United States General Accounting Office

GAO

Report to the Chairman, Subcommittee on Labor, Committee on Labor and Human Resources, U.S. Senate

April 1989

RAILROAD RETIREMENT

Future Rail Employment and Trust Fund Solvency

GAO/HRD-89-30

GAO
United States
General Accounting Office
Washington, D.C. 20548

Human Resources Division

B-222204

April 5, 1989

The Honorable Howard M. Metzenbaum
Chairman, Subcommittee on Labor
Committee on Labor and Human Resources
United States Senate

Dear Mr. Chairman:

In response to your April 11, 1987, request, this report provides information on some of the external and internal factors that have and will continue to affect rail employment, forecasts of future rail employment, and projections of the solvency prospects of the railroad retirement account.

The material obtained on factors affecting rail employment was obtained from a number of sources, including experts from within and outside the rail industry and the trade literature. The rail employment forecasts include those prepared by the Railroad Retirement Board, the Association of American Railroads, and our consultant—NPA Data Services, Inc. The solvency projections were prepared by the Board using its economic and demographic assumptions and the employment forecasts prepared by all three organizations.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from its issue date. At that time, we will send copies to other interested congressional committees and members; the Chairman, Railroad Retirement Board; the Director, Office of Management and Budget; and other interested parties. We will also make copies available to others upon request.

Sincerely yours,

Lawrence H. Thompson
Assistant Comptroller General

Executive Summary

Purpose

In recent years, the railroad retirement program has been vulnerable to recurring financial crises caused largely by steady declines in the rail industry's work force. Since 1980, total rail employment has fallen over 40 percent. Past projections of the program's financial condition have frequently not anticipated these declines and, as a result, have proven to be overly optimistic.

The Chairman, Subcommittee on Labor, Senate Committee on Labor and Human Resources, asked GAO to (1) report on the factors that were influencing rail employment and (2) develop independent estimates of rail employment for use in projecting the financial status of the railroad retirement trust fund.

Background

During fiscal year 1988, the Railroad Retirement Board paid about $6.7 billion in retirement and survivor benefits to approximately 925,000 beneficiaries. These benefits were paid out of four retirement-related trust funds that the Board administers. One of these, the railroad retirement account, is financed largely by rail employer and employee payroll taxes and is the focal point of the railroad retirement program's past financial crises. The railroad retirement account paid $2.4 billion in benefits in 1988.

The account was established on a pay-as-you-go basis—current benefits are financed principally through current payroll taxes. Under this financing method, employment trends play an important role in determining the financial status of the pension program. The cost of pensions rises whenever the number of retirees rises relative to the number of active workers, and an unforseen drop in employment can reduce the revenues below levels needed to meet current benefit commitments.

Results in Brief

Rail employment has steadily declined, from 1,680,000 in 1945 to 307,000 at the end of 1988. A number of forces are at work that likely will continue this decline to 200,000 or less. The overall drop in rail employment since 1945 has been influenced somewhat by this country's evolution toward a more service-oriented economy. The principal causes, however, were the losses of passenger and freight traffic to other transportation modes.

Despite lower future employment levels, current projections show that the railroad retirement account should be able to pay benefits into the

first decade of the next century. These projections show an improvement in the financial status of the program because of a 1988 payroll tax increase, the extension of federal contributions from general revenues, and changes in certain other actuarial assumptions. Under the intermediate employment scenarios by the Railroad Retirement Board and NPA Data Services, Inc., the account could, however, encounter solvency problems by the years 2016 or 2009, respectively.

GAO's Analysis

Future Rail Employment

Since 1980, rail employment has dropped by over 40 percent. A number of forces are at work that likely will continue this decline to 200,000 or less. The rate of decline in rail employment accelerated during the 1980s. Bolstered by less regulation, rail management focused on ways to reduce operating costs—especially labor costs. Railroads divested themselves of thousands of miles of duplicate or marginal trackage and renegotiated labor agreements to obtain concessions in the form of work-rule modifications.

Because accurate employment forecasts are necessary for reliable financial forecasts, and because rail employment forecasts have proven to be overly optimistic, the Subcommittee requested that GAO provide independent rail employment forecasts. To accomplish this, GAO contracted with NPA for rail employment forecasts and an econometric model that could be used to make future rail employment forecasts.

While most experts believe that rail employment will continue to decline to 200,000 or less, none would estimate at what level it would "bottom out."

The Railroad Retirement Board, the Association of American Railroads, and NPA have prepared rail employment forecasts that presented optimistic, intermediate, and pessimistic employment scenarios. In these scenarios, the level of rail employment in the year 2010 ranged from 185,000 in the Association's optimistic scenario to 71,000 in NPA's pessimistic scenario.

Overall, of the three organizations, the Association offers the most optimistic scenarios and NPA the most pessimistic. GAO believes, however,

that the forecasts by all three organizations fall within a wide band of reasonable projections.

Trust Fund Solvency Prospects

Under any of the employment forecasts, the railroad retirement account should be able to pay benefits into the next century. The earliest anticipated difficulty under the Board's or NPA's intermediate employment forecasts is projected to occur in 2016 or 2009, respectively. The Association of American Railroads did not prepare an intermediate forecast.

Largely because of the January 1988 rail payroll tax increases, the latest trust fund projections suggest that a "cash flow" crisis that had appeared imminent several years ago has been averted. However, such a crisis could develop sometime after 2005 if current pessimistic employment projections prove to be accurate. Unanticipated declines in employment because of major technological breakthroughs or increased competition from the trucking industry could conceivably accelerate the date at which such cash flow problems reappear.

Recommendations

GAO is making no recommendations in this report. Public Law 100-203 established a Commission on Railroad Retirement Reform to make a comprehensive study of the issues pertaining to the long-term financing of the railroad retirement system. The Commission may wish to consider the matters discussed in this report.

Agency Comments

In commenting on GAO's draft, the Railroad Retirement Board said it was pleased that GAO's actuarial consultant had concluded that the Board's actuarial assumptions considered relevant factors and appeared reasonable and that its actuarial model produced accurate benefit and revenue stream projections. The Board's labor member said that rail employment may have stabilized. The management member (1) stated GAO should take a position on the reasonableness of the various projections, (2) disagreed with the extent of the estimated drop in rail employment forecasted by NPA, (3) argued for including revised employment data, and (4) made suggestions regarding the report's discussion of the $32 billion unfunded accrued liability.

The Association of American Railroads considered the NPA employment projections unduly pessimistic and disagreed with the extent of the drop in rail employment being forecast. It took issue with the methodology

NPA used to forecast future rail employment and argued for the separation of freight and passenger employment in such forecasts. The Association said GAO's treatment of the factors affecting rail employment was one-sided, maintaining that there has been a resurgence in rail traffic in the last 2 years.

GAO believes that the Association's argument for the separation of passenger service employment has merit and should be considered in the future. GAO also made modifications, where appropriate, based on comments made by the Association.

Agency comments are addressed on pages 34 to 36.

Contents

Tables

Figures

Abbreviations

CPI	consumer price index
ERISA	Employee Retirement Income Security Act of 1974
GAO	General Accounting Office
GNP	gross national product
NPA	NPA Data Services, Inc.

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Introduction

Over the years, the railroad retirement program has been vulnerable to recurring financial crises due largely to steady declines in the rail industry's work force, which is the base for the program's revenues. The Chairman, Subcommittee on Labor, Senate Committee on Labor and Human Resources, asked us to assess future rail employment prospects and estimate how they could affect the program's financial health.

This report discusses some frequently voiced concerns about the future of the railroad retirement program. It explains why the level of rail employment is so essential to the program's future financial health and identifies many factors that could influence future employment levels. The report also presents estimates of what future rail employment could be under various assumptions and the effect on the program's solvency.

Background

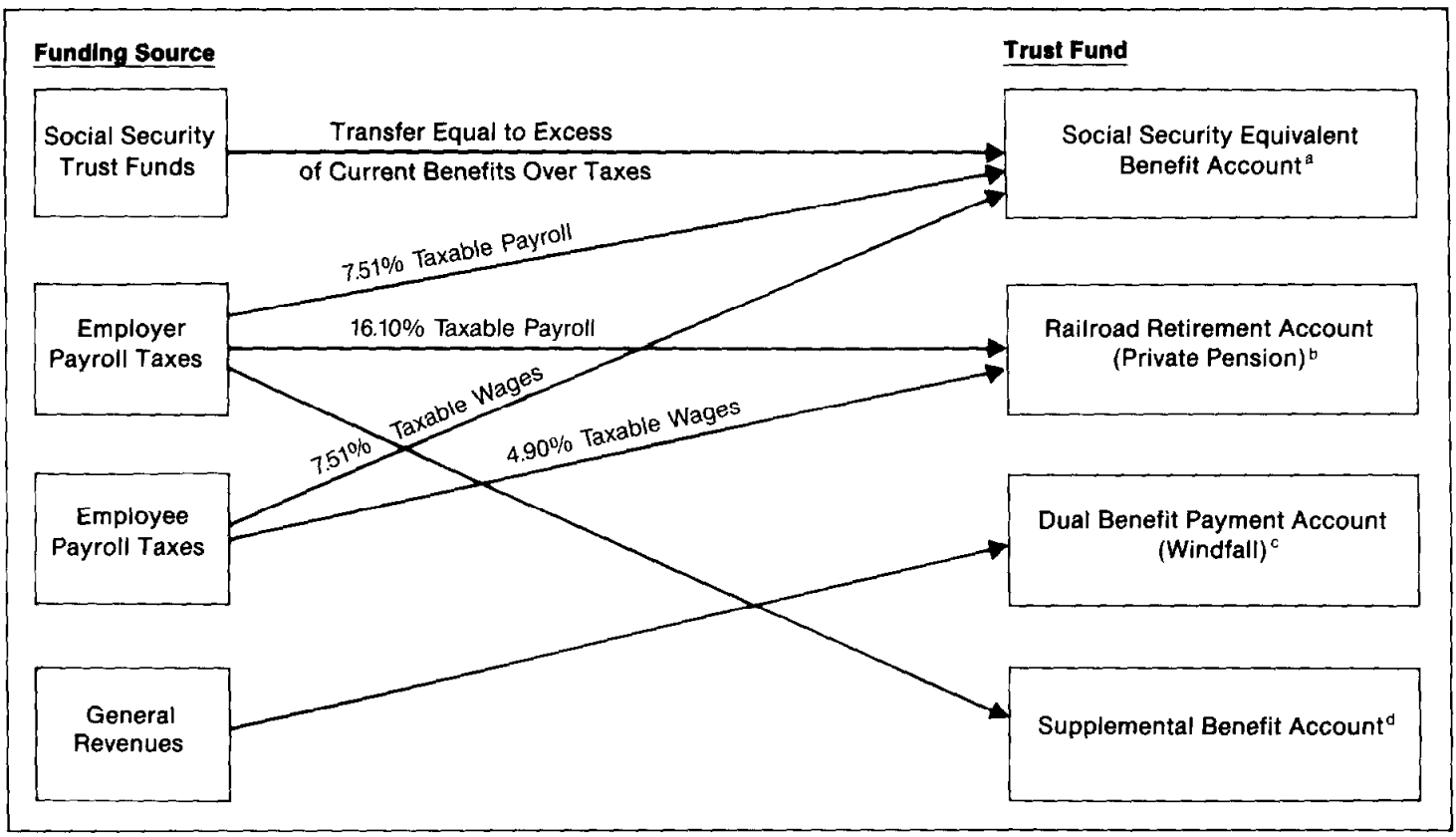
The railroad retirement program is essentially financed on a pay-as-you-go basis. Under a pay-as-you-go basis, payroll taxes are set at a level designed to meet current benefits only, rather then at a level to fund benefits in advance of retirement. Although financed on a pay-as-you-go basis and paying a social security-equivalent benefit, the program also pays a pension that resembles other private industry multiemployer pensions.[1]

Private industry multiemployer pension plans are generally covered by the Employee Retirement Income Security Act of 1974, as amended (ERISA). Railroad retirement, however, is specifically exempted because it is a federally administered private industry pension plan.

The Railroad Retirement Board administers four retirement-related trust funds for the railroad retirement program. (See fig. 1.1.) Our review focused on the railroad retirement account since the recent financial crises have all involved that account. One fund—the supplemental—is being phased out, and the other two are fully supported by federal general revenues and social security trust funds.

[1] Multiemployer plans are generally those plans maintained pursuant to one or more collective bargaining agreements between one or more employee organizations and more than one employer.

Figure 1.1: Railroad Retirement-Related Trust Funds Administered by the Railroad Requirement Board



[a] Pays a benefit which approximates what a beneficiary would have received had his or her combined railroad and nonrailroad earnings been covered under social security. Some of the funds for this benefit come in the form of payroll taxes paid by rail workers and employers. The largest single source of revenue for this account, however, comes in the form of annual transfers from the social security trust fund.

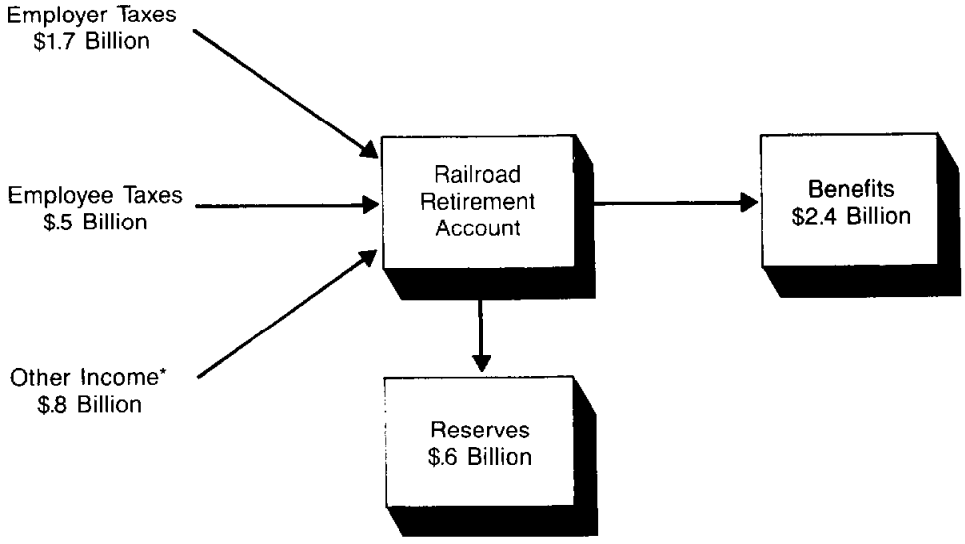
[b] Pays a benefit based on rail employment only. Financed principally by payroll taxes levied on rail employers and employees.

[c] Pays a benefit for those who worked for both the rail industry and a nonrail employer covered by social security. This benefit was to be phased out after 1974 and currently is financed entirely through federal general revenues.

[d] Pays a benefit to retirees who have 25 or more years of rail service and who were working for the rail industry when they retired. Financed solely by taxes on rail employers.

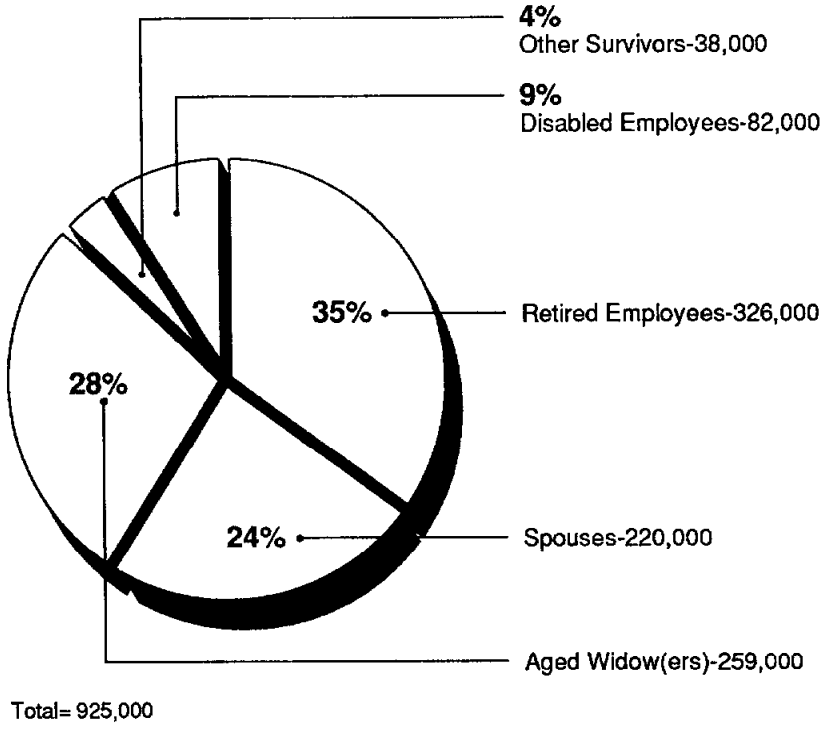
During fiscal year 1988, the railroad retirement account took in $3 billion in revenues and paid out $2.4 billion in benefits. (See fig. 1.2). Funds from this account were used to pay benefits to 925,000 retirees, their spouses, and their survivors. (See fig. 1.3.)

Figure 1.2: Revenues and Expenses of Railroad Retirement Account During 1988



*Includes Investment Income and Federal Income Tax

Figure 1.3: Composition of Rail Private Pension Beneficiaries, 1988



Measuring Financial Condition of Railroad Retirement Account

The measure most used by the Railroad Retirement Board to measure its financial health is the projected "cash flow" solvency prospects of the program. The concern has generally been whether the railroad retirement account has sufficient resources to meet current benefit demands on a year-by-year basis over the short term. If expected revenues and assets on hand at the beginning of a given year are less than expected benefit payments and administrative expenses for the year, the fund is in a "cash flow" deficit position.

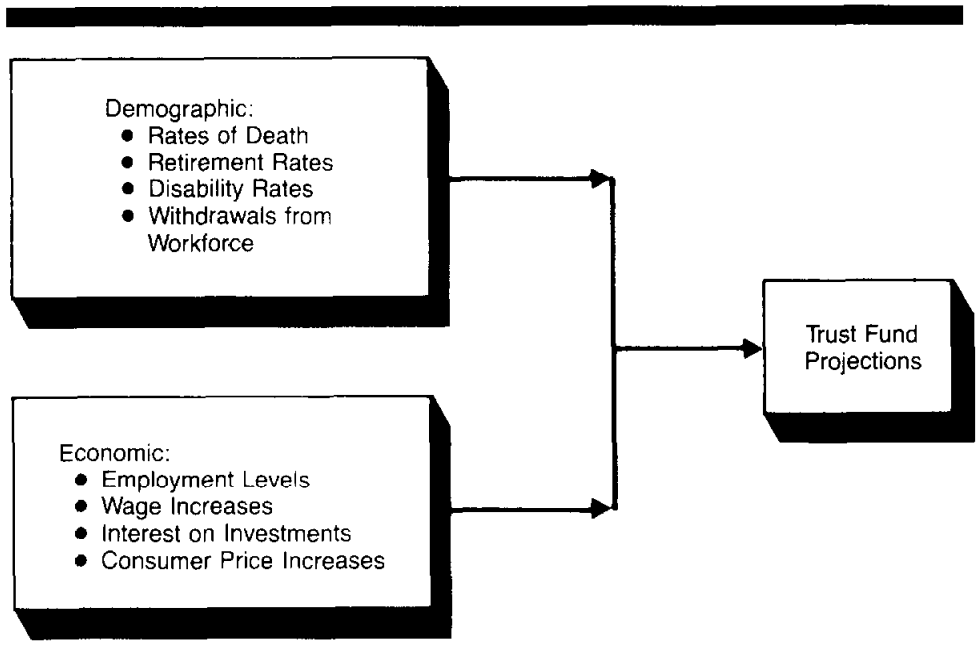
The Board presents its measure of cash flow solvency annually each June in its "Section 502" report, which contains solvency projections for the next 25 years. The Board reports its actuarial solvency and soundness projections—which indicate the longer term financial health of the railroad retirement account—in its triennial actuarial valuation, which contains solvency projections over the next 75 years.

Although the program is financed on a pay-as-you-go basis and is not subject to ERISA, the Board provides actuarial estimates of the additional contributions that would be required under ERISA. As part of that analysis, the Board estimates that if ERISA funding requirements applied, the unfunded accrued liability of the railroad retirement account now amounts to $32 billion.

Factors Influencing Measures of Financial Condition

Any financial assessment of a retirement plan is influenced by the factors considered in its preparation. Demographic and economic assumptions used in performing an actuarial valuation have a critical influence on the results. (See fig. 1.4.) These assumptions will influence the estimates of future revenues (payroll tax contributions, general revenue contributions, and investment income) as well as expenditures (benefit payments and administrative expenses).

Figure 1.4: Demographic and Economic Assumptions Affecting Trust Fund Solvency Projections



The key demographic assumptions include rates of death, retirement, disability, and withdrawal from the work force. The longer people are assumed to live, the more people will be expected to survive to retirement, and the longer their pensions will be expected to be payable. The higher the assumed withdrawal rate, the smaller the amount of estimated future benefit payments.

Economic assumptions used by the Board are the expected level of rail employment, the expected rate of investment return for the rail trust fund, expected future increases in the consumer price index (CPI), and expected rail wages. (See app. II for the Board's economic assumptions for the 17th actuarial valuation.[2]) If available assets are expected to be small—as is the case under pay-as-you-go funding—the expected investment return assumption becomes less significant. Expected increases in the CPI have an immediate effect on benefit payouts because railroad retirement benefits are indexed to it. However, since the railroad retirement private pension component contains a cost-of-living adjustment that raises benefits by only 32.5 percent of the increase in the CPI, the CPI assumption is less critical for railroad retirement than for

[2]As of December of every third year, the Board publishes an actuarial valuation. The valuation presents actuarial information on the various components of the railroad retirement program, including the projected future income, expenditures, and ending balances for the various accounts including the railroad retirement account.

a fully indexed program like social security. Assumptions about future increases in rail wages are more important since changes in such assumptions immediately affect both anticipated contributions and expected future benefit payments.

Perhaps the most important economic assumption made by the Railroad Retirement Board's actuary, however, and one that in retrospect has been consistently overstated until recent years, is the assumed levels of future rail employment. Rail employment is a factor that significantly affects the solvency prospects of the railroad retirement account.

Objectives, Scope, and Methodology

The Chairman, Subcommittee on Labor, Senate Committee on Labor and Human Resources, asked us to identify the factors that were influencing the level of rail employment and to develop independent rail employment estimates for projecting trust fund solvency. See appendix III for a more detailed discussion of our objectives, scope, and methodology.

Our review was conducted between May 1987 and August 1988 at the Railroad Retirement Board's headquarters in Chicago. To obtain an overall perspective of the future of the rail industry and rail employment in particular, we identified and contacted experts in rail transportation in academia, government, rail management and labor, and the private sector to obtain their views. We also performed an extensive literature search of documents, trade publications, and periodicals on changes in the rail industry and factors that have affected rail employment.

To develop independent future rail employment projections, we first reviewed historical data on rail employment. We contacted organizations that had been involved in rail employment forecasting in the past and reviewed recent employment projections by the Railroad Retirement Board and the Association of American Railroads. We catalogued the information we obtained from experts on rail transportation in an attempt to analyze how various internal and external factors might affect the future of rail employment. Finally, we contracted with NPA Data Services, Inc. (see p. 28), to develop an economic model for making independent rail employment projections.

We met with the actuarial staff at the Railroad Retirement Board and other actuaries knowledgeable in federal social insurance programs to determine the factors essential to developing actuarial projections. We reviewed the Board's past actuarial valuations and the recent annual

trust fund assessments required by section 502 of the Railroad Retirement Solvency Act of 1983.

Our actuaries and Dr. Murray E. Cohen, our actuarial consultant, reviewed the Board's actuarial assumptions and concluded that the Board had considered relevant factors and the assumptions appeared reasonable. Consequently, we decided to use the Board's assumptions in making our trust fund solvency projections.

Because of resource and time constraints and the complexity of the railroad retirement program, we decided to use the Board's actuarial projection model and its computer programs and facilities to produce our projections of trust fund solvency. To ensure the integrity of our approach, our consultant performed an actuarial audit of the Board's methodology.

For our trust fund projections, we reviewed other available pertinent assumptions, such as the expected rise in the CPI and in rail wages as well as the expected interest rate (rate of return on investments). For our assessment of the trust fund, we considered the various economic assumptions that the Social Security Administration had used for its social security trust fund projections. We adopted the Board assumptions (for its 17th valuation) as our own, however, because they appeared to be reasonable and were more conservative than those of the Social Security Administration.

Our review was made in accordance with generally accepted government auditing standards except that we did not verify the accuracy of data compiled by the Association of American Railroads.

Future Rail Employment

The financial viability of the railroad retirement program depends greatly on future rail employment. Rail employment, in turn, is affected by such broad economic factors as the state of the U.S. economy and the demand for rail transportation services. It also depends on factors specific to the rail industry—such as technological advances and corporate reorganizations—that affect the size of the rail work force. However, a paramount factor is the current posture of rail management. Faced with stiff price competition from the trucking industry, cost containment—especially reducing labor costs—has been and continues to be the focus of rail management's efforts. The rail industry has stated that it plans to reduce the rail work force. The questions are—how fast and to what level will it drop?

Rail employment forecasts prepared by NPA Data Services, Inc., the Railroad Retirement Board, and the Association of American Railroads, which are presented in this report, depict a wide band of possible future rail employment scenarios. Even under the most optimistic scenario, rail employment is forecast to decline to 185,000 by the year 2010. Under the most pessimistic scenario, it could drop to 71,000.

Trend in Rail Employment

Total employment in the rail industry has declined from a World War II average high of 1,680,000 in 1945 to about 307,000 at the end of 1988. (See fig. 2.1.) Much of the reduction in rail employment from the 1950s through the 1970s can be attributed to loss of passenger traffic to airlines and freight traffic to the trucking industry. Additional losses in freight traffic can be attributed to changes in the economy as the United States continues to move from a producer of major heavy durable goods to a more service-oriented economy. Between 1980 and 1988, employment plummeted more than 40 percent (from 532,000 to 307,000) because of the economic downturn in the early 1980s and factors associated with deregulation of the nation's railroads. (See fig. 2.2.)

Figure 2.1: Trend in Railroad Employment Over the Past 50 Years

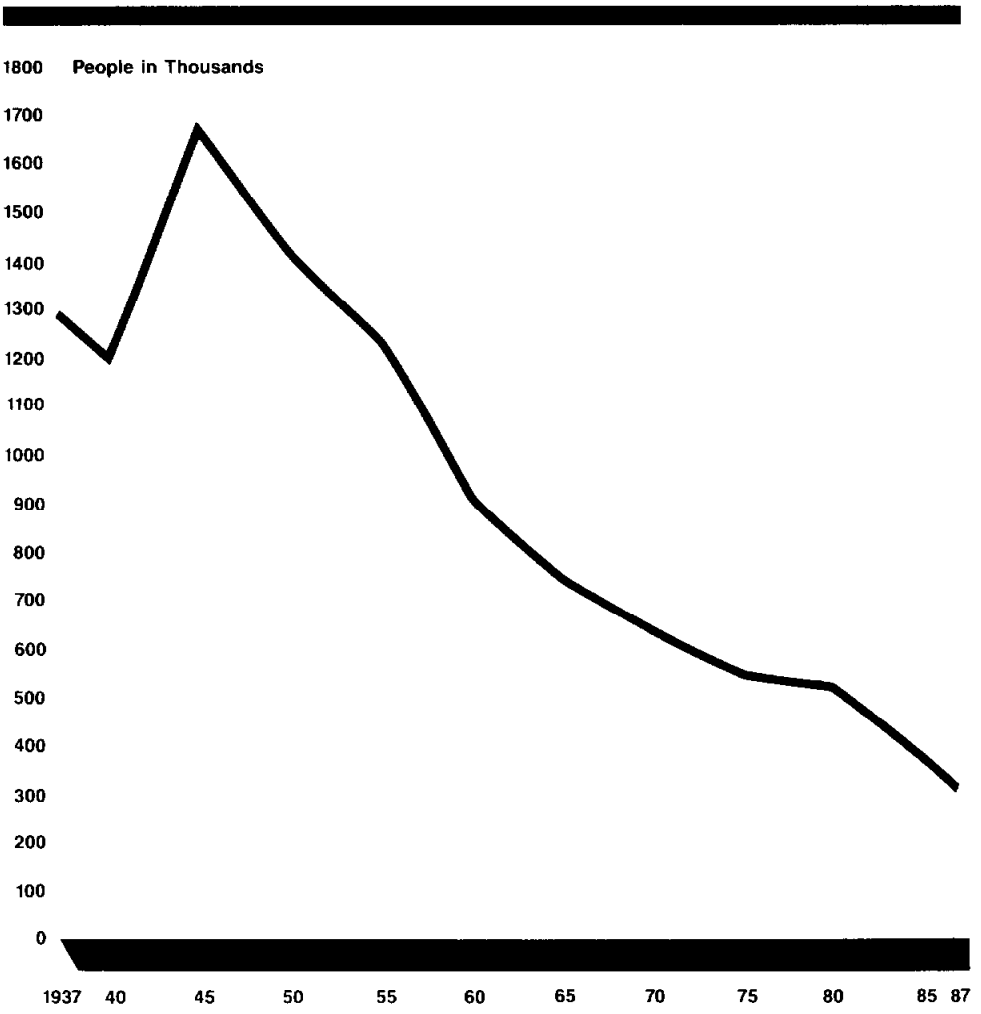
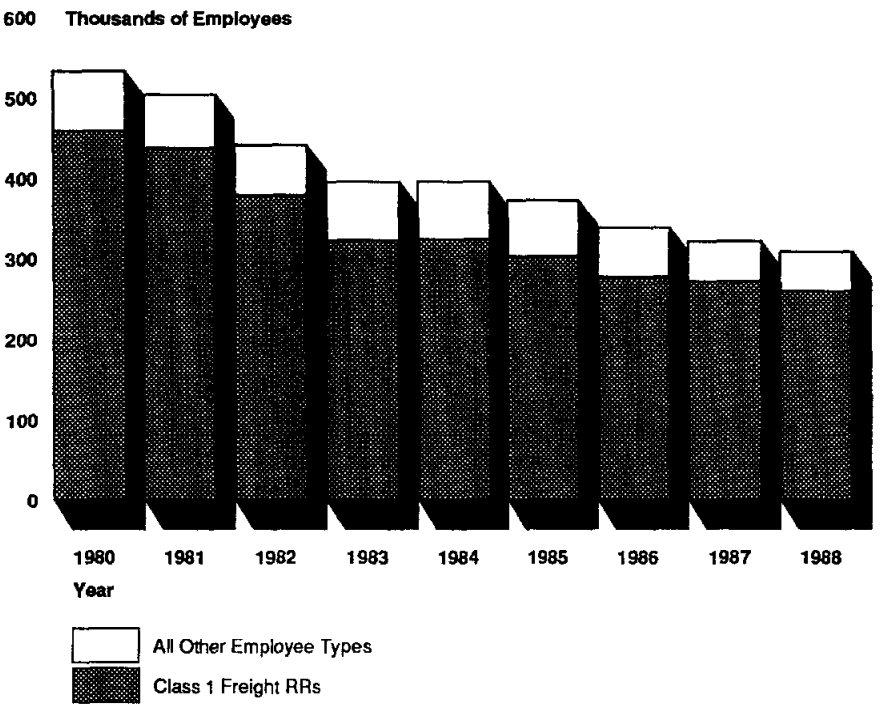


Figure 2.2: Total Railroad Employees, 1980-88



Rail employment has decreased markedly for all occupational categories. For example, over 5 years the number of executive staff declined about 29 percent, while professional and administrative personnel dropped about 45 percent. Reductions in total employees and selected categories for 1957-87 are shown in appendix IV.

Factors Affecting Rail Employment

A number of factors affect the structure of the railroad industry. Although many factors affecting rail employment can be identified, the extent of their impact is less clear. Some factors are outside rail industry control; others involve actions taken by the industry. Even actions taken by the industry itself may have been motivated by outside events. The factors listed below attributed to the rail industry represent areas over which the industry had some control or discretion.

Changes Within the Economy and Transportation Market

Factors within the U.S. economy that have affected the economic well-being of the rail industry include the following:

- A continual shift in the United States from the production of goods toward a more service-oriented economy.
- Little growth, or even a decline, in heavy industries (steel, ore mining) that relied on the railroads in the past.
- A shift toward shipments of smaller and lighter manufactured products.
- Competition from the trucking industry, which sometimes is better able to provide service in certain areas and at reduced costs.

As a result of these factors, the rail industry has lost some of its traditional traffic and experienced a decrease in its share of the transportation market. For example, railroads' share of intercity freight traffic dropped from 56.2 percent of revenue freight ton-miles in 1950 to an estimated 35.8 percent in 1986.

Changes Within the Rail Industry

Internal changes affecting the financial health of the rail industry since 1980 include (1) organizational and structural changes, (2) management initiatives, (3) technological changes, and (4) labor developments.

Organizational and Structural Changes

The 1980s saw (1) a shift toward intermodalization,[1] (2) a continuation of mergers and consolidations, (3) additional track abandonments in response to deregulation legislation passed during the 1970s and 1980s, and (4) an increase in the creation of regional and short-line railroads resulting from the Interstate Commerce Commission's interpretations of the Staggers Rail Act of 1980. The major Class I railroads[2] have used these approaches to rid themselves of marginally successful trackage and improve their competitive positions. These changes are usually accompanied by employment reductions. The extent to which any one factor contributed to employment reductions is difficult to discern. Some of these changes and their effects follow:

- Intermodalization and consolidation. To meet the demands of today's transportation market, several railroads are reorganizing their structure to include other forms of transportation or to become "total transportation companies," rather than just railroads. The tremendous increase in intermodal traffic has necessitated the installation of new intermodal terminals and the renovation of existing terminals to accommodate the

[1]The integration of various modes of transportation in the shipment of goods, the "piggyback" movement of truck trailers on rail flatcars being the best example.

[2]Class I railroads are those whose operating revenues exceed a certain threshold as determined by the Interstate Commerce Commission. As of 1987, the threshold was $87.9 million.

new technologies, such as double-stack containers, large side-loading machines, and other more efficient loading practices. Railroad mergers have resulted in the consolidation of many physical facilities. This trend toward fewer but larger yards, incorporating state-of-the-art technology in freight handling, has resulted in the downgrading or phasing out of smaller yards, including the people who staffed them.

- Mergers. The number of Class I railroads has declined from over 100 in 1960 to 16 in 1987 as many railroads have absorbed others. (See app. VI.) Mergers are commonly followed by internal reorganizations, which often result in the elimination of many positions or entire departments to avoid duplication of administrative and operational functions.
- Selloffs and track abandonments. Many railroads divest themselves of unprofitable segments of track and equipment to newly created regional and short-line railroads. The newly created railroads offer an alternative to abandonments. The new railroads generally hire some of the same employees from the acquired line, but generally negotiate with workers to reduce wages and institute work-rule changes that are more appropriate for low-volume operations. Workers of railroads surveyed by the Interstate Commerce Commission were usually paid at rates 66 to 90 percent of what they would have received from the former company.

Management Initiatives

In 1986, rail labor costs were estimated to account for about 45 percent of operating costs. The reduction of labor costs has become a prime target of rail management. Buyouts, longer trains, and contracting for services by nonrailroad employees are three other ways management is trimming labor costs.

- Buyouts are one way of reducing higher-than-necessary employment levels. Under this option, the railroads must pay the unneeded employees being bought out a preagreed amount established under worker protection provisions within union contracts. Thus railroads incur a one-time cost for eliminating unneeded employees.
- Longer trains, catering to high-density bulk cargo such as coal and grain, are being preferred over smaller trains for smaller intercity traffic. Some sources maintain that railroads have all but abandoned short-haul general merchandise traffic to trucks. The long-haul, bulk commodities on longer trains are less labor intensive. They have the effect of eliminating switching yards and crews, thus cutting costs.
- Contracting for services by nonrailroad employees can also reduce rail employment. In 1986, railroad compensation for Class I railroads averaged about $48,000 per employee, including fringe benefits. Any railroad operation that can be accomplished with nonrailroad personnel at a

lower cost saves money. Railroads, therefore, are contracting for such services as maintenance-of-way and clerical activities, which formerly were performed by rail employees. Also, more locomotives and rail cars are being leased from privately owned companies, reducing the need for maintenance facilities.

Technological Changes

The rail industry continues to introduce technological improvements that not only reduce costs and increase efficiencies, but almost always decrease the need for rail employees.

- Containerization and intermodal shipping are reducing the number of rail employees involved in the multiple handling of shipments from origin to destination.
- Computerization and automation have replaced many operational, communications, and clerical activities.
- Mechanization advances have enabled track maintenance-of-way activities to be done with fewer employees.

Labor Developments

Labor concessions are being requested by rail management in an effort to reduce operating costs. These concessions include reductions in crew sizes, elimination of unique pay provisions, and other work-rule changes. Appendix V discusses further the external and internal factors affecting rail employment.

While these changes have reduced rail employment, they have also positively affected the overall financial health of the nation's railroads. Productivity, as measured by revenue ton miles per employee, has increased over 50 percent since 1980. The rates of return on investments have improved for several railroads to the point where they compare favorably with other industries.

Rail Employment Forecasts

Given the inherent uncertainty about the future of railroad technology, alternative transportation modes, and labor relations in the industry, accurately forecasting rail employment is very difficult, as evidenced by past forecasts. The 1972 report of the Commission on Railroad Retirement pointed out that in almost every actuarial valuation up to that time, Board employment assumptions missed actual trends by a substantial margin. Also, we noted in a 1983 study that recent rail employment forecasts by the Board, the Department of Commerce, the Congressional

Budget Office, and some industry groups had been considerably higher than subsequent experience.

Rail Employment Forecasts Developed by Three Sources

In attempting to develop employment projections, we found a lack of available data on this subject. Our discussions with experts in rail transportation, academia, private consulting and investment firms, rail industry management and labor circles, and government agencies indicated that all believed rail employment will continue to decline. Although there is agreement that rail employment will drop to about 200,000 and possibly 150,000, there is general uncertainty as to what the rate of decline will be over the next 10 years and when the decline will "bottom out." Persons we talked to, almost without exception, declined to offer predictions of the specific impact of the various factors affecting employment. When such estimates were provided, they were opinions that were not based on systematic studies.

To project future rail employment, we considered estimates prepared by

- the Railroad Retirement Board, which based its estimates on the historical experience in the rail industry over the past 30 years;
- the Association of American Railroads, which generated projections that segregated freight and passenger service related employment outlooks and assumed a relatively rapid reduction of unneeded freight service employment; and
- NPA Data Services, Inc., which relied on an econometric model that embodies the average historical linkage between the gross national product (GNP), output in the transportation industry, and rail industry output.

The range of plausible or reasonable rail employment forecasts for a 25-year horizon is relatively wide for several reasons. The Board's latest forecast relies on long-term historical employment averages. The Association of American Railroads' projections reflect a short-term determination by rail managers to decrease labor costs with a quick return to a much lower rate of decline in employment after surplus rail employees have been eliminated. NPA's forecast reflects a continuation in the short term of the more recent sharp employment decreases with a higher rate of decline in the long term than the Association and Board project. The forecasts by all three organizations fall within this wide band of reasonable projections. (See fig. 2.3 for the range of projections by the three organizations; see table 2.1 for specific employment estimates by all three organizations.)

Figure 2.3: Employment Projections by the Association, the Board, and NPA

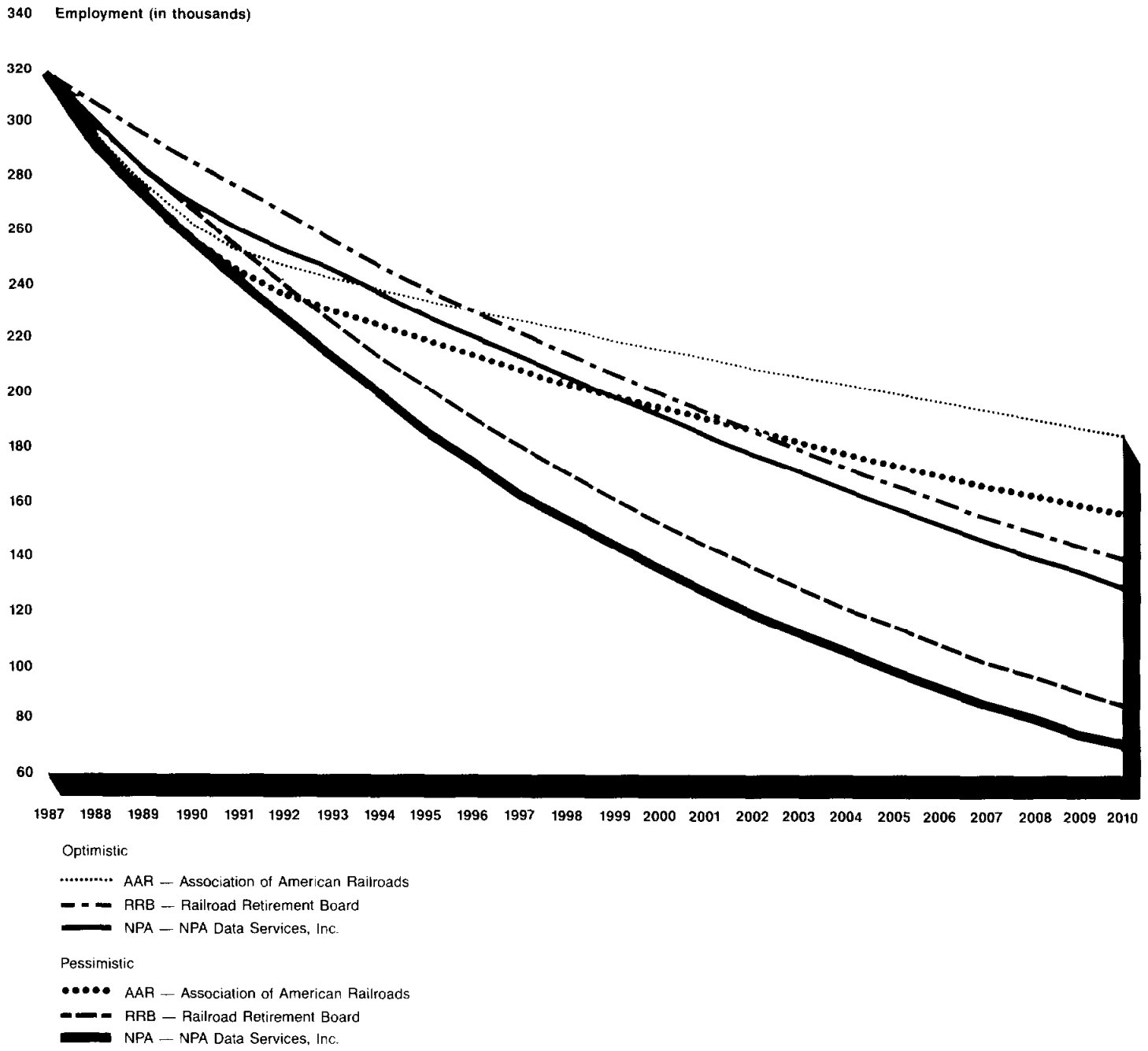


Table 2.1: Projected Rail Employment Levels Through the Year 2010 by the Board, the Association, and NPA

Numbers in thousands

	Board			Association		NPA		
Year	Opt	Int	Pes	Opt	Pes	Opt	Int	Pes
1987	317	317	317	317	317	317	317	317
1988	306	300	300	295	292	299	293	290
1989	295	289	283	276	272	283	274	271
1990	285	276	268	262	256	270	258	256
1991	275	264	253	252	244	260	244	241
1992	265	252	239	246	236	252	232	227
1993	256	260	226	242	230	245	220	213
1994	247	230	213	238	225	237	209	200
1995	238	219	202	234	219	229	198	187
1996	230	209	191	230	214	221	187	175
1997	222	200	180	227	209	213	177	163
1998	214	191	170	223	204	206	168	153
1999	207	182	161	219	199	198	158	144
2000	199	174	152	216	195	192	150	135
2001	193	166	144	213	190	185	141	127
2002	186	159	136	209	186	178	133	119
2003	179	152	128	206	182	171	126	112
2004	173	145	121	203	178	165	119	105
2005	167	138	115	200	174	158	112	98
2006	161	132	108	197	170	152	105	92
2007	155	126	102	194	166	146	99	86
2008	150	121	97	191	163	140	93	81
2009	145	115	91	188	159	135	88	75
2010	140	110	86	185	156	129	82	71

Legend

Opt = Optimistic
Int = Intermediate
Pes = Pessimistic

Board Forecasts

Section 502 of the Railroad Retirement Solvency Act of 1983 requires the Board to report annually on the actuarial status of the railroad retirement account. The first such report appeared in the Board's 16th triennial actuarial valuation published in 1985, and subsequent reports have been issued in mid-1986 and 1987. The 1987 report pointed out that the average annual rate of decline in employment between 1955 and 1986 was 4.1 percent but that it had accelerated to 7.3 percent in the period 1980-86.

The Board's employment forecasts through the 16th valuation have been subjective estimates of the future of rail employment. In the 16th triennial actuarial valuation issued in 1985, the Board's actuary adopted optimistic, intermediate, and pessimistic rates of employment decline of 2.0, 3.0, and 4.0 percent, respectively. From 1986 on, the Board's employment forecasts have become more pessimistic and more reflective of the industry's 30-year experience. In the 1986 and 1987 Section 502 reports, the comparable ranges represented a further move toward more pessimistic forecasts, as shown in table 2.2.

Table 2.2: Railroad Retirement Board: Projected Annual Rate of Decline in Employment

Figures in percents

	Projected annual rate of decline in employment		
	Optimistic	**Intermediate**	**Pessimistic**
16th valuation	2.0	3.0	4.0
Section 502 report:			
1986	3.5	4.0	4.5
1987	3.5	4.5	5.5
17th valuation:			
1988-2010	3.5	4.5	5.5

Association Forecasts

The Association prepared its own predictions of future trends in rail employment that were included as part of a package being prepared for a special task force formed to look into problems of railroad retirement. The task force was directed by the Association and included at least two representatives from each Class I railroad in the United States.

The Association presented future rail employment projections that showed a faster rate of decline than the Board's over the next few years, which more closely paralleled recent actual industry experience, and a much lower constant rate of decline thereafter.

In August 1987, the Association prepared two sets of employment assumptions. In the pessimistic set, the total 1987 estimated employment of 305,000 was divided into freight employees (259,000) and passenger employees (46,000). Of 259,000 freight employees, 207,000 were classified as freight base employees, whose number would decline at a steady 3-percent annual rate to 100,000 in 2011. The Association based this annual reduction in the freight base on an assumed 3-percent annual improvement in employee productivity and on assumed static

traffic levels throughout the period, assumptions that the Association maintains are quite conservative.

The other 52,000 freight employees were classified as "surplus"—those currently unneeded because of outmoded labor agreements, prior changes in technology, and other factors. The Association projected this surplus to disappear over a 5- or 6-year period, shrinking by 18,000 in the first year, 14,000 in the second, 10,000 in the third, 6,000 in the fourth, and 4,000 in the fifth.

The Association projected that rail passenger employment would continue at its present 46,000 level through 1995 and grow slowly thereafter. This trend was expected to differ significantly from the freight employment trend because of continuing rapid increases in real estate values, outer suburb population, and commuter rail ridership in New York and other large metropolitan areas.

In February 1988, the Association updated and modified this pessimistic set of assumptions (such as no future projected growth in passenger service employment), and the Board included it as one of the five employment scenarios in its 17th actuarial valuation.

The Association's second or optimistic set of assumptions was initially based on a survey of 12 major railroads that account for about 96 percent of Class I rail freight employment and about 78 percent of the total employment covered by railroad retirement. Total rail employment was expected to decline at gradually reduced rates to about 205,000 by 2011.

In February 1988, the Association generated an updated optimistic scenario that employs the same assumptions for "surplus" and passenger service employment used in the pessimistic scenario but uses a 2-percent decline factor for future freight-based employment. The Board also included this Association employment scenario in it 17th actuarial valuation.

The annual rates of decline under each of the updated scenarios presented in the Board's 17th valuation are shown in table 2.3.

Table 2.3: Association of American Railroads: Projected Annual Rate of Decline in Employment

Figures in percents

Period	Projected annual rate of decline in employment	
	Optimistic	Pessimistic
1988	7.0	7.7
1989	6.2	6.9
1990	5.2	5.9
1991	3.9	4.7
1992	2.4	3.2
1993	1.6	2.4
1994	1.6	2.4
1995-2005	1.6	•
2006-2010	1.5	•
1995-97	•	2.4
1998-2003	•	2.3
2004-2008	•	2.2
2009-2010	•	2.1

NPA Forecasts

We contracted with NPA to develop employment forecasts and a model for projecting railroad employment based on econometric modeling techniques. NPA forecast future employment on the basis of ordinary least squares regressions, in which rail employment was regressed on GNP and period variables over the period 1955-86. The period variables reflect changes in trends of output per worker and the effect of deregulation in the 1982-86 period.

NPA was a principal contributor of economic analysis to the 1970 President's Commission on Railroad Retirement and provided similar services to GAO in developing employment projections for a prior report. In our prior report on Board employment projections (GAO/HRD-83-76), issued in July 1983, we recognized that the magnitude of the effects of deregulation were uncertain. NPA's current forecast benefits from an additional 4 years of deregulation experience and data.

The principal difference between the employment assumptions developed by NPA and those developed by the Board and Association is the faster rates of employment decline forecast for the next 5 to 10 years. This is in contrast to the Board's estimate of a lower constant rate of decline over the test period. The Association's estimates also show an initial rapid decline but subsequently project a constant rate of decline that is even lower than that projected by the Board.

The NPA model used the GNP projections contained in Social Security Administration's II-B actuarial projections—one of two Social Security intermediate assumptions. Given this path for GNP, NPA provided optimistic, intermediate, and pessimistic rail employment forecasts. These represent three separate assumptions regarding the future trends in output per rail worker and the speed of adjustment to deregulation. From the 1987 employment level of 317,000,[3] the pessimistic scenario implies a drop in jobs to 71,000 by 2010. The optimistic scenario projects a less precipitous decline—to 129,000. Rates of decline from this model for selected periods are shown in table 2.4.

Table 2.4: NPA Data Services: Projected Annual Rate of Decline in Employment

Figures in percents

	Projected annual rate of decline in employment		
Period	**Optimistic**	**Intermediate**	**Pessimistic**
1988	5.7	7.6	8.5
1989	5.4	6.5	6.6
1990	4.8	5.8	5.5
1991	3.7	5.4	5.9
1992	3.1	4.9	5.8
1997	3.6	5.3	6.9
2002	3.7	5.7	6.3
2007	3.9	5.7	6.5
2010	4.4	6.8	5.6

[3]The 317,000 employment level for 1987 was the one that was used for all solvency projections (Board and Association) for the Board's 17th actuarial valuation.

Trust Fund Solvency Prospects

The railroad retirement account should remain solvent into the first decade of the next century. Under the intermediate employment scenarios prepared by the Railroad Retirement Board and NPA, cash insolvency is projected to occur in 2016 or 2009, respectively. The most optimistic scenario by the Association of American Railroads indicates that the account will remain solvent beyond 2060.

Because the railroad retirement program is on a pay-as-you-go basis, no provision is made to systematically fund expected future benefit demands. The Board estimates that under ERISA requirements the program would have an unfunded accrued liability of about $32 billion. Both the Board and the Association have prepared estimates of the cost of amortizing the unfunded accrued liability under various alternative scenarios.

Future Cash Solvency Prospects of the Railroad Retirement Account

The following sections discuss how the Railroad Retirement Board, GAO, and the Association of American Railroads projected the railroad retirement account's solvency. Tables 3.1 through 3.3 show the results of using the Board's, NPA's, and the Association's employment assumptions discussed in chapter 2 to project the solvency.

Board's Cash Flow Solvency Projections

As recently as June 1987, the Board was predicting that the railroad retirement account would have sufficient funds to pay benefits for only a few years beyond 2000. The Board's actuary recommended a 4.5-percent tax increase. Because of his concern with decreasing rail employment, the actuary, for the first time, suggested that a method of financing the program other than payroll taxes be explored.

Historically, the Board's actuary has assumed at least three different employment trends for the rail industry—reflecting optimistic, intermediate, and pessimistic outlooks. Occasionally more than three scenarios have been used. The Board forecasts the trust fund's cash flow under various actuarial, economic, and employment assumptions using an actuarial projection model. GAO's consulting actuary audited the Board's actuarial projection model and found that it produces accurate benefit and revenue stream projections.

The Board's latest cash flow solvency projections for the railroad retirement account presented in its 17th valuation in June 1988 are much

more optimistic than those presented in its previous Section 502 report to the Congress in June 1987.

Table 3.1: Railroad Retirement Board: Projected Year of Insolvency

	Projected year of insolvency	
Employment forecast	June 1987—Section 502 report	June 1988—17th valuation
Optimistic	2007	2027
Intermediate	2003	2016
Pessimistic	2001	2011

This improved outlook occurred principally because of two factors—a significant change in assumptions, which reduced expected future benefit outlays, and a legislative change in December 1987, which increased revenues by increasing the payroll tax rate and allowing the railroad retirement account to continue to receive the revenues from the taxing of benefits for one more year. Normally income tax receipts are retained by the Treasury for general revenue purposes.

Based on data developed for GAO, the changes in assumptions resulted in reductions in expected benefit payments of about $5 billion by the year 2010. One key actuarial change was to raise the assumed employee withdrawal rates.[1] This improved the solvency projections for the account because it lowered expected benefit payments more than expected revenues.

As a result of passage of the Omnibus Budget Reconciliation Act of 1987, the payroll tax increased by 2 percent, split between employer and employee. The Board's actuary estimated the tax increase would result in increased revenues of about $3.5 billion by 2010.

The act also extended through fiscal year 1989 the transfer to the railroad retirement account from the general revenues of the Treasury the income taxes collected on the rail industry pension benefit. The Board estimates that this provision will provide an additional $343 million. Originally, the 1983 amendments to the Railroad Retirement Act provided that this assistance to the railroad retirement account would be limited to a 5-year period or until a total of $877 million was received by the account.

[1]The rate at which workers leave the rail industry.

GAO's Cash Flow Solvency Projections

While cash solvency has improved significantly based on the recent assumption revisions and legislative changes, our estimates are less optimistic than the Board's because we forecast lower employment. As noted previously, we considered a number of possible future rail employment scenarios. From the alternative NPA employment forecasts we provided to the Board, it produced cash flow solvency projections based on the actuarial model it used for the 17th valuation. (See apps. VII, VIII, and IX.) The only difference between our cash flow projections and the Board's is the assumed path for rail employment. All other economic and demographic assumptions were the same. We and the Board both incorporated the December 1987 legislative changes into the cash flow projections.

NPA's employment projections differ from the Board's in that they reflect a faster rate of employment decline in the next 5 to 10 years. The Board's actuary, on the other hand, estimated a somewhat more constant rate of decline over the period. The Board's employment forecasts for the 17th valuation are, therefore, more optimistic than NPA's—as are its solvency prospects.

Given the range of the employment forecasts we used, the railroad retirement account could remain solvent beyond 2010 or become insolvent as early as 2007. (See table 3.2.)

Table 3.2: GAO: Projected Year of Insolvency (Using NPA Employment Forecasts)

Employment forecast	Projected year of insolvency
Optimistic	Beyond 2010[a]
Intermediate	2009
Pessimistic	2007

[a]Years beyond 2010 were not calculated.

Association's Cash Flow Solvency Projections

Overall, the estimates prepared by the Railroad Retirement Board using American Association of Railroads employment assumptions resulted in the most favorable railroad retirement cash solvency projections. As in the previous set of projections, the Board's economic and actuarial assumptions and the Association's employment assumptions were used.

Although the Association was assuming a steeper decline in rail employment in the initial years—more severe than the Board's employment forecasts—the rate of decline becomes much more moderate in the later years.

Based on the Association's employment forecasts, the railroad retirement account would remain solvent through 2010 under both its pessimistic and optimistic scenarios. The Association did not prepare an intermediate forecast.

Table 3.3: Association of American Railroads: Projected Year of Insolvency

Employment forecast	Projected year of insolvency
Optimistic	Beyond 2060
Pessimistic	2026

Cost of Amortizing the Present Unfunded Accrued Liability

Because of pay-as-you-go financing, the railroad retirement account has had an unfunded accrued liability since its inception. Over the years, the account's unfunded accrued liability calculated using ERISA criteria has grown until it now stands at an estimated $32 billion.

The Railroad Retirement Board's actuary computed the cost of amortizing the program's unfunded accrued liability over a 30-year period, as would be required under ERISA. In 1987 the actuary reported that it would take a $2.3 billion annual payment to pay off the unfunded liability over 30 years.

The actuary estimated that the $2.3 billion annual payment would require a 30-year level payroll tax rate of between 26.93 and 32.05 percent of taxable payroll—depending on which of the five Board or Association employment forecasts were used (see app. X). These calculations did not include NPA's most pessimistic scenario, which would have produced an even higher payroll tax rate.

The Association developed its own information on the possible cost of amortizing the unfunded liability. The Association studied the possible increased payroll taxes that would be associated with a number of alternatives placing all or part of the present Tier II and supplemental pension components under ERISA-type funding criteria. The Association, however, refused to permit us to include any of this information in this report.

Conclusions

The fate of the railroad retirement program depends heavily on future rail employment, which in turn depends on a number of influences both within and outside the rail industry. Although predicting future rail employment is difficult, it is certain that rail employment will continue

to decline in response to the competitive pressures. The only questions are—how fast and to what extent?

The solvency of the railroad retirement account and its ability to pay benefits does not appear threatened into the first decade of the next century. However, similarly optimistic trust fund solvency projections in the past failed to materialize. The accuracy of solvency projections depends on a number of variables—such as future inflation and interest rates, expected employee withdrawal rates, and future employment forecasts. Significant changes can substantially alter solvency scenarios. To ensure the program's viability and enhance benefit security for rail workers, forecasts of future rail employment and assumptions about economic and demographic trends should be continually reevaluated.

The Omnibus Budget Reconciliation Act of 1987 established the Commission on Railroad Retirement Reform to study issues pertaining to the long-term financing of the railroad retirement program. The study is to consider the economic outlook for the rail industry; the ability of the railroad retirement program to pay benefits to current and future beneficiaries; the relationships of the railroad retirement program to other programs; and the possible restructuring of its financing through a number of options, including the establishment of a privately funded and administered industry pension plan. In its deliberations, the Commission may find the matters discussed in this report to be useful.

Agency Comments and Our Response

We sent a draft of this report to the Railroad Retirement Board and the Association of American Railroads for their review and comments. The Board said it was pleased that our actuarial consultant had concluded that the Board's actuarial projection model produces accurate benefit and revenue stream projections, and that the Board actuarial assumptions have considered relevant factors and appear reasonable. The Board also offered a number of specific comments for our consideration. These comments have been incorporated in the report where appropriate.

The labor member of the Board stated that in his opinion the trends of increasing passenger traffic and the increase in ton-miles of freight being handled by the nation's railroads would at least indicate a possible stabilization of employment levels.

The management member of the Board stated that we should have exercised our judgment in stating which of the various estimates of future

rail employment appeared to be the most reasonable. He said also that the projection of a 71,000 rail employment level by the year 2010 presented in the draft report as NPA's pessimistic scenario was incredible.

We pointed out in the draft that all forecasts offered by NPA, the Board, and the Association fall within a range of reasonable projections. They are not attempts to predict the actual course of future employment, but rather are reasonable assumptions about how the railroad retirement trust fund would be affected if future rail employment followed a given course.

As to the likelihood of rail employment dropping to 71,000 by the year 2010, these forecasts are mathematical progressions based on certain underlying assumptions. The Board's actuary forecast a 71,000 employment level by the year 2015 under the Board's pessimistic assumption. In reality, all such forecasts become less reliable over a long period of time and should be constantly reevaluated to consider changing conditions.

The Board's management member also stated that our report should be updated to reflect certain 1988 data and the revised Board employment figures for 1987. We inserted more recent data where possible. However, we did not revise the employment data that we used for the trust fund solvency projections. The trust fund solvency projections offered earlier in this chapter offer comparative projections by three separate organizations using the same initial 1987 data, and any changes would have necessitated a complete new set of solvency projections. Neither GAO nor the Board's actuary believe that an increase in employment of 3,000 (320,000 revised 1987 employment level minus 317,000 original 1987 figure) would be of enough significance to alter the projected earliest years of insolvency. The railroad retirement account should show no immediate short-term solvency problems as we point out in the report, regardless of whether the 320,000 or 317,000 figure is used.

The management member of the Board also stated that we should make it clear that the unfunded accrued liability of $32 billion is the amount that the rail industry would have to come up with if the railroad retirement account were placed under ERISA and that the present net worth of the rail industry was not too far from $32 billion at present. He added that the Social Security Administration does not issue any estimate of its unfunded accrued liability.

We point out in our report that additional payroll taxes would be required if the program were subject to ERISA funding requirements—which it currently is not—and we recognize that the rail industry does not think it could absorb these additional costs. This is merely a statement of fact that the Board reports in its own actuarial valuations. In regard to the comment that Social Security does not present similar data, that agency does in fact provide data to the Treasury Department which is presented in Treasury's "Statement of Liabilities and Other Financial Commitments of the United States Government" and represents an estimation comparable to the accrued liability reported by the Board in its actuarial valuations. The comparable figure for the Social Security retirement and disability trust funds was about $5.6 trillion as of September 30, 1987.

The Board's management member also offered a number of specific comments that we considered in preparing this report.

The Association of American Railroads considered the NPA employment projections unduly pessimistic and disagreed with the extent of the drop in rail employment being forecast. It took issue with the methodology NPA used to forecast future rail employment and argued that freight and rail employment should be forecast separately. The Association said our treatment of the factors affecting rail employment was one-sided, maintaining that there has been a resurgence in rail traffic in the last 2 years. The Association also presented a number of specific comments on the data contained in the draft report.

We believe that the Association's argument for the separation of passenger service employment has merit and should be considered in the future. We modified this report based on the Association's specific comments, where appropriate. We disagree with the Association's comments concerning the appropriateness of NPA's methodology.

Comments From the Railroad Retirement Board

UNITED STATES OF AMERICA
RAILROAD RETIREMENT BOARD
844 RUSH STREET
CHICAGO, ILLINOIS 60611

BOARD MEMBERS:
T.J. SIMON (CHAIRMAN)
C.J. CHAMBERLAIN (LABOR)
J.D. CRAWFORD (MANAGEMENT)

February 13, 1989

Mr. Lawrence H. Thompson
Assistant Comptroller General
Human Resources Division
U.S. General Accounting Office
441 "G" Street, N.W.
Washington, D. C. 20548

Dear Mr. Thompson:

Thank you for the opportunity to review and comment on your proposed report to the Congress, "RAILROAD RETIREMENT: Future Rail Employment and Trust Fund Solvency." We appreciate the assurance provided by the conclusions of your actuarial consultant, Dr. Murray E. Cohen, and GAO's actuaries that (1) the Railroad Retirement Board's (RRB) actuarial projection model produces accurate benefit and revenue stream projections, and (2) the RRB's actuarial assumptions have considered relevant factors and appear reasonable.

Now on p. 34.

Regarding the conclusions on page 44 of the draft report, it is the opinion of the Labor Member that the trends of increasing passenger traffic and the increase in ton miles of freight being handled by the nation's railroads would at the least indicate a possible stabilization of employment levels.

Enclosed are comments on specific statements in the proposed report. We present these for your consideration in putting together your final report. In addition to these comments on behalf of the Board, the Management Member of the Board, John D. Crawford, has also prepared separate comments, which are enclosed herewith.

Sincerely,

Beatrice Ezerski

FOR THE BOARD
Beatrice Ezerski
Secretary to the Board

Enclosures

Enclosure

CHAPTER 1 - Introduction

Now on p. 10.

p. 1 - Our Chief Actuary thinks that it would be clearer to say "Under a pay-as-you-go basis, rather than setting payroll taxes at a level to fund benefits in advance of retirement, they are set at a level designed to meet current benefit payments" than "Rather than periodically placing money ... revenues are used primarily to pay current benefits."

Now on p. 10.

p. 2 - The statement is made that the railroad retirement plan "is the only federally administered private industry pension plan." The railroad retirement system is the counterpart to the social security system for railroad employees and their families. Like social security benefits, railroad retirement benefits are entitlements provided by Federal statute. They are not private pension benefits. Railroad retirement benefits have always been slightly higher than the corresponding benefits under the social security system, but railroad workers have paid significantly higher taxes to support the system. Use of "private pension" also appears in the table on page 3 and on the sixth line of page 9.

Now on pp. 11, 14.

Now on p. 11.

p. 3 - We suggest that the tax rates presented be updated to reflect current rates, as follows:

Employer Tier 1 rate - 7.51%
Employer Tier 2 rate - 16.10%
Employee Tier 1 rate - 7.51%
Employee Tier 2 rate - 4.90%

The first sentence of footnote a would be more correctly stated by changing the end of the sentence to read "covered under social security, less any social security benefits received."

Now on p. 13.

p. 7 - The Chief Actuary believes that "the unfunded accrued liability of the railroad retirement account now amounts to $32 billion" is an incomplete statement, without stating that it is based on a normal cost of 7.06 percent. Further, he thinks that the term "unfunded accrued liability" could be misleading to the layman. He recommends that discussion of ERISA requirements focus on levels of funding required. To accomplish this, the Chief Actuary has provided suggested changes to pages 6, 7, 36, 42, 43 and 44 to Mr. Patrick Dolan, GAO evaluator-in-charge.

Now on pp. 13, 30, 33.

Now on pp. 3, 13, 31.

The reference to a "subsidy from general revenues" on page 3 of the executive summary, the phrase, "federal income tax subsidies," on page 7, and the statement on page 38, "Normally such tax receipts are retained by the Treasury for general revenue purposes," deserve comment.

Characterizing Federal income tax transfers as a subsidy to the railroad retirement system overlooks the fact that, from the inception of their payment in the 1930's until 1984, railroad retirement benefits, like social security benefits, were not subject to taxation. In the 1983 legislation addressing the financial problems of the railroad retirement and social security systems, it was decided that railroad retirement and social security benefits would be taxed, and the resulting revenues would be credited to the respective trust funds. The primary purpose of taxing these benefits was to strengthen the financial condition of the trust funds, not to provide general revenues to the Treasury. It should also be recognized that while it is true that the revenues attributable to the taxation of private annuity payments are retained for general revenue purposes, railroad retirement annuities are not private annuities, but are, as noted in the comments concerning page 2, social insurance benefits provided under a Federal entitlement program.

Now on p. 10.

Now on p. 15.

p. 9 - We believe the statement to the effect that employment assumptions have "been consistently overstated" should be replaced by a statement to the effect that these assumptions "were consistently overstated until recent years." For example, to the extent that experience has developed, the employment assumptions in the 1987 Section 502 Report were understated. Page 27 acknowledges that, from 1986 on, the RRB's employment forecasts have become more pessimistic.

Now on p. 26.

CHAPTER 2 - Future Rail Employment

Now on p. 17.

p. 14 - Statements are made about losses in freight traffic. All-time high records were set in both 1987 and 1988 in terms of the number of ton-miles, which is the accepted measure of freight traffic.

Now on p. 18.

p. 15 - The title of the table should refer to the past 50 years instead of the past 20 years.

Now on p. 25.

p. 28 - The starting point for each of the projections is an average employment of 317,000 for 1987. Last year, as a result of recent structural and organizational changes in the railroad industry, the RRB reviewed relationships between the total number of railroad employees and the number employed by Class 1 railroads. As a result of the review, the 1987 average employment figure was adjusted to 320,000. Subject to possible adjustment later this year, average employment for 1988 was 307,000.

Now on p. 31.

-3-

CHAPTER 3 - Trust Fund Solvency Prospects

p. 39 - Our current estimate of the amount of additional income taxes referred to in the second paragraph is $343 million. This consists of $84 million in fiscal year 1988, because of removal of the $877 million cap, and $259 million in fiscal year 1989.

MANAGEMENT MEMBER'S COMMENTS
ON THE DRAFT GAO REPORT
"RAILROAD RETIREMENT: FUTURE
RAIL EMPLOYMENT AND TRUST FUND SOLVENCY"

The draft GAO Report is not as valuable as it could be to Congress in view of (1) GAO's apparent acceptance of widely varying estimates of employment levels, without sufficient comment on which appear to be most reasonable, and (2) failure to include up-to-date data in the report. In addition, I have some specific comments on the content which are detailed below.

1. Widely Varying Estimates

Now on p. 16.

It is interesting to note that GAO exercised its judgment to use the Railroad Retirement Board's economic assumptions in preference to those of the Social Security Administration (p. 12). The Subcommittee on Labor asked GAO to report on the factors influencing railroad employment and to "develop independent estimates of rail employment;" nevertheless, it seems to me that in view of the wide divergence of the estimates, it would be more helpful to Congress if GAO went beyond commenting that all three forecasts "fall within a wide band of reasonable projections," and exercised its judgment in stating which estimates appear to be most reasonable.

Now on p. 29.

Now on p. 27.

Now on p. 27.

The draft GAO Report does not provide sufficient information about the methodology of the NPA study to determine why their projections of railroad employment are so low. However, the pessimistic projection of a drop in jobs to 71,000 by 2010 (p. 34) is simply incredible. The stability and possible growth of Amtrak and commuter railroad employment, which is at present 46,000 (p. 32), has apparently been overlooked or disregarded in the NPA estimates. Incidentally, the description of the AAR's assumptions about passenger-related employment (p. 32) ought to give a breakdown between Amtrak employment (23,000) and commuter railroad employment (23,000).

2. Omission of Current Data

This document would be much more useful if it was updated to include data for 1988.

The reference to an employment level of 317,000 for 1987 indicates that this draft must have been proposed many months ago, because the Board revised its 1987 average mid-month count up to 320,000 in June 1988.

Now on p. 30.

While the report refers to the Board's 17th Annual Valuation (June 1988) at several points (p. 37, etc.), there are quite a few developments in the industry during calendar year 1988 which are not referred to. For instance, towards the end of the document, reference is made to the status of caboose laws in June 1986, when three states still had laws requiring cabooses. The last such law was nullified in 1988. In addition, the statistic that the railroad industry had 12,000 cabooses in 1985 is woefully out of date.

3. Specific Comments

While the draft report is written in such a way that it should be understandable by nonrailroad or non-Railroad Retirement Board people, there are several areas in which technical terms should be explained, or additional background added to help explain certain figures and statements, without unduly lengthening the document.

Here are my comments, page by page:

Now on p. 2.

Page 2 (Executive Summary) - In "Background," we should update the figures for FY-87 to FY-88. In addition, the third sentence of this paragraph, which states that the railroad retirement account is financed "largely" by rail employer and employee payroll taxes, should be corrected to read "financed by the railroad industry (rail employer and employee payroll taxes, income taxes on benefits, and interest on investments or loans to the unemployment insurance account) ..."

Now on p. 3.

Page 3 (Executive Summary) - In the second paragraph at the top of the page, the reference to "A subsidy from general revenues" should be clarified. As described on page 38 (lines 14-17), this is a continuation of the payment of income taxes on benefits.

Now on p. 31.

Now on p. 11.

Page 3 - The chart should be updated to reflect the 2 percent increase in Tier 2 taxes effective January 1, 1988.

Now on p. 13.

Page 7 - The reference to an unfunded accrued liability of $32 billion should be accompanied by an explanation of exactly what this means. This is the amount the railroad industry would have to come up with if the Railroad Retirement Account was placed under ERISA. This figure is found in Table 8 of the 17th Annual Valuation. It would be well at this point to cite the figures at Table 7, which give the projected actuarial deficit or surplus of the Railroad Retirement Account on a pay-as-you-go basis. The report might also at this point mention the net worth of the railroad industry, which is not too far from $32 billion. It should be noted that the Social Security Administration does not issue any estimate of its unfunded accrued liability. The reason probably is that it is unrealistic and really pleases only the doomsayers to make such estimates.

Now on p. 15.

Page 11 - Line 6: The word "Plans" should be substituted for "Schemes."

Now on p. 17.

Page 14 - In the discussion of "Trend in Rail Employment," the first thing Commission Members, or any Congressional staff using this report, will want is an update of the figures to include 1988 employment. Those figures are now available and should be used.

Now on p. 21.

Page 20 - In the discussion of "Sell-offs and Track Abandonments," it would be clearer if in lines 22-23, we stated that some employees are hired from the acquired line, but fewer. In addition, the discussion of lower wages and work rule changes appears to be unnecessary, unless reference is made to the fact that the net effect of these contractual changes is a lower number of employees required, and in some cases, an annual wage which is lower than the maximum Tier 2 tax base.

Now on pp. 21, 57, 21.

Page 21 - Line 10: Here, and again later in the report, on page 65, a rather cumbersome and misleading phrase "contracting for nonrailroad employees," is used. On page 22 reference is made to "contracting for services." It would probably be preferable to use the phrase "contracting for services by nonrailroad employees."

Now on p. 21.

Page 22 - Line 3: In addition to the $48,000 figure for wages and fringe benefits, mention should be made of the employer's Tier 2 payroll taxes of $4,600 per employee (in 1986).

Line 11: The word "eliminating" should be changed to "reducing." In line 22, the phrase "containerization" should more correctly refer to "containerization and intermodal shipping" as the reason for the reduction in multiple handling of shipments. Likewise, in line 26, the reference to replacement of "operational and clerical activities" should more properly, in the railroad industry labor relations world, refer to "operational, communications and clerical activities."

Now on p. 22.

Page 23 - The statements in lines 20 and 21 that "rates of return on investments have improved to the point where several railroads compare favorably with other industries" should be more specific. Things are not this rosy for more than 2 or 3 railroads.

Now on p. 25.

Page 27 - Here again, this section on RRB forecasts sorely needs updating to include the 17th Valuation and 1988 statistics.

Now on p. 30.

Page 36 - The second paragraph on this page again refers to the "unfunded actuarial liability of about $32 billion dollars." I have the same objection to the unqualified use of this figure at this point as on page 7.

Now on p. 13.

Now on p. 52.

Page 55 - It should not be difficult to update these statistics to include employment in 1988. I don't understand why the 1987 figures are not included. Furthermore, footnote B should end with the words "as well as Amtrak." I am sure that the "grand total" figures in this table do include Amtrak.

Now on p. 55.

Page 63 - Line 4: The reference to severance payments of "up to $75,000" is going to raise false hopes in the breasts

of many railroad employees. The usual maximum is about $50,000. I believe that CSX may have offered $75,000 to engineers, but there are no other contract employees who have an annual average wage similar to the engineers'.

Now on p. 56.

Page 64 - Lines 24-26: The words "and are not required to make severance associated payments to displaced employees" are irrevelant in this context. Elimination of this phrase would make the point clearer that as a result of union agreements not applying, the short lines, as indicated in the last two lines on that page, have obtained more cost effective agreements.

Now on p. 57.

Page 65 - Lines 13-14: The phrase "contracting for nonrailroad employees" is rather awkward and has been discussed above, with reference to the use of the same phrase on page 21.

Now on p. 57.

Lines 19-20: The reference to a severance payment or dismissal allowance being based on "a pre-agreed amount established under worker protection provisions within union contracts" is not entirely correct. Many of these payments are made on the basis of employee protective conditions issued by the Interstate Commerce Commission in approving various types of transactions. With regard to management employees, they are not covered by union contracts, and some are not even covered by ICC protective conditions.

Now on p. 59.

Page 69 - Last paragraph: I am not sure that advanced train control systems have anything to do with the elimination of cabooses. End-of-train monitoring devices are what make train operations without cabooses safe. Perhaps an ATC system can check on the end-of-train signals, but it is my understanding that this is normally monitored by the engineer and conductor on the head end of the train.

Now on p. 59.

Page 70 - Line 13: The reference to one machine being able to perform several maintenance of way functions "in a single pass" would be understood by railroaders. However, it might be better to use a less technical description, such as substituting the phrase "without the necessity of several separate crews going over the same section of track to perform these various functions separately."

In line 18 or 19, the reference to a "one person ballast car" is unfamiliar to me. Perhaps it should be better explained.

Now on p. 60.

Page 71 - In the discussion of "Reductions in Crew Sizes," it might be well to include a note that some of the reductions referred to, at least on the Chicago and North Western, are included in Table IV.1 on page 71, and should not be considered as additional cuts.

Now on p. 60.

Now on p. 60.

Page 72 - It might be well to explain how C&NW arrives at the figure of $600,000 to $700,000 per train per year between Chicago and Omaha. The reference to "fewer crew districts" is somewhat arcane for someone not familiar with labor contracts. It would be better to explain that the C&NW has to change crews out of Chicago at Clinton, and that crew runs to Boone, and another crew runs to Omaha or Fremont. The result is that C&NW could have 12 to 15 men running a train over the same district on which one of the regionals uses only two men. Ten times the annual average wage of $48,000 per year equals $480,000 per year, assuming the train in question operates every day on that route.

Line 14: Instead of stating what the North Western's goal "is," it would be better to change the word to "was" and at the end of the sentence, add "through collective bargaining." It is my understanding that the number of positions to be eliminated as a result of the recent Congressional settlement of this dispute is going to be far less then 1,400.

Now on p. 61.

Page 74 - This table ought to be updated to include the merger of Seaboard and CSX, the acquisition of MOPAC by Union Pacific, and perhaps a few others. The reference to a merger of BN with BN (Oregon-Washington) is a little confusing. GAO ought to use the original corporate name of the Spokane, Portland and Seattle Railway.

John D. Crawford
Management Member, RRB
February 7, 1989

Railroad Retirement Board Economic Assumptions in 17th Actuarial Valuation

Figures in percents

Year	Wage increase[a] assumption	CPI increase[b] assumption	Interest rate assumption
1987	3.70	1.30	7.00
1988	3.00	1.50	6.50
1989	3.50	3.50	6.00
1990	3.75	3.50	6.00
1991	3.75	3.50	6.00
1992	3.75	3.50	6.00
1993	3.75	3.50	6.00
1994	3.75	3.50	6.00
1995	3.75	3.50	6.00
1996	3.75	3.50	6.00
1997	3.75	3.50	6.00
1998	3.75	3.50	6.00
1999	3.75	3.50	6.00
2000	3.75	3.50	6.00
2001	3.75	3.50	6.00
2002	3.75	3.50	6.00
2003	3.75	3.50	6.00
2004	3.75	3.50	6.00
2005	3.75	3.50	6.00
2006	3.75	3.50	6.00
2007	3.75	3.50	6.00
2008	3.75	3.50	6.00
2009	3.75	3.50	6.00
2010	3.75	3.50	6.00

[a]Percentage increase over prior year.

[b]Same as above.

Objectives, Scope, and Methodology

The Chairman of the Subcommittee on Labor, Senate Committee on Labor and Human Resources, requested that we review the solvency prospects of the railroad retirement trust fund. He asked that we:

- Examine the implications of external factors, such as possible reductions in the bulk shipments of grain products by rail, for future rail employment.
- Describe actual and planned developments in the rail industry and their impact on employment and potential losses in railroad retirement taxes.
- Develop independent rail employment, actuarial, and financial solvency projections for the railroad retirement trust funds.

Our review was conducted between May 1987 and August 1988 at the Railroad Retirement Board's headquarters in Chicago. Our methodology relied heavily on the Board's actuarial methodology. The Board supplied us with trust fund estimates based on its models updated for demographic data used in the 17th triennial actuarial valuation.

Determining Factors Affecting Rail Employment

Much of the data concerning the factors affecting rail employment were derived from trade literature and interviews with individuals knowledgeable about the rail industry. Initially, to obtain an overall perspective on the future of the rail industry in general and rail employment in particular, we sought to identify experts in rail transportation. To identify these experts and centers of expertise, we contacted numerous sources in academia, government, rail management and labor, and the private sector to obtain their views and recommendations as to whom we should contact. Our search extended nationwide, and was open to sources that either were knowledgeable about the subject area or had performed empirical studies relating to factors affecting rail employment. During our search, we spoke with individuals from over 25 organizations. (See app. XI for a list of individuals and organizations contacted.)

We performed an extensive literature search—reviewing documents, trade publications, and periodicals providing information on changes in the rail industry and factors that have affected—and will continue to affect—rail employment. We spoke with and obtained data from numerous sources in government, academia, the rail industry, and private consulting and investment firms in Chicago, Washington, D.C., Baltimore, Boston, Berkeley (California), and other locations. Those contacted included the Interstate Commerce Commission, the Federal Railroad Administration, the Association of American Railroads, the Regional

Railroads of America, the Railway Labor Executives' Association, National Railway Labor Conference, and the consulting firm of Temple, Barker and Sloan, Inc.

To identify trends in the rail industry, we examined detailed rail industry trend data published by the Association of American Railroads with particular emphasis on the period after 1980—railroad deregulation with the passage of the Staggers Rail Act.

We especially sought information on the impact of regionalization (the larger railroads selling marginal trackage to smaller entrepreneurs) because of the concerns expressed by representatives of labor about these trends and their possible impact on the future of the railroad retirement program. This included discussions with officials and a review of documentation available from the Interstate Commerce Commission, the Federal Railroad Administration, the American Short Line Railroad Association, and the Regional Railroads of America. We also attended the Association of American Railroads' national conference on rail regionalization in Washington, D.C., in October 1987 to obtain views on this subject.

Projecting the Effects of Estimated Rail Employment on the Railroad Retirement Account

We met with the actuarial staff at the Railroad Retirement Board and other actuaries knowledgeable in federal social insurance programs to review the factors essential to developing actuarial projections. We reviewed the Board's past actuarial valuations and the recent annual trust fund assessments required by section 502 of the Railroad Retirement Solvency Act of 1983.

To develop projections of the effects of our rail employment estimates on the solvency of the railroad retirement account, we:

- Developed a range of plausible rail employment forecasts.
- Decided which economic and actuarial variables should be used.
- Calculated the trust fund solvency projections by using our own resources, employing an outside firm, and relying on the Board.

Our work on rail employment forecasts began with a review of historical trends in rail employment and of rail employment forecasting and an examination of the methodology used by the Board in making its future rail employment assumptions. We contacted the organizations that had been involved in making projections of rail employment assumptions to determine whether any recent studies had been made. We also asked for

such studies from all the experts and organizations we had initially contacted in our work. We found in these contacts that no such recent studies had been made.

In deciding on a range of rail employment assumptions, we considered employment projections developed by three sources. The Railroad Retirement Board continues to be the primary source of rail employment projections. We reviewed the three alternative employment scenarios that the Board updates periodically. We also reviewed two alternative employment scenarios produced by the Association of American Railroads. We discussed the basis of and rationale for their preparation with Association representatives. We contracted with NPA Data Services, Inc., which has experience in rail employment forecasting, for assistance in preparing a set of independent assumptions. The model developed for us used the GNP projections contained in the Social Security Administration's II-B actuarial projections—one of the two Social Security intermediate assumptions. Given this path for GNP, NPA prepared optimistic, intermediate, and pessimistic projections. We also considered the views expressed by the many experts we contacted about the factors that could affect future rail employment.

Projections about railroad trust fund solvency require a set of assumptions about the expected rise in the CPI and in rail wages, as well as the expected interest rate (rate of return on investments). For our assessment of the trust fund, we considered the assumptions about these three variables that the Social Security Administration has generated for its social security trust fund projections. We adopted the Board's assumptions for its 17th valuation as our own, however, because they are not only reasonable but also more conservative than those of the Social Security Administration.

Our actuaries and Dr. Murray E. Cohen, our actuarial consultant, reviewed the Board's actuarial assumptions and concluded that it had considered relevant factors and that its assumptions appeared reasonable. Consequently, we decided to use the Board's assumptions in making our trust fund solvency projections.

Because of resource and time constraints and the complexity of the railroad retirement program, we decided to use the Board's actuarial projection model and its computer programs and facilities to produce our projections of trust fund solvency. To ensure the integrity of our approach, our independent actuarial consultant performed an actuarial audit of the Board's methodology.

To determine the validity of the Board's projection model in reproducing the benefit and revenue streams of the system over time, our consultant studied the programs used in the model and the flow of various input through the model. Our consultant analyzed the conceptual soundness of the model and individually tested numerous programmed modules to ensure that the results could be duplicated and were correct for the data that were entered. He also checked the inputs to the model for correctness. The consultant also studied the benefit generation to ensure that all the benefits needed were correctly calculated and validated revenue generation. He assessed the methodology used in determining the current and future levels of economic and actuarial assumptions and monitored the input of GAO employment and other data into the Board's actuarial projection model.

After completing the above tasks, we decided to develop projections based on the economic and actuarial assumptions discussed above and on optimistic, intermediate, and pessimistic employment scenarios.

Information on the railroad retirement account's unfunded liability and associated amortization costs was obtained from the Railroad Retirement Board's recent actuarial valuations. We did not perform a detailed review of this data. The Association of American Railroads also developed similar information, including the impact on the rail industry's financial condition from such amortization, but denied us the authority to use these data.

Our review was made in accordance with generally accepted government auditing standards except that we did not verify the accuracy of data provided by the Association of American Railroads.

Rail Employment by Occupational Categories (1957-87)

Figures in thousands

Year	Overall total[b]	Class I railroads[a] (excluding Amtrak)					
		Executive	Professional and administrative	Maintenance	Transportation and yard	Train and engine	Total[c]
1957	1,150	16	190	417	129	233	**986**
1967	713	15	131	229	67	168	**610**
1977	546	16	98	193	33	143	**483**
1982	440	17	80	158	24	109	**379**
1987	320	12	44	98	16	78	**249**
Percent decline since:							
1957[d]	72.2	25.0	76.8	76.5	87.6	66.5	**74.7**
1977[e]	41.4	25.0	55.1	49.2	51.5	45.5	**48.4**
1982[f]	27.3	29.4	45.0	38.0	33.3	28.4	**34.3**

[a]Class I railroads are those whose operating revenues exceed a certain threshold as determined by the Interstate Commerce Commission. As of 1987, the threshold was $87.9 million.

[b]Average employment for all organizations covered under the railroad retirement program, including all classes of railroads (includes Amtrak) and labor organizations and brotherhoods.

[c]Individual categories do not add to totals shown due to rounding.

[d]30 years.

[e]10 years.

[f]5 years.

External and Internal Factors Affecting Rail Employment

Various factors within the U.S. economy have adversely affected the economic well-being of the rail industry. Likewise, recent changes within the industry itself, some spurred by the Staggers Act of 1980 and other legislation, have altered railroad operations and have often affected rail employment. Some have resulted in fewer workers; others have resulted in lower wages. Both of these have an eventual effect on the state of the railroad retirement trust funds.

The following is a summary of recent external and internal factors that have influenced rail employment.

Changes Within the Economy and Transportation Market

Over the past few decades, the United States has moved toward a more service-oriented economy. Some of the industries showing the least growth or even a decline are the heavy industries—such as steel, ore mining, and stone quarrying—that relied on the railroads in the past. Also, manufactured products have become smaller, and lighter products are being substituted for the heavy industrial products shipped in the past, affecting the revenues based on shipment weight. For example, the average weight of a passenger car sold in the United States, a major commodity of railroad transportation, declined from 3,627 pounds in 1978 to 2,866 pounds in 1985.

Competition from the trucking industry and others is cutting into what remains of the transportation pie. The trucking industry is sometimes better able to provide service in certain areas. For example, manufacturing industries are attempting to pare "total" costs by moving toward "just-in-time" inventories, a concept to reduce inventory carrying and storage costs. Generally, trucks are more conducive to meeting such demands.

Proposed legislation would increase truck size and weight limits. If enacted, the railroads estimate that such changes could, over the long term, result in the railroads losing 13 percent of the ton-miles carried in 1985, because continued operations could not be justified at the lower rate levels required.

Changes Within the Rail Industry

Since 1980, a number of internal changes have affected the financial health of the rail industry. The same sources that agree that rail employment will continue to decline cite the following factors as contributing to that decline: (1) organizational or structural changes, (2) management initiatives, (3) technological changes, and (4) labor

developments. Many of the specific factors affecting rail employment involve more than one of these categories. No complete body of data exist, however, on the extent to which these factors affect employment.

Organizational or Structural Changes

The 1980s saw a shift toward intermodalization, a continuation of mergers and consolidations, and a proliferation of regional and short-line sell-offs and track abandonments. The major Class I railroads have pursued a combination of these factors to rid themselves of marginally successful trackage and improve their competitive positions. All of these changes are usually accompanied by employment reductions. However, we found no analysis that isolated the extent to which such factors caused specific employment reductions that would not have occurred otherwise.

Shift Toward Intermodalization or Total Transportation Companies

To meet the demands of today's transportation market, several railroads are reorganizing to include other forms of transportation or to change their roles toward being "total transportation companies," rather than just railroads. This shift toward intermodalization, or developing a transportation system that uses more than one type of transportation mode (e.g., railroads, trucks, river barges, or ocean freighters), appears to signal the emergence of the future philosophy of some railroads. While railroads are shifting toward intermodalization, new technologies and efficiencies are also evolving, many of which reduce employment levels. These are discussed later.

Intermodal service allows railroads to offer customers "one-stop" transportation services. No longer will shippers be required to deal with multiple companies for deliveries. The intermodal railroads will handle the entire shipping process—from picking up the goods from the warehouse, to delivering them to the destination.

Consolidation and Improvement of Freight Handling at Terminals

The tremendous increase in intermodal traffic has necessitated the construction of new intermodal terminals and the renovation of existing terminals to accommodate the new technologies. The Association of American Railroads maintains that these improvements have mitigated the overall decline in rail employment. These included double-stack containers, large side-loading machines, and other more efficient loading practices. The merger of a number of railroads has also resulted in the consolidation of many physical facilities. This trend toward fewer but

larger yards, incorporating state-of-the-art technology in freight handling, has resulted in the downgrading or completely phasing out of smaller yards, as well as the people who work there. Employment in the category "transportation and yard" dropped from 129,000 in 1957 to 16,000 in 1987.

In 1986, the railroad trade literature reported that there were 360 intermodal terminals, down from 1,175 only 8 years earlier. Almost half (48 percent) were equipped with more efficient overhead and/or side-operating loading/unloading machines.

Mergers

The number of Class I railroads declined from over 100 in 1960 to 16 in 1987. (See app. XII.) Class I is an Interstate Commerce Commission designation based on annual operating revenue—$87.9 million or more in 1987. While some railroads have been removed from the designation due to reduced revenue, many others disappeared through unification with other railroads. A well-known example is the consolidation of the Baltimore and Ohio with the Chesapeake and Ohio and Western Maryland into the Chessie System, which eventually merged with the Family Lines to form CSX Corporation. Between 1980 and 1985 there have been at least 12 major railroad consolidations. (See app. VI.)

In recent consolidation cases, the Interstate Commerce Commission had concluded that mergers would yield substantial cost savings by eliminating duplicative facilities. Internal reorganizations were fairly common following mergers, which often resulted in the elimination of many positions or entire departments. Mergers reduce the need for duplicate staff in administrative and operational areas. For example, in the CSX case the various mergers and consolidations have resulted in a large number of surplus employees, which CSX is negotiating with unions to eliminate. CSX is offering severance payments to 10,000 employees and proposes to share the savings in wages with the remaining employees. The Association of American Railroads maintains that at present only a few major merger possibilities exist.

Regional and Short-Line Selloffs

In addition to the intermodal shift, some railroads, in an effort to improve their financial health, are divesting themselves of unprofitable segments of track and equipment. The move to become more profit oriented has resulted in many railroads taking steps to reduce the miles of track, equipment, and personnel. A prime example is the Illinois Central Gulf Railroad. After the old Illinois Central merged with the Gulf,

Mobile, and Ohio Railroad in 1972, the newly formed Illinois Central Gulf had 9,700 miles of track and about 23,000 employees. After the merger, the railroad systematically sold off and abandoned numerous segments of its branch lines until by June 1988, it had only about 2,750 miles of track and about 4,000 employees.

Another example of a railroad attempting to divest itself of an unprofitable segment is the Norfolk Southern Corporation, which intends to sell or abandon 2,700 miles of railroad lines and eliminate 5,000 jobs by 1990. Norfolk Southern's chairman and chief executive officer pointed out that 1,200 employees already have agreed to early retirement or voluntary separation programs instituted by the company. Another 3,800 employees, however, will also be affected by 1990.

A positive byproduct of this track and equipment selloff is the emergence of a new class of railroads, called regional and short-line railroads. These newly created railroads offer an alternative to abandonment and generally hire some of the employees who worked on the acquired lines.

Since 1980, almost 200 new regional and short-line railroads have come into existence. In the case of the downsizing of Illinois Central Gulf, 17 new regional carriers have evolved from the original Illinois Central Gulf lines. The Interstate Commerce Commission estimates that the approximately 200 newly created railroads employ about 4,000 workers. However, because these phenomena are recent and reporting requirements are absent, the net gain or loss in jobs is not known. Also, the 4,000 workers represent little more than 1 percent of the current work force.

To make these short lines profitable, owners negotiate with workers to reduce wage rates and institute work-rule changes that are appropriate for low-volume operations. The Interstate Commerce Commission has taken the position that new railroads are not subject to the union agreements. Short lines have been able to obtain more cost-effective agreements with union labor or turned to nonunion labor. Workers on the newly created short lines realize they must make concessions in terms of lower compensation and more flexible work rules if the railroad is to survive. Employees of the newly created railroads surveyed by the Interstate Commerce Commission are found to be usually paid at rates 66 to 90 percent of what they would have been receiving from the selling company.

Management Initiatives

In 1986, labor costs were estimated to account for about 45 percent of all rail operating costs. The reduction of labor costs has become a prime consideration of rail management.

Buyouts are one way of reducing excessive employment levels. Under this option, the railroads pay the unneeded employees being bought out a preagreed amount established under worker protection provisions within union contracts or protective conditions issued by the Interstate Commerce Commission. Thus railroads incur a one-time cost for eliminating unneeded employees. The Southern Pacific's "buyout now, save later" program is part of its effort to reduce the overall work force by one-third. The Illinois Central Gulf has eliminated excess crews through buyouts. According to two Illinois Central Gulf vice presidents, 25 percent of the railroad's trains are down to one brakeman. The railroad's goal is to eliminate the remaining unnecessary crew through buyouts—costing about $50,000 a person.

Another management initiative that railroads use to reduce costs is catering to high-density bulk-type cargo, such as grain and coal, at the expense of developing the smaller intercity traffic. Some sources maintain that railroads have all but abandoned short-haul general merchandise traffic to trucks. The long-haul runs carrying bulk cargoes are less labor intensive. They have the effect of eliminating switching yards and crews, thus cutting costs. Coal is the railroad's number 1 cargo, representing about 40 percent of total tonnage, with containers second. Containers have increased 50 percent in the last several years, and railroads are pushing to expand this market further.

Contracting for services can also reduce rail employment. In 1986, railroad compensation for Class I railroads averaged about $48,000 per employee, including fringe benefits. Any railroad operation that can be accomplished with nonrailroad personnel at a lower cost saves money. Railroads are, therefore, contracting for services by nonrailroad personnel. Engines are being leased from privately owned companies that perform their own servicing. The railroad obtains power only when needed (power-by-the-hour), rather than maintaining power to meet all contingencies. Similarly, the number of railcars leased or provided by shippers increased from 335,000 in 1975 to about 437,000 in 1986, while the number owned by railroads decreased. More and more cars are leased or provided by shippers. Maintenance is handled by the owner, eliminating the need for railroads to have costly maintenance facilities that use the

higher paid railroad employees. Other examples of management initiatives include contracting for maintenance-of-way and clerical operations and using third parties to sell railroad services.

Technological Changes

The rail industry continues to introduce technological improvements that not only reduce costs and increase efficiencies, but almost always decrease the need for rail employees. For example:

- Containerization is reducing the number of rail employees involved in the handling of shipments from origin to destination.
- Computerization and automation have replaced many operational and clerical activities handled by rail employees in the past.
- Mechanization has been introduced in maintenance-of-way activities; as a result, fewer employees are needed to maintain trackage.

Containerization

The move toward containerization usually goes hand-in-hand with the industry's move toward intermodalization. Intermodal transportation systems integrate railroads with trucking, transoceanic ship transportation, and river barge transportation, which use unitized containers that are readily loaded and unloaded from the various transportation modes.

An early form of containerized shipment is piggyback—one or two truck trailers riding on a flat platform railcar or attached to rail wheels and run directly on track. Another significant related development has been double-stacked container cars. These cars can carry more, be loaded and unloaded more quickly, and allow more goods to be transported. One railroad trade journal reported that double-stacking can cut over-the-road costs by 25 to 40 percent.

Computerization of Operational and Clerical Functions

Computerization, with varying degrees of sophistication and system coordination, has entered all aspects of railroad operations. On the clerical side, large computers are used in scheduling and determining rates for customers, computer programs link customers directly with the railroad's computers to locate shipments, computers aid customers and railroad managers in determining the least expensive intermodal rates and the fastest routes, and computers also perform many bookkeeping and lower level accounting functions once performed manually. Although the number of computer-related positions has increased substantially, the total number of employees has been reduced because more employees were required to perform such tasks manually. Appendix IV shows

that the professional and administrative category declined from 190,000 in 1957 to 44,000 in 1987.

The trade publications have also reported that other computer-directed technologies, such as electronic-based communications and information systems, have made it possible to automate, to varying degrees, almost every phase of traffic control, car management, signaling, train makeup and dispatching, train movement, as well as such business-related administrative functions as electronic waybill transmission, handling of freight claims, and even freight traffic solicitation.

Several railroads and telecommunications companies are developing advanced train control systems using microwave radio and satellites to monitor the position of all trains in a system. End-of-train monitoring devices eliminate the need for both cabooses and the rear-end brakemen who occupy them.

Mechanization

Mechanization improvements include all machines in the railroad industry that perform various tasks and eliminate or reduce the need for employees. GAO's research of trade publications and other sources has shown that most strides in mechanization have been made in maintenance-of-way work (i.e., maintaining and repairing track and the track bed). Large track gangs have been replaced by automatic tampers, rail-laying machines, automatic spikers, high-capacity graders, and a host of other labor-saving devices. Fewer employees will be needed to do the maintenance-of-way work because one machine is now able to do all work steps without several separate crews having to go over the same section of track to perform these various functions separately. Mechanized tiegangs have nearly doubled the daily tie-laying capability of a work gang. Electronic surveying instruments are 30 percent faster than manual surveying instruments. In 1985, one railroad said it had boosted tie-gang productivity by 130 percent and surfacing-gang productivity by about 150 percent over the last 10 years.

Labor-Related Developments

Rail management has stated that reducing labor costs through work-rule changes and other measures is their principal target in new labor negotiations. Labor concessions being requested include reductions in crew sizes, elimination of unique pay provisions, and other work-rule changes. Strong unions have permitted archaic labor rules to persist. However, in response to competitive pressures, many railroads have begun to contract for maintenance and service work.

Through special union agreements, most railroads are reducing crews' sizes from 4 or 5 to 2 or 3 people on many lines, especially in their intermodal service. For example, according to a trade publication, over 90 percent of the Chicago and North Western's freight trains were required to be manned by four or five crew members: an engineer, a conductor, one or two brakemen, and in some cases, a fireman. Over half of the railroad's traffic travels between Omaha and Chicago. Two competing regional railroads—the Iowa Interstate and the Chicago Central and Pacific—run two-man reduced crews on this same route. A trade publication reported the Chicago and North Western employs 2,200 trainmen (conductors and brakemen) but maintains that it needs only 800 to operate productively. The Chicago and North Western's goal was to eliminate the 1,400 unneeded positions, but a recent congressional settlement of the employment dispute will result in the elimination of about 650 positions.

According to two Illinois Central vice presidents, their railroad hopes to reduce 400 to 500 of its current excess staff through labor negotiations. The Burlington Northern's management estimates that it could cut its work force of 37,000 by half if work rules were abolished, or even adjusted to meet practical applications. CSX also professes to be pursuing work-rule changes to reduce about 10,000 additional workers from its rolls.

Railroad Mergers (1980-85)

Effective date	Original railroads	New railroad
06/24/80	Grand Trunk Western and Detroit, Toledo & Ironton	Grand Trunk Western
11/01/80	Chessie System and Family Lines	CSX
11/21/80	Burlington Northern and St. Louis-San Francisco	Burlington Northern
04/13/81	Grand Trunk Western and Detroit & Toledo Shore Line	Grand Trunk Western
06/16/81	Maine Central	Guilford Industries
01/01/82	Burlington Northern, Colorado & Southern, Fort Worth & Denver, Burlington Northern (Oregon-Washington) and Walla-Walla Valley	Burlington Northern
06/01/82	Southern and Norfolk & Western	Norfolk Southern Corp
12/22/82	Union Pacific, Missouri Pacific, and Western Pacific	Union Pacific Corp.
01/01/83	Family Lines and Louisville & Nashville	Seaboard System
07/01/83	Boston & Maine	Guilford Industries
01/05/84	Delaware & Hudson	Guilford Industries
02/19/85	Soo Line and Chicago, Milwaukee, St. Paul and Pacific	Soo Line

Estimates of Balances in the Railroad Retirement and Social Security Equivalent Benefit Accounts (1988-2010) Under NPA Optimistic Employment Assumption

Dollars in millions

	Railroad retirement account			
Calendar year	Benefits and expenses	Tax income[a]	Other income	Balance end of year[b]
1988	$2,278	$2,546	$689	$7,447
1989	2,335	2,465	637	8,214
1990	2,398	2,267	660	8,743
1991	2,457	2,288	633	9,207
1992	2,508	2,306	640	9,645
1993	2,557	2,299	665	10,052
1994	2,596	2,295	672	10,423
1995	2,633	2,289	689	10,768
1996	2,661	2,282	693	11,082
1997	2,691	2,272	696	11,359
1998	2,723	2,270	710	11,616
1999	2,752	2,255	723	11,842
2000	2,781	2,259	735	12,055
2001	2,818	2,248	744	12,229
2002	2,865	2,235	708	12,307
2003	2,918	2,216	717	12,322
2004	2,974	2,207	716	12,271
2005	3,035	2,181	711	12,128
2006	3,107	2,166	699	11,886
2007	3,203	2,147	681	11,511
2008	3,307	2,123	655	10,982
2009	3,406	2,112	620	10,308
2010	3,528	2,082	575	9,437

[a]Includes payroll taxes, income taxes on benefits, and tax transfers from supplemental account.

[b]Includes repayments from unemployment insurance account and interest income. Excludes transfers from SSEB.

[c]Includes repayment of advances from general revenues. Excludes transfers to RRA.

[d]Includes financial interchange income, advances from general revenues, and interest income.

[e]RRA = railroad retirement account; SSEB = social security equivalent benefit account.

Social security equivalent benefit account							
Benefits and expenses	Other expenses[c]	Tax income	Other income[d]	Balance end of year	Transfers from SSEB to RRA[e]	Balance after transfers from SSEB to RRA	
						RRA	SSEB
$3,870	$2,465	$1,800	$4,604	$123	•	$7,447	$123
4,005	2,271	1,784	4,567	198	•	8,214	198
4,140	2,407	1,822	4,806	279	•	8,743	279
4,285	2,528	1,844	5,058	368	•	9,207	368
4,411	2,656	1,863	5,301	465	•	9,645	465
4,519	2,778	1,859	5,542	569	•	10,052	569
4,609	2,899	1,855	5,764	680	•	10,423	680
4,680	3,006	1,851	5,953	798	•	10,768	798
4,743	3,092	1,845	6,117	925	•	11,082	925
4,798	3,169	1,837	6,265	1,060	•	11,359	1,060
4,842	3,239	1,835	6,391	1,205	•	11,616	1,205
4,885	3,294	1,822	6,512	1,360	•	11,842	1,360
4,925	3,353	1,824	6,618	1,524	•	12,055	1,524
4,956	3,399	1,814	6,716	1,699	•	12,229	1,699
4,987	3,442	1,801	6,814	1,885	•	12,307	1,885
5,022	3,489	1,783	6,925	2,082	•	12,322	2,082
5,061	3,544	1,772	7,042	2,291	•	12,271	2,291
5,106	3,599	1,747	7,181	2,514	•	12,128	2,514
5,159	3,669	1,731	7,335	2,752	•	11,886	2,752
5,217	3,745	1,710	7,505	3,005	•	11,511	3,005
5,297	3,828	1,686	7,708	3,274	•	10,982	3,274
5,404	3,935	1,671	7,954	3,560	•	10,308	3,560
5,513	4,062	1,641	8,240	3,866	•	9,437	3,866

Estimates of Balances in the Railroad Retirement and Social Security Equivalent Benefit Accounts (1988-2010) Under NPA Intermediate Employment Assumption

Dollars in millions

	Railroad retirement account			
Calendar year	Benefits and expenses	Tax income[a]	Other income[b]	Balance end of year[c]
1988	$2,278	$2,501	$684	$7,398
1989	2,335	2,394	630	8,087
1990	2,398	2,168	647	8,504
1991	2,457	2,150	615	8,812
1992	2,508	2,127	611	9,042
1993	2,557	2,069	622	9,176
1994	2,596	2,029	611	9,220
1995	2,633	1,986	607	9,180
1996	2,661	1,938	587	9,044
1997	2,691	1,896	562	8,811
1998	2,723	1,860	545	8,493
1999	2,752	1,808	523	8,072
2000	2,781	1,774	495	7,560
2001	2,818	1,723	458	6,923
2002	2,865	1,655	372	6,085
2003	2,918	1,643	327	5,137
2004	2,974	1,602	267	4,032
2005	3,035	1,557	198	2,752
2006	3,107	1,507	117	1,269
2007	3,203	1,467	24	(443)
2008	3,307	1,422	(83)	(2,411)
2009	3,406	1,389	(205)	(4,633)
2010	3,528	1,336	(344)	(7,169)

[a]Includes payroll taxes, income taxes on benefits, and tax transfers from supplemental account.

[b]Includes repayments from unemployment insurance account and interest income. Excludes transfers from SSEB.

[c]For 2007 and later, balance is before transfers from SSEB.

[d]Includes repayment of advances from general revenues. Excludes transfers to RRA.

[e]Includes financial interchange income, advances from general revenues, and interest income.

[f]For 2007 and later, balance is before transfers to RRA.

[g]RRA = railroad retirement account; SSEB = social equivalent benefit account.

Appendix VIII
Estimates of Balances in the Railroad Retirement and Social Security Equivalent Benefit Accounts (1988-2010) Under NPA Intermediate Employment Assumption

Social security equivalent benefit account							
Benefits and expenses	Other expenses[d]	Tax income	Other income[e]	Balance end of year[f]	Transfers from SSEB to RRA[g]	Balance after transfers from SSEB to RRA	
						RRA	SSEB
$3,870	$2,465	$1,764	$4,640	$123	•	$7,398	$123
4,005	2,301	1,728	4,653	190	•	8,087	198
4,140	2,462	1,741	4,943	280	•	8,504	280
4,285	2,609	1,730	5,252	368	•	8,812	368
4,411	2,769	1,715	5,562	465	•	9,042	465
4,519	2,928	1,669	5,882	569	•	9,176	569
4,609	3,091	1,636	6,176	681	•	9,220	681
4,680	3,233	1,601	6,432	801	•	9,180	801
4,743	3,353	1,561	6,662	928	•	9,044	928
4,798	3,465	1,527	6,872	1,064	•	8,811	1,064
4,842	3,566	1,497	7,056	1,209	•	8,493	1,209
4,885	3,650	1,454	7,236	1,364	•	8,072	1,364
4,925	3,740	1,425	7,405	1,529	•	7,560	1,529
4,956	3,820	1,383	7,568	1,704	•	6,923	1,704
4,987	3,898	1,325	7,745	1,889	•	6,085	1,889
5,022	3,989	1,314	7,894	2,086	•	5,137	2,086
5,061	4,050	1,278	8,043	2,296	•	4,032	2,296
5,106	4,124	1,239	8,214	2,519	•	2,752	2,519
5,159	4,213	1,196	8,413	2,756	•	1,269	2,756
5,217	4,314	1,160	8,624	3,009	430	0	2,566
5,297	4,416	1,120	8,862	3,278	1,885	0	867
5,404	4,539	1,089	9,141	3,565	977	(1,068)	0
5,513	4,684	1,043	9,459	3,870	90	(3,299)	0

Estimates of Balances in the Railroad Retirement and Social Security Equivalent Benefit Accounts (1988-2010) Under NPA Pessimistic Employment Assumption

Dollars in millions

	Railroad retirement account			
Calendar year	Benefits and expenses	Tax income[a]	Other income[b]	Balance end of year[c]
1988	$2,278	$2,478	$682	$7,373
1989	2,335	2,371	627	8,036
1990	2,398	2,152	643	8,433
1991	2,457	2,124	609	8,709
1992	2,508	2,082	603	8,886
1993	2,557	2,005	611	8,945
1994	2,596	1,944	595	8,888
1995	2,633	1,878	584	8,717
1996	2,661	1,817	556	8,429
1997	2,691	1,750	521	8,009
1998	2,723	1,698	492	7,476
1999	2,752	1,652	457	6,833
2000	2,781	1,601	415	6,068
2001	2,818	1,556	364	5,170
2002	2,865	1,507	263	4,075
2003	2,918	1,465	201	2,823
2004	2,974	1,418	123	1,390
2005	3,035	1,367	33	(245)
2006	3,107	1,325	(68)	(2,095)
2007	3,203	1,279	(184)	(4,203)
2008	3,307	1,243	(314)	(6,581)
2009	3,406	1,189	(462)	(9,260)
2010	3,528	1,162	(627)	(12,253)

[a]Includes payroll taxes, income taxes on benefits, and tax transfers from supplemental account.

[b]Includes repayments from unemployment insurance account and interest income. Excludes transfers from SSEB.

[c]For 2005 and later, balance is before transfers from SSEB.

[d]Includes repayment of advances from general revenues. Excludes transfers to RRA.

[e]Includes financial interchange income, advances from general revenues, and interest income.

[f]For 2005 and later, balance is before transfers to RRA.

[g]RRA = railroad retirement account; SSEB = social security equivalent benefit account. ***

Social security equivalent benefit account							
Benefits and expenses	Other expenses[d]	Tax income	Other income[e]	Balance end of year[f]	Transfers from SSEB to RRA[g]	Balance after transfers from SSEB to RRA	
						RRA	SSEB
$3,870	$2,465	$1,746	$4,658	$123	•	$7,373	$123
4,005	2,315	1,709	4,686	198	•	8,036	198
4,140	2,483	1,727	4,976	278	•	8,433	278
4,285	2,625	1,709	5,289	366	•	8,709	368
4,411	2,790	1,678	5,620	463	•	8,886	463
4,519	2,963	1,616	5,970	567	•	8,945	567
4,609	3,144	1,566	6,299	679	•	8,888	679
4,680	3,304	1,512	6,592	799	•	8,717	799
4,743	3,444	1,461	6,853	926	•	8,429	926
4,798	3,570	1,406	7,098	1,062	•	8,009	1,062
4,842	3,690	1,363	7,314	1,207	•	7,476	1,207
4,885	3,791	1,325	7,505	1,361	•	6,833	1,361
4,925	3,880	1,283	7,687	1,526	•	6,068	1,526
4,956	3,969	1,245	7,855	1,701	•	5,170	1,701
4,987	4,047	1,204	8,015	1,886	•	4,075	1,886
5,022	4,124	1,168	8,175	2,083	•	2,823	2,083
5,061	4,201	1,128	8,344	2,293	•	1,390	2,293
5,106	4,284	1,084	8,530	2,517	241	0	2,272
5,159	4,378	1,047	8,727	2,754	1,782	0	659
5,217	4,475	1,007	8,937	3,006	759	(1,197)	0
5,297	4,579	975	9,170	3,275	86	(3,306)	0
5,404	4,697	928	9,459	3,561	88	(5,699)	0
5,513	4,852	903	9,768	3,867	90	(8,386)	0

Railroad Retirement Board Calculations of Cost of Amortizing Unfunded Accrued Liability

Dollars in millions

	Amount or rate for valuation[a]				
	A	B	C	D	E
Level amount to fund accrued liability	$2,297	$2,297	$2,297	$2,297	$2,297
Contribution requirement for 1987	27.74%	27.77%	27.90%	28.08%	28.15%
Tax rate after amortization period (normal cost rate)	7.06	7.06	7.06	7.06	7.06
Tax rate to fund accrued liability and meet normal costs	28.06	30.04	32.05	26.93	28.54

[a]The calculations are based on the following scenarios:

A= Railroad Retirement Optimistic
B = Railroad Retirement Intermediate
C = Railroad Retirement Pessimistic
D = Association of American Railroads Optimistic
E = Association of American Railroads Pessimistic

Individuals and Organizations GAO Contacted

Federal Agencies

Office of Technology Assessment
Office of Management and Budget
Congressional Research Service
Congressional Budget Office
Federal Railroad Administration, Department of Transportation
Bureau of Labor Statistics, Department of Labor
Interstate Commerce Commission
Transportation Research Board, National Research Council, National Science Foundation

Individuals

Dr. Robert Myers, Former Chief Actuary, Social Security Administration
Dr. Michael March, Executive Director of 1972 Commission on Railroad Retirement

Railroad Organizations

National Railroad Passenger Corporation (Amtrak)
Regional Railroads of America
Association of American Railroads
National Railway Labor Conference
Railway Labor Executives Association

Investment and Consulting Firms

Alex. Brown & Sons Inc. (investment firm)
Putman, Hayes, Bartlett (consulting firm)
Temple, Baker, Sloan, Inc. (consulting firm)
Transportation Policy Associates (consulting firm)
Employee Benefit Research Institute (consulting firm)
ENO Foundation for Transportation

Academic Institutions

University of Pennsylvania (Wharton)
Massachusetts Institute of Technology (Center for Transportation Studies)
University of Tennessee (Transportation Center)
Harvard University (Dr. John Meyer)
University of California-Berkeley (Professor Keeler)
University of California-Los Angeles (Professor Hilton)
Pennsylvania State University (Prof. Bronzini)

Class I Railroad Freight Systems in the United States (1987)

Atchison, Topeka and Santa Fe Railway Company

Burlington Northern Railroad Company

Chicago and North Western Transportation Company

Consolidated Rail Corporation (Conrail)

CSX Transportation

Denver and Rio Grande Western Railroad

Florida East Coast Railway

Grand Trunk Corporation

Guilford Industries

Illinois Central Gulf Railroad

Kansas City Southern Railway

Missouri-Kansas-Texas Railroad

Norfolk Southern Corporation

Union Pacific Railroad Corporation

Soo Line Railroad

Southern Pacific Transportation Company

Major Contributors to This Report

Human Resources Division, Washington, D.C.	Joseph F. Delfico, Director of Income Security Issues (Retirement and Compensation), (202) 275-6193 Andrew F. Kulanko, Assistant Director Milan Hudak, Assignment Manager Jonathan B. Ratner, Assistant Director for Economic Analysis
Program Evaluation and Methodology Division, Washington, D.C.	Christopher Doyle, Actuary
Chicago Regional Office	Patrick C. Dolan, Evaluator-in-Charge Frank O. Comito, Site Senior

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