	-	-0.373	-0.310	-0.267	-0.281
Output*Size300*Year76	-	-0.351 ***	-0.327 ***	-0.329 ***	-0.332 ***
Lagged employment*Size300*Year76	-	0.377 ***	0.362 ***	0.360 ***	0.361 ***
Year82 dummy	-	-	0.000	0.043	dropped
Wage*Year82	-	-	-0.005	-0.010	-0.011
Mandays*Year82	-	-	-0.007	-0.004	-0.006
Output*Year82	-	-	0.018	0.020 *	0.018
Lagged employment*Year82	-	-	-0.025 *	-0.027 **	-0.026 *
Average Emplt. Size(>=100)*Year82	-	-	0.436	0.367	0.201
Wage*Size100*Year82	-	-	-0.001	0.002	0.014
Mandays*Size100*Year82	-	-	0.073	0.045	0.020
Output*Size100*Year82	-	-	-0.022	-0.016	-0.013
Lagged employment*Size100*Year82	-	-	0.001	-0.008	-0.010
Average Emplt. Size(>=300)*Year82	-	-	-0.807	-0.928	-0.201
Wage*Size300*Year82	-	-	0.108	0.128	0.058
Mandays*Size300*Year82	-	-	0.441	0.462	0.556 *
Output*Size300*Year82	-	-	-0.094 *	-0.107 *	-0.095 *
Lagged employment*Size300*Year82	-	-	0.149 **	0.164 ***	0.151 **

Table 3.4
GLS Estimates: Quadratic Convex Adjustment Costs

Employment	1973-1975 1973-1982		1973-1997		
		With 76-82 dummy	No ind. year dum	Ind. dum only	Industry & year dummies
Year91 dummy	-	-	0.146	0.224	dropped
Wage*Year91	-	-	-0.008	-0.014	-0.011
Mandays*Year91	-	-	0.050	0.072	0.065
Output*Year91	-	-	-0.006	-0.004	0.000
Lagged employment*Year91	-	-	0.011	0.008	0.004
Average Emplt. Size(>=100)*Year91	-	-	-0.519	-0.483	-0.304
Wage*Size100*Year91	-	-	-0.027	-0.038	-0.053
Mandays*Size100*Year91	-	-	-0.262 *	-0.264 *	-0.229
Output*Size100*Year91	-	-	0.055	0.056	0.054
Lagged employment*Size100*Year91	-	-	-0.037	-0.032	-0.029
Average Emplt. Size(>=300)*Year91	-	-	4.466 **	4.548 **	3.633
Wage*Size300*Year91	-	-	-0.437	-0.455	-0.339
Mandays*Size300*Year91	-	-	0.117	0.001	0.012
Output*Size300*Year91	-	-	0.082	0.087	0.059
Lagged employment*Size300*Year91	-	-	-0.132	-0.144	-0.118
Price Cost Margin	-	-	-	-	-
Lagged emplt*PCM	-	-	-	-	-
Price Cost Margin*Size100	-	-	-	-	-
Lagged emplt*PCM*Size100	-	-	-	-	-
Price Cost Margin*Size300	-	-	-	-	-
Lagged emplt*PCM*Size300	-	-	-	-	-
Pr > chi2	0.000	0.000	0.000	0.000	0.000
No. of observations	272	1224	3264	3264	3264

Notes:

- (1) * significant at 10% level, ** significant at 5% level, *** significant at 1% level
- (2) Errors robust to heteroscedasticity and autocorrelation
- (3) All variables in logs, except time; wage, mandays, output, average size, PCM lagged one period
- (4) Industry dummies at 2-digit level
- (5) Year dummies from 1979 onward, to capture gradual liberalization process, begun in 1979

Table 3.4 (contd.)
GLS Estimates: Quadratic Convex Adjustment Costs

Employment	1973-1997		
	NO interaction of market variables & period dummies		
	Market variables No dummies	Market variables (Ind dum)	Market variables (Ind & year dum)
Constant	0.776 ***	1.068 ***	1.069 ***
Wage	-0.110 ***	-0.114 ***	-0.110 ***
Mandays	0.200 ***	0.213 ***	0.206 ***
Output	0.058 ***	0.054 ***	0.053 ***
Lagged employment	0.955 ***	0.938 ***	0.933 ***
Time	-0.002 **	-0.002	-0.001
Average Emplt. Size(>=100) dummy	2.594 ***	2.382 **	2.543 **
Wage*Size100	0.044	0.031	0.022
Mandays*Size100	-0.033	-0.049	-0.036
Output*Size100	-0.065	-0.056	-0.056
Lagged employment*Size100	-0.204 **	-0.187 **	-0.195 **
Average Emplt. Size(>=300) dummy	-1.489	-2.438	-2.765
Wage*Size300	-0.327 *	-0.266	-0.267
Mandays*Size300	0.232	0.200	0.199
Output*Size300	0.389 ***	0.397 ***	0.397 ***
Lagged employment*Size300	-0.075	-0.055	-0.023
Year76 dummy	-0.643 ***	-0.621 ***	-0.548 ***
Wage*Year76	0.082 ***	0.080 ***	0.070 ***
Mandays*Year76	-0.149 ***	-0.150 ***	-0.134 ***
Output*Year76	-0.041 ***	-0.038 ***	-0.035 **
Lagged employment*Year76	0.034 *	0.029	0.028
Average Emplt. Size(>=100)*Year76	-0.002	-0.026	-0.093
Wage*Size100*Year76	-0.029	-0.028	-0.021
Mandays*Size100*Year76	0.002	0.010	0.000
Output*Size100*Year76	0.030	0.028	0.027
Lagged employment*Size100*Year76	-0.015	-0.010	-0.009
Average Emplt. Size(>=300)*Year76	-3.423	-2.994	-3.021
Wage*Size300*Year76	0.421 *	0.389 *	0.396 *
Mandays*Size300*Year76	-0.290	-0.271	-0.272
Output*Size300*Year76	-0.306 ***	-0.312 ***	-0.311 ***
Lagged employment*Size300*Year76	0.340 ***	0.337 ***	0.333 ***
Year82 dummy	0.005	0.043	
Wage*Year82	-0.006	-0.012	-0.013
Mandays*Year82	-0.015	-0.015	-0.020
Output*Year82	0.019	0.022 *	0.020 *
Lagged employment*Year82	-0.027 **	-0.030 **	-0.028 **
Average Emplt. Size(>=100)*Year82	0.374	0.352	0.190
Wage*Size100*Year82	0.011	0.013	0.023
Mandays*Size100*Year82	0.101	0.079	0.051
Output*Size100*Year82	-0.023	-0.018	-0.016
Lagged employment*Size100*Year82	0.002	-0.008	-0.009
Average Emplt. Size(>=300)*Year82	-0.394	-0.349	0.286
Wage*Size300*Year82	0.071	0.077	0.015
Mandays*Size300*Year82	0.484	0.537	0.597 *
Output*Size300*Year82	-0.104 *	-0.116 **	-0.109 *
Lagged employment*Size300*Year82	0.159 **	0.175 ***	0.164 ***

Table 3.4 (contd.)
GLS Estimates: Quadratic Convex Adjustment Costs

Employment	1973-1997		
	NO interaction of market variables & period dummies		
	Market variables No dummies	Market variables (Ind dum)	Market variables (Ind & year dum)
Year91 dummy	0.152	0.223	
Wage*Year91	-0.008	-0.014	-0.011
Mandays*Year91	0.048	0.064	0.056
Output*Year91	-0.007	-0.005	-0.001
Lagged employment*Year91	0.011	0.008	0.004
Average Emplt. Size(>=100)*Year91	-0.847	-0.916	-0.706
Wage*Size100*Year91	-0.021	-0.016	-0.032
Mandays*Size100*Year91	-0.358 **	-0.383 **	-0.339 *
Output*Size100*Year91	0.051	0.044	0.042
Lagged employment*Size100*Year91	-0.011	-0.003	-0.001
Average Emplt. Size(>=300)*Year91	4.613 **	4.662 **	3.633
Wage*Size300*Year91	-0.464	-0.469	-0.326
Mandays*Size300*Year91	-0.002	-0.066	0.032
Output*Size300*Year91	0.085	0.088	0.051
Lagged employment*Size300*Year91	-0.144	-0.156	-0.121
Price Cost Margin	0.034	-0.012	-0.024
Lagged emplt*PCM	-0.001	0.005	0.006
Price Cost Margin*Size100	-0.647 ***	-0.577 **	-0.593 ***
Lagged emplt*PCM*Size100	0.064 ***	0.057 **	0.059 ***
Price Cost Margin*Size300	1.145 ***	1.213 ***	1.301 ***
Lagged emplt*PCM*Size300	-0.106 ***	-0.113 ***	-0.121 ***
Pr > chi2	0.000	0.000	0.000
No. of observations	3264	3264	3264

Notes:

- (1) * significant at 10% level, ** significant at 5% level, *** significant at 1% level
- (2) Errors robust to heteroscedasticity and autocorrelation
- (3) All variables in logs, except time; wage, mandays, output, average size, PCM lagged one period
- (4) Industry dummies at 2-digit level
- (5) Year dummies from 1979 onward, to capture gradual liberalization process, begun in 1979

Table 3.5
GLS Estimates: Quadratic Convex Adjustment Costs - Parsimonious

Employment	1976-1982		1976-1997	
	With 76-82 dummy	82-97 & 91-97 period dummies		
		NO Market Variables	Market Variables	
Constant	0.276 ***	0.274 ***	0.171	
Wage	-0.026 ***	-0.030 ***	-0.032 ***	
Mandays	0.073 ***	0.074 ***	0.071 ***	
Output	0.013 ***	0.016 ***	0.018 ***	
Lagged employment	0.989 ***	0.989 ***	0.994 ***	
Average Emplt. Size(>=100) dummy	0.077 **	0.199 *	0.189	
Lagged employment*Size100	-0.006	-0.018	-0.017	
Average Emplt. Size(>=300) dummy	0.635 **	0.507 *	0.528 *	
Lagged employment*Size300	-0.051 **	-0.039 *	-0.041 *	
Year82 dummy	-	0.045	0.036	
Lagged employment*Year82	-	-0.008	-0.009	
Average Emplt. Size(>=100)*Year82	-	0.100	0.102	
Lagged employment*Size100*Year82	-	-0.009	-0.009	
Average Emplt. Size(>=300)*Year82	-	-0.926 **	-0.942 **	
Lagged employment*Size300*Year82	-	0.074 **	0.075 **	
Year91 dummy	-	dropped	0.015	
Lagged employment*Year91	-	0.002	0.002	
Average Emplt. Size(>=100)*Year91	-	-0.084	-0.091	
Lagged employment*Size100*Year91	-	0.010	0.011	
Average Emplt. Size(>=300)*Year91	-	0.578	0.586	
Lagged employment*Size300*Year91	-	-0.050	-0.051	
Price Cost Margin	-	-	0.031	
Lagged empl*PCM	-	-	-0.002	
Pr > Chi2	0.000	0.000	0.000	
Observations	952	2992	2992	

Notes:

- (1) Significant at 1% level***, at 5% level**, at 10%level*
- (2) Errors robust to heteroscedasticity and autocorrelation, all variables in logs
- (3) Year dummies from 1979 onward, to capture gradual liberalization process begun in 1979, except with period dummy 1991-97, where year dummies until 1990 included

Table 3.6

Estimates: Quadratic Convex Adjustment Costs - Parsimonious (System GMM Estimators)					
Employment	1976-1982	1976-1997		1976-1997: Market Var.	
		82-97 & 91-97 period dum		82-97 & 91-97 period dum	
	With 76-82 dum	Instru- ment set 1	Instru- ment set 2	Instru- ment set 1	Instru- ment set 2
Constant	-1.165	1.087	0.927	2.093 ***	2.085
Wage	0.142	-0.251	-0.240	-0.448 ***	-0.115
Mandays	0.166	0.400 *	0.383 *	0.288 ***	0.283 *
Output	0.040	0.199	0.138	0.333 ***	0.083
Lagged employment	0.960 ***	0.880 ***	0.974 ***	0.780 ***	0.838 *
Average Emplt. Size(>=100) dummy	0.699	5.426 *	4.476 *	5.735 ***	4.859 *
Lagged employment*Size100	-0.075	-0.558 *	-0.458 *	-0.593 **	-0.502 *
Average Emplt. Size(>=300) dummy	-1.525	0.163	2.384	-0.196	2.812
Lagged employment*Size300	0.159	0.083	-0.130	0.124	-0.159
Year82 dummy	-	0.703	0.845 *	0.742	0.862 **
Lagged employment*Year82	-	0.008	-0.253 **	-0.003 **	-0.268 ***
Average Emplt. Size(>=100)*Year82	-	6.294	-10.633 **	4.847	-8.964 **
Lagged employment*Size100*Year82	-	-0.612	1.091 **	-0.467	0.928 **
Average Emplt. Size(>=300)*Year82	-	-6.840	2.169	-5.011	0.498
Lagged employment*Size300*Year82	-	0.642	-0.329	0.470 **	-0.169
Year91 dummy	-	dropped	dropped	dropped	dropped
Lagged employment*Year91	-	-0.093 **	0.159 *	-0.085	0.170 **
Average Emplt. Size(>=100)*Year91	-	-10.441	7.268	-9.134	4.464
Lagged employment*Size100*Year91	-	1.049	-0.741	0.921	-0.461
Average Emplt. Size(>=300)*Year91	-	12.862	2.620	10.149 **	4.317
Lagged employment*Size300*Year91	-	-1.238	-0.137	-0.988	-0.319
Price Cost Margin	-	-	-	-0.021	-0.657
Lagged emplt*PCM	-	-	-	-0.010	0.061
Hansen Test: Pr>Chi2	0.216	0.285	0.450	0.214	0.586
Arellano-Bond Test: No AR(1)	0.001	0.000	0.000	0.000	0.000
Arellano-Bond Test: No AR(2)	0.807	0.170	0.271	0.098	0.279
Observations	1224	3264	3264	3264	3264
No. of industry groups	136	136	136	136	136

Notes: (1) Significant at 1% level***, at 5% level**, at 10%level*

(2) Errors robust to heteroscedasticity, all variables in logs

(3) Year dummies from 1979 onward, to capture gradual liberalization process, begun in 1979, except with period dummy 1991-97, where year dummies until 1990 included

(4) Using lagged instruments leads to losing first three years' observations, i.e., 1973-1975; variables instrumented are the first panel - lagged wage, mandays, output, employment- and market variables where included; with industry groups no. 136 and multiple lagged instruments, the no. of variables instrumented for is constrained

(5a) Instrument set 1 also instruments for period dummy 1982 and its interactions

(5b) Instrument set 2 also instruments for period dummy 1991 and its interactions

(6) Lags restricted to account for some serial correlation AR(1) in residual disturbance

(7) No. of observations reports all years used including those used only for lagged instruments

Table 4.1
Scope of Retrenchment: Number of Workers

Continent	Employment	By Instrument			Separations	Rehires	New Hires
	Reduction	Invol-hard	Invol-soft	Vol-soft			
TOTAL - All cases	4710566	1178394	752809	577188	5033875	282307	41002
Africa	892062	104035	140896	97878	909705	15900	1743
Asia	233311	0	11000	172711	255311	3000	19000
Europe	2853559	883259	132000	105000	2853559	0	0
Latin America	731634	191100	468913	201599	1015300	263407	20259
MEDIAN - All cases	32900	0	1800	4800	37500	0	0
Africa	10061	1922	6861	3696	10061	0	0
Asia	21925	0	0	14373	23425	0	0
Europe	172959	42000	0	17500	172959	0	0
Latin America	26000	0	0	4599	56409	0	0
AVERAGE - All cases	117764	39280	27882	18037	125847	7058	1025
Africa	59471	10404	14090	7529	60647	1060	116
Asia	29164	0	2200	28785	31914	375	2375
Europe	407651	176652	33000	26250	407651	0	0
Latin America	73163	19110	58614	22400	101530	26341	2026
MINIMUM - All cases	0	0	0	0	247	0	0
Africa	247	0	0	0	247	0	0
Asia	6500	0	0	0	6500	0	0
Europe	35000	0	0	0	35000	0	0
Latin America	0	0	0	0	2034	0	0
MAXIMUM - All cases	1661000	547300	424095	112000	1661000	163059	19000
Africa	541200	57000	75000	59810	547200	7500	1743
Asia	69466	0	7000	69466	69466	3000	19000
Europe	1661000	547300	132000	70000	1661000	0	0
Latin America	405995	100000	424095	112000	424095	163059	18100

Source: Author's calculations

Table 4.2
Scope of Retrenchment: Financial Costs

Continent	FINANCIAL COSTS (In \$ million)					FINANCIAL BENEFITS (In \$ million)	
	Total Cost	Severance Payments	Enhanced Pension	Safety Net	Cost per worker (\$)	Total	Wage bill savings-annual
TOTAL - All cases	12074.10	2707.89	6098.29	3268	na	4206	2834
Africa	500.03	255.17	20.00	224.86	na	673	96
Asia	1399.86	1280.73	70.73	48.40	na	179	-153
Europe	8583.02	0.00	5588.36	2995	na	1846	1446
Latin America	1591.19	1171.99	419.20	0.00	na	1508	1445
MEDIAN - All cases	42.04	12.50	0.00	0.00	1085	17	10
Africa	20.00	12.50	0.00	0.00	1476	10	8
Asia	50.00	24.87	0.00	24.20	1040	9	9
Europe	454.26	0.00	25.00	858.51	616	923	723
Latin America	280.00	112.00	0.00	0.00	4735	222	222
AVERAGE - All cases	402.47	87.35	243.93	192.23	4142	168	123
Africa	38.46	19.63	2.00	32.12	3630	61	11
Asia	199.98	182.96	14.15	24.20	3651	26	-22
Europe	2145.76	0.00	1397.09	998.22	3817	923	723
Latin America	265.20	167.43	69.87	0.00	5695	302	289
MINIMUM - All cases	0.00	0.00	0.00	0.00	0	-157	-157
Africa	2.12	0.00	0.00	0.00	320	0	0
Asia	0.00	0.00	0.00	0.00	0	-157	-157
Europe	6.00	0.00	0.00	6.00	24	298	298
Latin America	2.30	0.00	0.00	0.00	0	-15	-15
MAXIMUM - All cases	7668.51	1140.00	5538.36	2130	17108	1548	1148
Africa	199.80	80.31	20.00	199.80	13166	542	30
Asia	1188.40	1140.00	70.73	48.40	17108	350	83
Europe	7668.51	0.00	5538.36	2130	14012	1548	1148
Latin America	530.30	425.00	418.30	0.00	16000	1063	1000

Source: Author's calculations

Note: Percentages computed from these tables (e.g. severance as percent of total cost) may not match percentages given in table 5 that are based on a count of programs.

Table 4.3
Distribution of Employment Reduction Method

Type:	Percent of Programs:	Percent of Workers:
Involuntary (hard -- layoffs)	41.5	47.0
Involuntary (soft -- enforcement of rules, removal of ghost workers, etc.)	65.0	30.0
Involuntary (removal of ghost workers)	22.5	3.3
Voluntary	77.5	23.0
Used Both Voluntary and Involuntary (either)	42.5	19.2
Used All Methods	17.5	13.4

Source: Author's calculations.

Note: Percent of workers may differ from those computable from Table 1 on account of missing values that are subsumed in totals in Table 1. Here, missing values are excluded.

Table 4. 4
Distribution of Compensation and Transition Assistance

Type:	Percent 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

Source: Author's calculations

Table 4.5
Distribution of Targeting

Type:	Percent of programs:
Skill-biased	53.7
Age-biased	51.2
Neutral	19.5
Unknown	2.4

Source: Author's calculations

Table 4.6
Relationship Between Rehiring and Program Characteristics

Program Characteristic:	Percent of Programs with Rehiring	Percent of Other Programs
Employment Reduction Method:		
Involuntary (hard)	50.0	39.4
Involuntary (soft)	62.5	65.6
Voluntary	62.5	81.3
Used 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 -- 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

Source: Author's calculations. Table entries provide the percent of programs with indicated column characteristic that also have indicated row characteristic. * indicates that column difference in row is statistically significant at 10% level; ** indicates that column difference is statistically significant at 5% level.

Table 4.7
Relationship Between New Hires and Program Characteristics

Program Characteristic:	Percent of Programs with New Hires	Percent of Programs without New Hires
Employment Reduction Method:		
Involuntary (hard)	0.0**	47.2
Involuntary (soft)	80.0	62.9
Voluntary	80.0	77.1
Used All Methods	0.0	20.0
Nature of Targeting:		
Skill-biased	40.0	55.6
Age-biased	100**	44.4
Neutral	0.0	22.2
Compensation -- Assistance:		
Severance Payment	60.0	69.4
Pension Enhancement	60.0	25.0
No Direct Compensation	0.0	16.7
Safety Net	0.0**	72.2
Safety Net (Training)	0.0**	61.1

Source: Author's calculations. Table entries provide the percent of programs with indicated column characteristic that also have indicated row characteristic. * indicates that column difference in row is statistically significant at 10% level; ** indicates that column difference is statistically significant at 5% level.

Table 4.8
Summary Statistics for Financial Indicators

	Average	Median	Min	Max	% programs With Net Loss
Estimated Financial Break-even Period	2.3	1.8	0	10	22
Estimated Payback Period	2.1	0.8	0	10	-

Source: Author's Calculations

Table 4.9
Relationship Between Net Losses and Program Characteristics

Program Characteristic:	Percent of Programs with Net Losses	Percent of Other Programs
Employment Reduction Method:		
Involuntary (hard)	44.4	40.6
Involuntary (soft)	50.0	68.8
Voluntary	87.5	75.0
Used All Methods	25.0	15.6
Nature of Targeting:		
Skill-biased	66.7	50.0
Age-biased	88.9**	40.6
Neutral	0.00*	25.0
Compensation -- 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

Source: Author's Calculations. Table entries provide the percent of programs with indicated column characteristic that also have indicated row characteristic. * indicates that column difference in row is statistically significant at 10% level; ** indicates that column difference is statistically significant at 5% level.

Table 4.10
Relationship Between Financial Break-even Period (BEP) Program Characteristics

Program Characteristic:	Percent of Programs with below Median BEP	Percent of Programs with Above Median BEP
Employment Reduction Method:		
Involuntary (hard)	50.0	33.3
Involuntary (soft)	66.7	70.6
Voluntary	33.3**	94.1
Used 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 -- 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

Source/Notes: Author's Calculations Table entries provide the percent of programs with indicated column characteristic that also have indicated row characteristic. * indicates that column difference in row is statistically significant at 10% level; ** indicates that column difference is statistically significant at 5% level.

Table 4.11
Relationship Between Payback Period (PBP) and Program Characteristics

Program Characteristic:	Percent of Programs with below Median PBP	Percent of Programs with above Median PBP
Employment Reduction Method:		
Involuntary (hard)	60.0	18.2
Involuntary (soft)	80.0	81.8
Voluntary	20.0**	100
Used All Methods	0.0	18.2
Nature of Targeting:		
Skill-biased	20.0	54.5
Age-biased	40.0	36.4
Neutral	40.0	27.3
Compensation -- Assistance:		
Severance Payment	60.0**	100.0
Pension Enhancement	40.0	18.2
No Direct Compensation	40.0**	0.0
Safety Net	60.0	45.5
Safety Net (Training)	60.0	36.4

Source/Notes: Author's Calculations. Table entries provide the percent of programs with indicated column characteristic that also have indicated row characteristic. * indicates that column difference in row is statistically significant at 10% level; ** indicates that column difference is statistically significant at 5% level.

Table 4.12
Key Characteristics: Selected Retrenchment Programs

	Argentina		Ghana	Hungary	India	Peru		Uganda	
	Federal govt.	Railroads				Civil Service	SUNAT	Civil Service	Military
Targeting									
Skill bias	No	No	Yes	Yes	No	No	Yes	Yes	Yes
Age bias	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	na	No	Yes	Yes	Yes	Yes
Voluntary	No	Yes	Yes	na	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									
BEP	0.41	1.56	1.82	Net loss	Net Loss	2.6	Net Loss	Net Loss	2.7
PBP	na	na	1.66	na	na	na	0.0023	na	1.2
Productivity Gains									
Organizational	Yes	Yes	No	na	na	na	Yes	na	No
Worker	(Quantitative)	(Quantitative)	Yes	na	na	na	(Monetary)	na	Yes
			(Monetary)						(Monetary)
Safety Net Provision	No	No	Yes	Yes	Yes	No	No	Yes	Yes
			(most workers re-employed)	(most workers re-employed)	(most workers re-employed)				

Source: Author's calculations

Table 4.13
Conditions before and during programs: deviations from country-specific means

Measure:	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	0.149
Government Spending/GDP**	0.020	0.021	0.021	0.014	0.001	0.007

Source/Notes: Tabulations based upon a variety of sources including the Penn World Tables, World Bank World Tables, the International Finance Statistics, and the Rama (1995) Cross-Country Labor Market Database. See text for methodology. The deficit numbers are equal to expenditures less revenues and ignore any grants and/or loans. * indicates that the F-test for the null hypothesis that all of the coefficients in the row are equal is rejected at the 10 percent level. ** indicates that the F-test is rejected at the 5 percent level.

Table 4A.1: Summary Statistics for all Countries

NO. Country/Case	Continent	Employment (In Numbers)				
		Employment Reduction	By Instrument			
			Invol-hard	Invol-soft	Vol-soft	
Africa						
1	Benin	Civil Service	10061	1040	5721	3300
2	Burkina Faso	Joint Railway Line	1585	-	-	-
3	Cameroon	Civil Service	6500	2804	-	3696
4	Cape Verde	Public Enterprises	247	0	-	247
5	Central African Republic	Civil Service	1100	0	2275	725
6	Congo	Civil Service	8000	-	8000	0
7	Ethiopia	Military	541200	-	-	0
8	Ghana	Civil Service	73810	0	14000	59810
9	Kenya	Civil Service	30800	-	25000	5800
10	Malawi	Civil Service	-	-	-	-
11	Mauritania	Public Enterprises	1900	-	-	-
12	Namibia	Military	49500	57000	0	0
13	Senegal	Civil Service	4357	0	1800	4300
14	Sierra Leone	Civil Service	27452	20852	1100	6000
15	Uganda	Civil Service	91339	11339	75000	5000
16	Uganda	Military	44211	11000	8000	9000
Asia						
17	Bangladesh	Jute Sector Public Enterprises	22250	0	4000	21250
18	Cambodia	Civil Service	50000	-	-	-
19	China	Shenyang Region Reform	7000	-	7000	0
20	India	Public Enterprises	69466	0	0	69466
21	Lao	PDR Civil Service	21600	-	-	-
22	Pakistan	Public Enterprises	7495	0	0	7495
23	Pakistan	Sindh Region Reform	6500	0	-	6500
24	Sri Lanka	Civil Service	49000	0	0	68000
Europe						
25	Albania	Public Enterprises	253000	253000	0	0
26	Hungary	Public Enterprises	1661000	-	-	-
27	Kazakhstan	Public Enterprises	172959	40959	132000	-
28	Macedonia	Public Enterprises	112000	42000	0	70000
29	Poland	Public Enterprises	547300	547300	0	0
30	Russian Federation	Coal Sector	72300	-	-	-
31	Turkey	Public Enterprises	35000	0	-	35000
Latin America						
32	Argentina	Public Enterprises	72818	0	42818	30000
33	Argentina	Federal Administration	405995	0	424095	0
34	Bolivia	Mining - public corporation	4251	0	0	4599
35	Brazil	Civil Service	0	100000	0	0
36	Chile	Civil Service and parastatal organizations	91100	91100	0	0
37	Colombia	Tourism and Transport Ministry	12000	0	0	12000
38	Ecuador	Civil Service	40000	0	0	40000
39	Mexico	SOCEFI - Ministry of Trade & Industry	4150	0	2000	3000
40	Peru	Civil Service	100595	0	-	112000
41	Peru	SUNAT - Tax collecting Authority	725	0	-	-

Source: Author's calculations

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

Table 4A.1: Summary Statistics for all Countries (contd.)

Continent	Employment (In Numbers)			
	Employment Reduction	Separations	Rehires	New Hires
NO. Country/Case				
Africa				
1 Benin Civil Service	10061	10061	0	0
2 Burkina Faso Joint Railway Line	1585	1585	0	0
3 Cameroon Civil Service	6500	6500	0	0
4 Cape Verde Public Enterprises	247	247	0	0
5 Central African Republic Civil Service	1100	3000	1900	0
6 Congo Civil Service	8000	8000	0	0
7 Ethiopia Military	541200	547200	6000	0
8 Ghana Civil Service	73810	73810	0	0
9 Kenya Civil Service	30800	30800	0	0
10 Malawi Civil Service	-	-	-	-
11 Mauritania Public Enterprises	1900	1900	0	0
12 Namibia Military	49500	57000	7500	0
13 Senegal Civil Service	4357	6100	0	1743
14 Sierra Leone Civil Service	27452	27952	500	0
15 Uganda Civil Service	91339	91339	0	0
16 Uganda Military	44211	44211	0	0
Asia				
17 Bangladesh Jute Sector Public Enterprises	22250	25250	3000	0
18 Cambodia Civil Service	50000	50000	0	0
19 China Shenyang Region Reform	7000	7000	0	0
20 India Public Enterprises	69466	69466	0	0
21 Lao PDR Civil Service	21600	21600	0	0
22 Pakistan Public Enterprises	7495	7495	0	0
23 Pakistan Sindh Region Reform	6500	6500	0	0
24 Sri Lanka Civil Service	49000	68000	0	19000
Europe				
25 Albania Public Enterprises	253000	253000	0	0
26 Hungary Public Enterprises	1661000	1661000	0	0
27 Kazakhstan Public Enterprises	172959	172959	0	0
28 Macedonia Public Enterprises	112000	112000	0	0
29 Poland Public Enterprises	547300	547300	0	0
30 Russian Federation Coal Sector	72300	72300	0	0
31 Turkey Public Enterprises	35000	35000	0	0
Latin America				
32 Argentina Public Enterprises	72818	72818	0	0
33 Argentina Federal Administration	405995	424095	0	18100
34 Bolivia Mining - public corporation	4251	4599	348	0
35 Brazil Civil Service	0	100000	100000	0
36 Chile Civil Service and parastatal organizations	91100	91100	0	0
37 Colombia Tourism and Transport Ministry	12000	12000	0	0
38 Ecuador Civil Service	40000	40000	0	0
39 Mexico SOCEFI - Ministry of Trade & Industry	4150	5000	0	850
40 Peru Civil Service	100595	263654	163059	0
41 Peru SUNAT - Tax collecting Authority	725	2034	0	1309

Source: Author's Calculations

Table 4A.1: Summary Statistics for all Countries (contd.)

Continent	FINANCIAL COSTS (In \$ million)				Cost per worker (USD)(a)
	Total Cost	Severance Payments	Enhanced Pension	Safety Net	
NO. Country/Case					
Africa					
1 Benin Civil Service	21.20	21.20	0.00	0.00	6424
2 Burkina Faso Joint Railway Line	-	-	-	-	-
3 Cameroon Civil Service	7.38	7.38	0.00	-	1997
4 Cape Verde Public Enterprises	2.53	2.47	0.00	0.06	10260
5 Central African Republic Civil Service	-	-	-	-	-
6 Congo Civil Service	-	-	-	-	-
7 Ethiopia Military	199.80	0.00	0.00	199.80	365 (d)
8 Ghana Civil Service	41.87	41.87	0.00	-	700
9 Kenya Civil Service	20.00	0.00	20.00	-	3448
10 Malawi Civil Service	20.00	20.00	0.00	0.00	-
11 Mauritania Public Enterprises	9.33	9.33	0.00	-	4910 (b)
12 Namibia Military	37.50	12.50	-	25.00	658 (d)
13 Senegal Civil Service	80.31	80.31	-	0.00	13166 (b)
14 Sierra Leone Civil Service	2.12	2.12	0.00	0.00	353
15 Uganda Civil Service	15.79	15.79	-	-	320 (c)
16 Uganda Military	42.20	42.20	0.00	-	955 (b)
Asia					
17 Bangladesh Jute Sector Public Enterprises	55.70	55.70	0.00	-	2621
18 Cambodia Civil Service	50.00	50.00	0.00	-	1000 (b)
19 China Shenyang Region Reform	0.00	0.00	0.00	-	0
20 India Public Enterprises	1188.40	1140.00	-	48.40	17108
21 Lao PDR Civil Service	10.16	10.16	-	-	470 (b)
22 Pakistan Public Enterprises	24.87	24.87	0.00	-	3318
23 Pakistan Sindh Region Reform	-	-	-	-	-
24 Sri Lanka Civil Service	70.73	0.00	70.73	0.00	1040
Europe					
25 Albania Public Enterprises	6.00	0.00	0.00	6.00	24 (d)
26 Hungary Public Enterprises	858.51	0.00	0.00	858.51	517 (d)
27 Kazakhstan Public Enterprises	-	-	-	-	-
28 Macedonia Public Enterprises	50.00	0.00	50.00	-	714
29 Poland Public Enterprises	7668.51	0.00	5538.36	2130.2	14012 (d)
30 Russian Federation Coal Sector	-	-	-	-	-
31 Turkey Public Enterprises	-	-	-	-	-
Latin America					
32 Argentina Public Enterprises	360.00	360.00	0.00	0.00	12000
33 Argentina Federal Administration	425.00	425.00	0.00	0.00	1002 (d)
34 Bolivia Mining - public corporation	73.59	73.59	0.00	0.00	16000
35 Brazil Civil Service	-	-	-	-	-
36 Chile Civil Service and parastatal organizations	-	0.00	-	-	0
37 Colombia Tourism and Transport Ministry	-	-	-	-	-
38 Ecuador Civil Service	200.00	200.00	0.00	-	5000
39 Mexico SOCEFI - Ministry of Trade & Industry	-	-	-	-	-
40 Peru Civil Service	530.30	112.00	418.30	0.00	4735
41 Peru SUNAT - Tax collecting Authority	2.30	1.40	0.90	0.00	1131 (b)

Source: Author's calculations

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

(b): Average severance amount per (all retrenched) worker.

(c): Avg. sev. using all workers (excluding ghost workers, no.=42000)

Table 4A.1: Summary Statistics for all Countries (contd.)

Continent	FINANCIAL BENEFITS (In \$ million)					
	Total	Wage bill savings-annual	Wages Separatees	Wages Rehires	Wages New hires	Other
NO. Country/Case						
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	-	-	-	-
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	1548	1148	1148	-	-	400
30 Russian Federation Coal Sector	-	-	-	-	-	-
31 Turkey Public Enterprises	-	-	-	-	-	-
Latin America						
32 Argentina Public Enterprises	237	237	237	-	-	0
33 Argentina Federal Administration	1063	1000	-	-	-	63
34 Bolivia Mining - public corporation	-	-	-	-	-	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 & Industry	-	-	-	-	-	-
40 Peru Civil Service	222	222	-	-	-	-
41 Peru SUNAT - Tax collecting Authority	-15	-15	1	0	16	-

Source: Author's calculations

Table 4A.1: Summary Statistics for all Countries (contd.)

NO. Country/Case	Continent	PERFORMANCE INDICATORS			
		Break-even period(In yrs)	Net fin. gain(loss)	Payback period(In yrs)	Net econ. gain(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 *	0.30	365 *
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 **	0.40	115 **
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 #	-	-
23	Pakistan Sindh Region Reform	0.00	-	-	-
24	Sri Lanka Civil Service	-	-1802	-	-
Europe					
25	Albania Public Enterprises	-	-	-	-
26	Hungary Public Enterprises	-	-561	-	-
27	Kazakhstan Public Enterprises	-	-	-	-
28	Macedonia Public Enterprises	-	-	-	-
29	Poland Public Enterprises	-	-6121	-	-
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 ##	-	10.00 ##	-
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 & Industry	-	-	-	-
40	Peru Civil Service	2.60	-	-	-
41	Peru SUNAT - Tax collecting Authority	-	-47	0.002	-

Source: Author's calculations

* Including arms' imports savings.

** For three year program duration, defence expenditure savings reversed thereafter.

Including privatization proceeds.

Table 4A.1: Summary Statistics for all Countries (contd.)

Continent	ECON..COSTS (In \$ mill)		ECON. BENEFITS (In \$ mill)		
	Total	Non-financial (production loss)	Total	Non-finl (productivity rise Organization	Worker
NO. Country/Case					
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	1188	-	83	-	-
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	7669	-	1148	-	-
30 Russian Federation Coal Sector	-	-	-	-	-
31 Turkey Public Enterprises	-	-	-	-	-
Latin America					
32 Argentina Public Enterprises	360	-	237	quantitative ris	-
33 Argentina Federal Administration	425	-	1000	quantitative ris	-
34 Bolivia Mining - public corporation	74	-	-	-	-
35 Brazil Civil Service	0	-	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 & Industry	-	-	-	-	-
40 Peru Civil Service	530	-	222	-	-
41 Peru SUNAT - Tax collecting Authority	2	0	933	947	-

Source: Author's calculations

Table 4A.1: Summary Statistics for all Countries (concl.)

NO. Country/Case	Time Period	
	From	To
Continent		
Africa		
1 Benin Civil Service	1991	1994
2 Burkina Faso Joint Railway Line	1994 (Ongoing)	
3 Cameroon Civil Service	1989	1994
4 Cape Verde Public Enterprises	1992	1997
5 Central African Republic Civil Service	1987	1990
6 Congo Civil Service	1995 (Ongoing)	
7 Ethiopia Military	1991	1995
8 Ghana Civil Service	1987	1992
9 Kenya Civil Service	1994	1997
10 Malawi Civil Service	1994 (Ongoing)	
11 Mauritania Public Enterprises	1990	1994
12 Namibia Military	1991	1994
13 Senegal Civil Service	1989	1991
14 Sierra Leone Civil Service	1992	1997
15 Uganda Civil Service	1992	1994
16 Uganda Military	1992	1995
Asia		
17 Bangladesh Jute Sector Public Enterprises	1994	1995
18 Cambodia Civil Service	1995/6 (Proposed)	
19 China Shenyang Region Reform	1994	2002
20 India Public Enterprises	1993	1994
21 Lao PDR Civil Service	1989	1993
22 Pakistan Public Enterprises	1991	1993
23 Pakistan Sindh Region Reform	1993	1997
24 Sri Lanka Civil Service	1991	1992
Europe		
25 Albania Public Enterprises	1992	1992
26 Hungary Public Enterprises	1990	1992
27 Kazakhstan Public Enterprises	1993	1993
28 Macedonia Public Enterprises	1988	1993
29 Poland Public Enterprises	1990	1993
30 Russian Federation Coal Sector	1996 (proposed)	
31 Turkey Public Enterprises	1993	1994
Latin America		
32 Argentina Public Enterprises	1991	1994
33 Argentina Federal Administration	1990	1992
34 Bolivia Mining - public corporation	1991	1994
35 Brazil Civil Service	1990	1991
36 Chile Civil Service and parastatal organizations	1973	1977
37 Colombia Tourism and Transport Ministry	1990	1992
38 Ecuador Civil Service	1992	1994
39 Mexico SOCEFI - Ministry of Trade & Industry	1989	1992
40 Peru Civil Service	1991	1993
41 Peru SUNAT - Tax collecting Authority	1991	1992

Source: Author's calculations

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