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PENSION REFORM IN CHINA: PREPARING FOR THE FUTURE

by

Loraine A. West

International Programs Center
Population Division
U.S. Bureau of the Census
Washington, D.C. 20233-8860

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EXECUTIVE SUMMARY

The changing structure of China's economy and population is prompting a major revamping of China's urban old age security system. This paper first looks more closely at the motivations for reform before turning to a description of the features of the new and emerging pension system. Next, the paper assesses the program of reform and the suitability of the new pension system for China's current and future economy.

Changes in employment structure, a falling proportion of workers to pensioners, declining income replacement levels, precarious funding, and diminishing coverage of the labor force under the former system are among the major factors necessitating reform of the old age pension system. The enterprise-based system, with funding solely from each enterprise's current operating budget, was serving as an obstacle to labor mobility and state-owned enterprise competitiveness.

The new old age security system calls for a social basic pillar which is to be financed by the enterprise, employee, and government through a combination of pooled funds and individual accounts. A regionally-based pension pool system formed along administrative lines (county, city, prefecture, or province) and, in some cases, along industry lines is replacing the work unit as the focal point. A combination of pension plans, including defined benefit and defined contribution, are replacing the former single defined benefit plan. The specifics of each plan, including indexation for inflation, and the combination of plans available to workers vary across regions.

Under reforms, pools are gradually expanding coverage from state-owned enterprises to other types of urban enterprises and the self-employed. However, by focusing only on the urban labor force, which presently comprises just 27 percent of China's total labor force, the reformed old age security system is unlikely to address the issue of growing rural-urban inequality. Rising rural-urban labor mobility and the increased share of wage earners among the rural labor force suggest the potential for extending the reformed system to rural wage earners in the near future.

The proliferation of regional and industry-based pools diminishes the potential benefits of pooling, such as risk sharing, lower administrative costs, and enhanced labor mobility, and also makes it more difficult to achieve the goal of a national level pool. Regional variation in the inherited obligations under the former system and in the level of economic development inhibit unification of contribution rates, benefits, and management at the national level.

One of the key objectives of the new pension system is to move away from a pay-as-you-go system to partial funding in preparation for the aging of the population. This will require that an expansion of coverage and/or a reduction of benefits be considered. Raising contribution rates from levels already deemed high and which a number of state-owned enterprises and urban collectives are unable to meet is unlikely to be a viable alternative. In the short run, accumulation of pension funds may be undesirable because regulations on fund management are incomplete and financial markets in China are under-developed, providing few safe and profitable investments.

PREFACE

The International Programs Center conducts economic and demographic studies, some of which are issued as Staff Papers. A complete list of all of these papers is included at the end of this report. The use of data not generated by the U.S. Bureau of the Census precludes performing the same statistical reviews the Bureau does on its own data.

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Comments and questions regarding this study should be addressed to Loraine A. West, Eurasia Branch, International Programs Center, Bureau of the Census, Washington, D.C. 20233-8860; fax (301) 457-1539 or (301) 457-3033; e-mail LWEST@census.gov.

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INTRODUCTION

Old age security is one of the first components of the social security system in China to be selected for reform. Originally, China's social security system was designed to deliver many of the social services and benefits to the population through state-owned enterprises. With the structural transformation of China's economy, continued enterprise-based provision of social services serves as an obstacle to labor mobility and state-owned enterprise competitiveness [Naughton, 1995; Liu, 1995]. Both enterprises and laborers now must adapt to competing in a market-oriented economy, and their ability to do so will depend in part on reform of China's social security system. The government has made clear the need to shift responsibility for providing social services and benefits from enterprises to a combination of the government, enterprises, community, and individuals.

The weaknesses and limitations of the old pension system, first established in 1951, became apparent as China shifted towards a market-oriented economy in the early 1980's. The enterprise-based system was increasingly unable to meet present obligations, and pay-as-you-go financing clearly would be unsuitable to meet the challenge of the next century with an aging population. Furthermore, the pension system, which was limited primarily to employees of government and party organizations, state-owned enterprises, and large urban collectives, was shrinking in its coverage of the labor force. The changing structure of China's economy and population led researchers and officials to examine the existing system and propose major changes. Various reforms of the pension system were conducted on a trial basis in several cities starting in the mid-1980's. Pension reform gained momentum in the early 1990's when experiments became more widespread and social security reform became a high priority of senior government officials.

This paper first looks more closely at the motivations for reform before turning to a description of the features of the new and emerging pension system. While China is clearly not patterning the new system after any one country, it does incorporate characteristics of the old age security schemes found in Singapore and many industrialized countries. Next, the paper assesses the progress of reform and the suitability of the new pension system for China's current and future economy. Several weaknesses in the new system are emerging that indicate additional modifications may be needed in the near future. In particular, the tradeoffs between the benefits of a decentralized system and its negative effects on labor market development need to be considered.

MOTIVATIONS FOR REFORM

Both demographic and economic changes have prompted a major revamping of China's old age security system. Changes in employment structure, a falling proportion of workers to pensioners, declining income replacement levels, precarious funding, and diminishing coverage of the labor force under the former system are among the major factors necessitating reform of the old age pension program.

Declining Workers-to-Retirees Ratio

When first established in the 1950's, the pension system for state employees offered lifetime pensions upon retirement at age 50 to women and at age 60 to men with a record of at least 20 years employment.[1] Therefore, few state retirees qualified for pensions until the 1970's. Urban collective enterprises which offered old age insurance also had few qualified retirees until the 1970's.[2] In 1978, state pensioners numbered only slightly more than 2.8 million, accounting for 90 percent of all pensioners, (Table 1). In that same year, the eligibility requirement was reduced to 10 years of employment, partly to encourage retirement and free up jobs for young unemployed adults [Davis, 1993]. State pensioners doubled over the next 2 years and doubled again by 1986. Pensioners from urban collective enterprises, while fewer in number, rose more rapidly than state pensioners in the 1980's. The liberalization of eligibility criteria contributed to a rapid increase in pensioners and led to a sharp decline in the workers-to-retirees ratio from 30 state and urban collective workers for every pensioner in 1978 to only 13 just 2 years later (Table 1). The ratio of workers to pensioners has continued to decline steadily, reaching 7.1 in 1986 and only 5.1 in 1994.

At the same time as more employees met the eligibility criteria, the population began to age. The urban population aged 60 and above reached 8 percent of the total urban population in 1990, up from 7 percent in 1982 [Population Census Office, 1985; 1993]. The urban population aged 60 and over is projected to grow annually by 5.7 percent during the 1990's, while those in the urban labor force age group of 20-59 will increase annually by 3.5 percent [Harbaugh and Banister, 1994]. From 2000 to 2010 the elderly growth rate will continue to outpace growth in the potential labor force (4.3 percent versus 2.5 percent). The urban population aged 60 and

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[1]The term state employees is used to encompass workers in government institutions and other state-owned units--factories and enterprises.

[2]While no government system was established to cover urban collective employees, some urban collective enterprises, mostly large enterprises, offered benefits, including pensions, to employees. These benefits tended to be patterned after the program for state employees, although generally not as generous.

above will reach over 10 percent of the urban total in 2000 and nearly 13 percent in 2010.[3] The present bulges in the population structure at the young working age level will have shifted close to or into the retirement age groups by 2025 (see Figure 1).

Table 1. Pensioners by Type of Ownership, 1978-1994

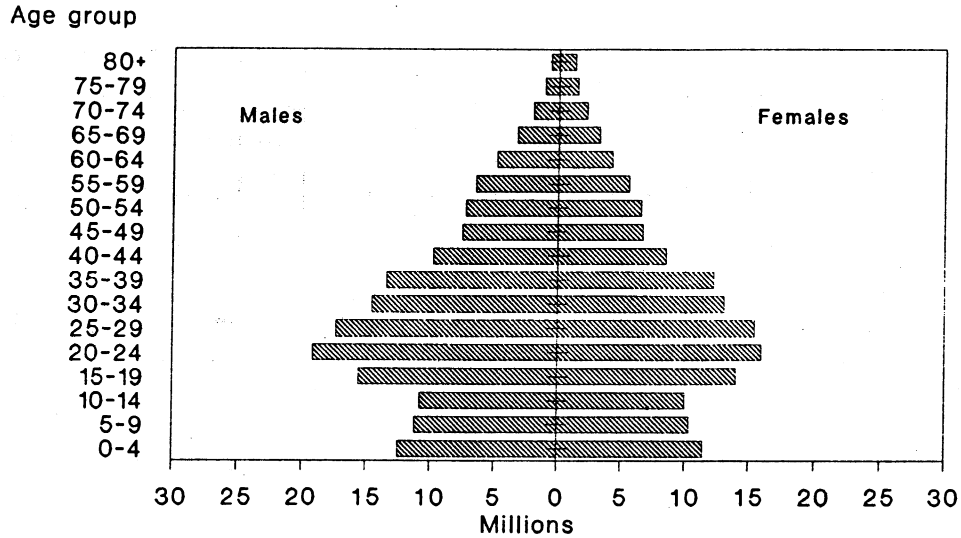
Year	Pensioners (millions)	State pensioners as share of total	Urban collective pensioners as share of total	Ratio of workers to pensioners
1978	3.14	90	10	30.3
1980	8.16	78	22	12.8
1983	12.92	79	21	8.9
1984	14.78	72	28	8.0
1985	16.37	71	29	7.5
1986	18.05	72	27	7.1
1987	19.68	72	27	6.7
1988	21.20	73	27	6.4
1989	22.01	74	26	6.2
1990	23.19	75	24	6.1
1991	24.33	75	24	6.0
1992	25.98	76	23	5.7
1993	27.80	77	21	5.4
1994	29.29	77	21	5.1

Note: The ratio of workers to pensioners includes only those workers in state and urban collective organizations offering pension programs.

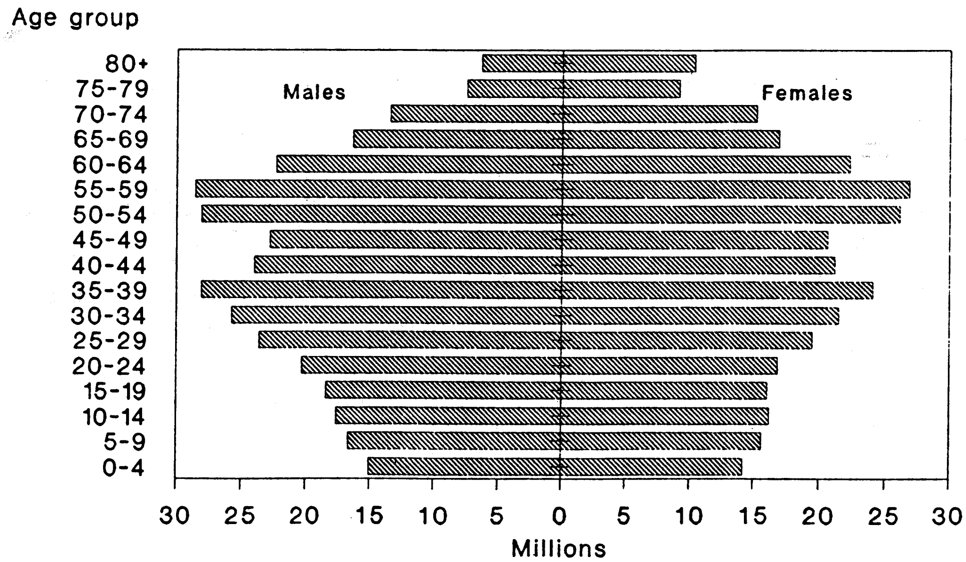
Source: China State Statistical Bureau, 1994, p. 664 and 1995, p. 688.

[3]If the retirement age for women remains at its younger level, the burden will become even greater. Women aged 55 and over will represent 19 percent of the urban female population in 2000 and 20 percent in 2010. Women aged 50 and over will account for 20 percent of the urban female population in 2000 and 27 percent in 2010.

Figure 1.
China's Urban Population Age Structure
1990



2025



Source: Modeled at International Programs Center, Bureau of the Census.
Note: China's urban population is growing through natural population increase, in-migration, and reclassification of rural places as urban.

Rising Enterprise Burden

Since 1969, pensions and other worker benefits have been funded solely out of each enterprise's current operating fund.[4] Consequently, as the pension system matured, the financial burden on enterprises with more retirees grew disproportionately to those with relatively young work forces. Enterprises with older work forces began to find themselves at a disadvantage in competing with younger enterprises. In most cases, the increasing financial burden was illusory because state enterprises often could pass along to higher level parent units, for example, the government, any pension fund obligations that could not be met out of enterprise retained funds. With the introduction of enterprise reforms in the mid-1980's, including the introduction of independent financial accounting for firms, this became less of an option.[5] Some firms in financial difficulties were forced to reduce, delay, or completely cancel pension benefits to retirees. For example, in Hainan province, nearly 30 percent of state enterprises were unable to meet fully pension obligations [Zhou, 1994]. While it should be noted that enterprise reforms are incomplete and the number of enterprises allowed to declare bankruptcy is controlled, pressure is mounting on enterprises to cope without government subsidies. State enterprise losses represent a major government expense, and the government is attempting to tighten the flow of subsidized credit to these enterprises.

Erosion of Pension Benefits

The emergence of inflation in the reform period, averaging nearly 8 percent annually in the 1980's, led to a rapid erosion of pension benefits which were not indexed. Prior to the launching of economic reforms, inflation was minimal, averaging slightly over 1 percent annually during the period 1950 to 1978, and was not a concern. At the time of retirement, pensions appeared quite generous; for example, in 1980, the average annual pension of a state retiree was 781 yuan and replaced 97 percent of the average state wage [China State Statistical Bureau, 1985: 554; 1991: 733]. For urban collective retirees the average annual pension was 465 yuan in 1980, a wage replacement ratio of 75 percent [China State Statistical Bureau, 1985: 554; 1992: 733]. However, by 1993, the pension of a worker who retired in 1978 would have lost two-thirds of its purchasing power. The negative impact caused by the lack of indexing was only partially offset by subsidy payments to pensioners for food, heat, and housing that were periodically adjusted by the government.

Aspects of enterprise reform have led to a dramatic decline in the standard wage (*biaozhun gongzi*) relative to the total remuneration of workers, affecting pensions, which were

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[4] Until 1969 the financing of old age insurance was centrally managed with contributions based on a percentage of the payroll coming from the enterprises and government units [Fang, 1995]. During the Cultural Revolution financial management was decentralized and enterprises became responsible for funding pensions for their own retirees.

[5] State enterprises no longer handed up all profits to the government; instead, they turned over a contracted portion of profits. In exchange, enterprises assumed responsibility for financing worker benefits and treating these costs as overhead.

based on the standard wage received prior to retirement.[6] In 1978, the standard wage in state units represented 86 percent of total compensation (Figure 2). By 1985, the share had declined to 65 percent, and in 1993, it was only 47 percent. Bonus payments have become a major element of total remuneration, rising from 2 percent in 1978 to 23 percent in 1993. For some employees, bonuses exceed wages. Subsidies and allowances also have risen, accounting for one-quarter of total salary in 1993. Thus, pensions--which were linked to the standard wage--stagnated, and the effective income replacement ratio declined.

Reduction in Coverage

Employment in nonstate sectors, where old age security benefits were nonexistent or smaller, began to grow rapidly in the 1980's. In 1978, 72 percent of new urban job entrants were assigned to the state sector, but by 1990, the proportion had fallen to 60 percent [Guan, 1994]. The state share of urban employment declined from 78 percent in 1978 to 66 percent in 995 (Figure 3). The urban collective share reached a peak of 26 percent in the mid-1980's and declined to 19 percent in 1995. The shares of urban employment in foreign-funded, private, and individual enterprises, while still small (2.8, 2.6, and 8.4 percent, respectively, in 1995), represent sizable numbers of employees--5.2, 4.8, and 15.6 million, respectively [China State Statistical Bureau, 1996: 21].

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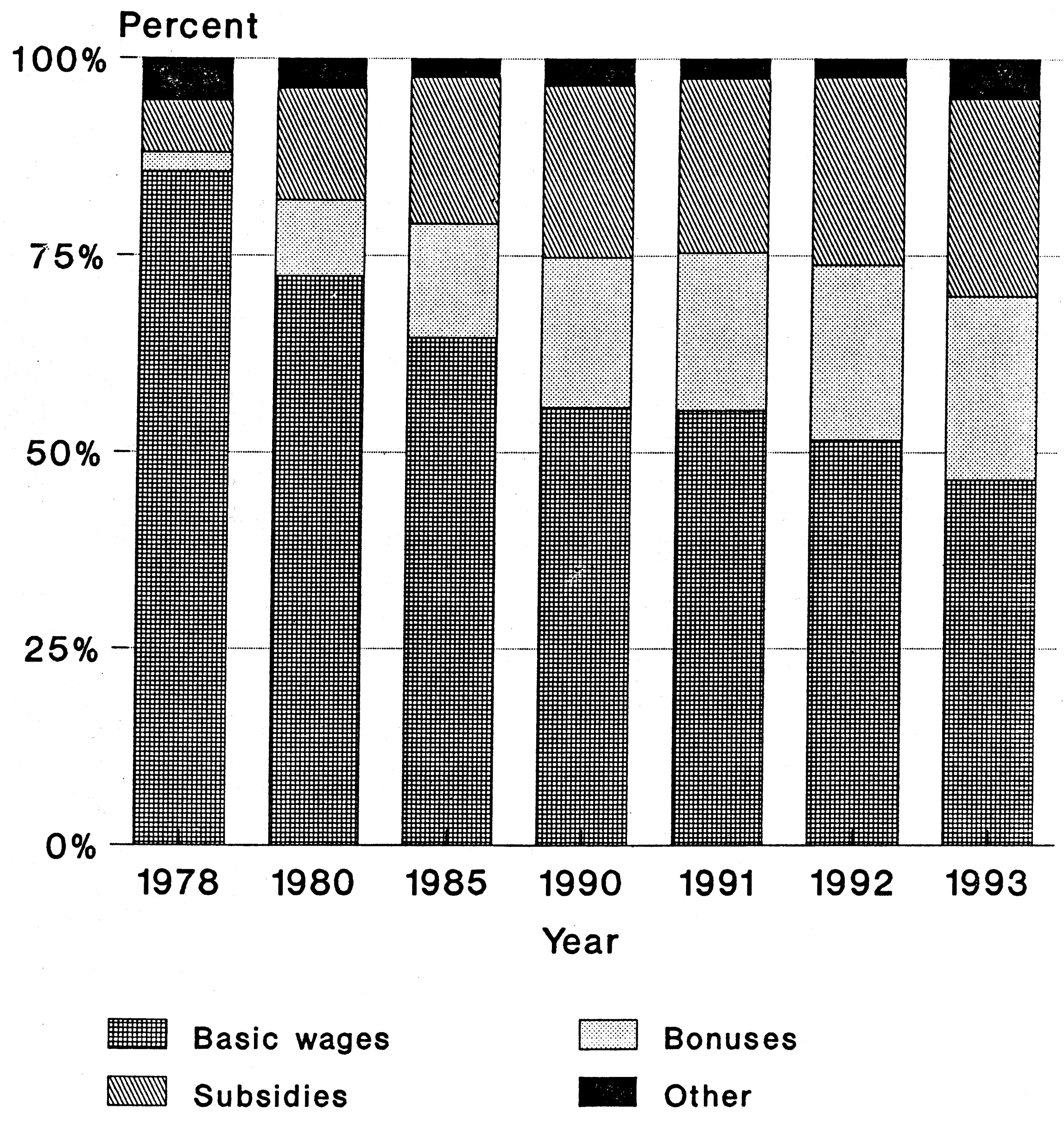
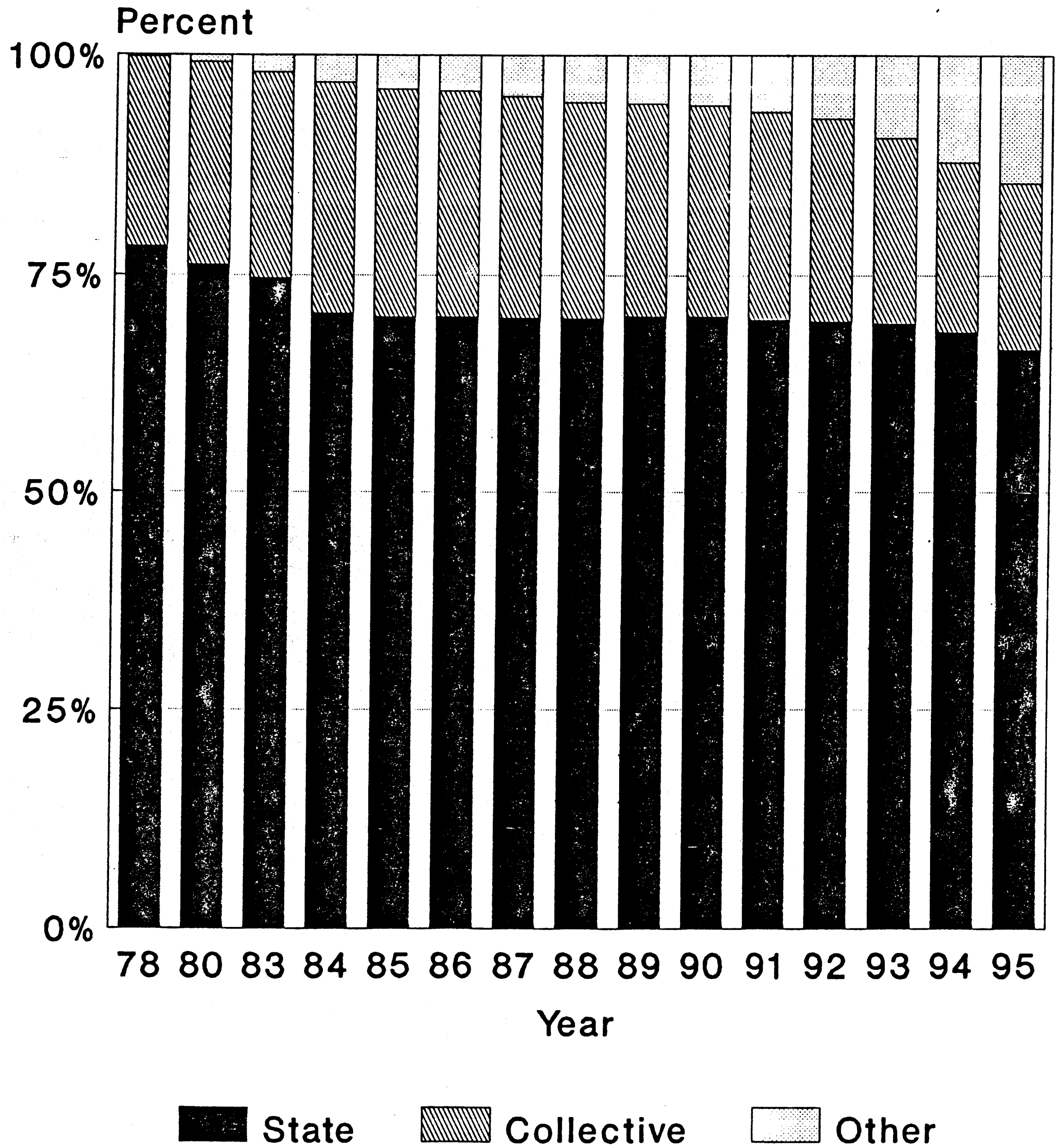
[6]Workers' total remuneration is comprised of the standard wage (according to time or piece rate); bonuses for extra work (including above quota) and improvement in profitability; allowances (for special or dangerous work); and subsidies. Payment is a combination of cash and in-kind.

Figure 2.
Composition of the Total Wage Bill of State-Owned Units, Selected Years



Source: China State Statistical Bureau, 1994, p. 115.

Figure 3.
Urban Employment by Sector, 1978-1995



Note: Other includes foreign invested, private, and self-employed.

Source: China State Statistical Bureau, 1995, pp. 84-85 and 1996, p. 21.

COMPONENTS OF PENSION SYSTEM REFORMS

The Third Plenary Session of the 14th Communist Party Central Committee in 1994 specified an overall framework for the establishment of an old age security system. It called for a multi-pillared system combining a social basic pillar with supplemental enterprise-sponsored pensions and individual savings for old age. At present, emphasis is to be placed on designing the social basic pillar which is to provide a minimum standard of living for retirees and to be financed by the enterprise, employee, and government through a combination of pooled funds and individual accounts. The other two pillars have just begun and are expected to develop slowly.[7] The new system is to move away from a pay-as-you-go status and become partially funded in preparation for dealing with China's aging population. While the reformed urban pension system is still evolving and a complete set of national laws and regulations has yet to be promulgated, the general characteristics of the social basic pillar are already evident.

Formation of Pension Pools

A regionally-based pension pool system formed along administrative lines (county, city, prefecture, or province) is replacing the work unit as the focal point of the old age security system. Disjointed efforts to move the financing of pensions to a level above the work unit first took place in a few locations in the mid 1980's. For example, the cities of Shenyang and Beijing began to experiment with the unified collection (*tongchou*) or pooling of pension funds across state-owned enterprises in their cities in 1986 [Jinrong shibao, 1994]. In principle, all work units falling under the jurisdiction of an administrative pool are to contribute a uniform percentage of their total wage bill to the pool. Pensions to all retired workers within that pool are then to be paid from the pooled pension fund. The objective of unified collection is for an enterprises's pension burden to be based on its current work force and not its retirees and, thus, for the burden to be shared across enterprises.

Across the country, nearly all pools first were formed at the county or city level, and only in limited instances did the initial scope of the pool span the prefecture or province level. In several areas, pools later expanded from the county or city level to the prefecture or province level. The three municipalities having province level status--Beijing, Tianjin, and Shanghai--have established pools that cover the entire administrative area. Several provinces, including Guangdong and Shaanxi, have established an adjustment fund at the province level with contributions coming from the subprovincial pools, and the fund is used to assist pools in the

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[7]By mid-1995 only 12,000 enterprises nationwide were offering supplemental insurance plans that covered 3 million employees. At the same time, 700,000 workers had established individual retirement savings accounts, with accumulated funds reaching 50 million yuan [Wang J., 1995]. In some cases, foreign-funded and private enterprises and self-employed individuals have purchased commercial pension insurance policies, primarily from the People's Insurance Company of China, which dominates the commercial insurance market. Commercial pension insurance, however, accounts for a small fraction of total benefits with disbursements averaging 1.5 billion yuan in the early 1990's compared to the nearly 72.5 billion yuan in pension payments made through the government-sponsored pension system in 1994 [China State Statistical Bureau, 1995: 580,676].

province experiencing deficits. By the end of 1994, all cities and counties had either implemented pooling at the local level or were participating in higher level pools for state-owned enterprise pensions [Lin, 1995].

Pool coverage in terms of both workers and retirees has expanded rapidly in the 1990's. At the end of 1992, 15.5 million of the total 26 million retirees entitled to pensions, or 60 percent, were receiving benefits from work units participating in pools [China State Statistical Bureau and Ministry of Labor, 1993]. Of the 15.5 million beneficiaries of pooled funds, 12 million were state-owned enterprise retirees, and most of the remaining 3.5 million were urban collective retirees.[8] By 1992, just over half of state-owned enterprise employees and one-third of urban collective employees were participating in pension pools [China State Statistical Bureau and Ministry of Labor, 1993]. Implementation of unified collection through pools continued to progress, and as of the third quarter of 1995, 21 million pensioners and 87.5 million workers were covered by basic pension pools [Ye, 1995]. Nearly two-thirds of employees and just over 90 percent of retirees in state-owned enterprises were participating.

Multiple Components

The system of benefits also is changing, as a combination of plans replaces the former single defined benefit plan. The multiple plans seek a balance between incentives for participation and social equity. The specifics of each plan, in particular the level of benefits, and the combination of plans available to workers vary across regions.

Nearly all pools include as part of the social basic pillar a defined benefit plan with pension benefits linked not to the worker's actual earnings, but rather to the local average social wage. This characteristic of the benefit formula is equalizing, providing for a transfer from higher salaried workers to lower paid workers. Retirees receive a percentage of the local average wage prevailing in the year prior to their retirement. Often the percentage received increases as the years of qualified service increases, an incentive aspect of this pension plan. For example, Shandong regulations state that retirees whose units have paid insurance premiums on their behalf for 15 years or more will be paid a pension of 25 percent of the province average wage, those contributing for 10-14 years will be paid 20 percent, and those who have paid the premium for 5-9 years will be paid 15 percent [Jinan dazhong ribao, 1994].

Pools adjust annually the pension that retirees receive from this defined benefit plan to maintain living standards for retirees. Pools may opt to index the pension to changes in the price level or wages. The detailed annual adjustment is specified by the government and social insurance office at the pooling level (county, city, prefecture, or province) and adjustments generally occur with a lag of 6 months [Zhongguo laodongbao, 1994b]. The residential consumer price index is the most common index used for inflation adjustments, thereby guaranteeing that

[8]Government civil servants and employees of government institutions, such as schools and hospitals, have not been included in the reform process thus far, and the pension program offered by their work units remains largely unchanged.

the absolute real value of the pension remains unchanged. A number of pools are taking into consideration both inflation and increases in labor productivity by adjusting the basic pension by a portion of the increase in the average local wage for the previous year, thereby ensuring that retirees maintain a constant relative position with young workers. In many pools, however, there is less than full indexation of benefits. For example, Yancheng, a city in Jiangsu province, adjusts the social pension by 40-60 percent of the increase in the Yancheng average wage for the previous year [Gongren ribao, 1993], while another city, Dongyang, in Zhejiang province offers a slightly less generous adjustment, increasing pensions by only 20-40 percent of the increase in the province average wage [Zhongguo laodongbao, 1993]. Yuci city in Shanxi stated that the pension would be adjusted by 30 percent of the increase in the province average wage but would not be adjusted downwards if the average wage declined [Zhongguo laodongbao, 1993]. Administrative pools in Guangdong province do not define the benefit a retiree is entitled to as a percentage of the average wage in the year prior to retirement; instead, the pension is always a percentage of the previous year's local average wage, an implicit 100 percent adjustment for changes in average wage. Guangdong has agreed to consider adjustments if changes in the average wage are not reasonably reflecting changes in the cost of living.

A second component to the social basic pillar that is common to all pools is a defined contribution plan, with contributions, generally, coming from the employee but in some cases also from the employer. These contributions are maintained in special individual accounts. At retirement, monthly payments are disbursed from the principal and interest built up in this account with payments based on the accumulation and average life expectancy at retirement for men and women in the province.

A second defined benefit plan, which is similar in structure to occupational pensions in developed countries, is offered in some pools as an additional component of the social basic pillar. This pension plan usually takes into consideration the individual worker's earnings and the number of years of qualified service in determining benefits. For example, Yuci city, Shanxi pays retirees with at least 10 years of creditable service 1.4 percent of the worker's average wage for each year of service. Workers who have 15 years or more of service receive 1.5 percent of their average wage for each year. Typically the average wage received by the worker over the years of qualified service serves as the measure of worker's earnings. In most cases, maximum and minimum wage levels are imposed to introduce an equalizing element to this plan as well.

Most pools consist of a combination of a defined benefit plan and the defined contribution individual account. Some cities, including Shanghai, Ningbo, and Shenzhen, are experimenting with a pension system based solely on individual accounts, hoping to enhance confidence in the new pension system and to encourage both employers and employees to make their contributions [Ye, 1995]. The State Council is not encouraging the second defined benefit plan, believing it is too much like an occupational pension plan and should not be part of the social pillar. See Box for a description of the reformed social basic pension program in Hainan and Guangdong provinces.

Social Basic Pillar in Hainan and Guangdong Provinces

Hainan Province

The social basic pillar designed for Hainan workers consists of two parts: a defined benefit and a defined contribution plan. Defined benefit payments are based on the average wage (using a broad measure of wage -- standard wage plus bonuses, subsidies, and allowances) of the employee during the employee's working life (the portion of the employee's average wage which exceeds 200 percent of the province average wage is not considered and the employee is guaranteed that payments will be based on a minimum of 60 percent of the province average wage). Employees who have 15 years of creditable service receive a social pension equal to 45 percent of his/her average lifetime wage. Each additional year of service will add 1 percent to the basic pension, while each year under 15 years will reduce the basic pension by 1 percent. The minimum number of years of creditable service required is 5 and the minimum basic pension is set at 35 percent of the employee's average wage. Pensions are adjusted annually by 80 percent of the average local wage increase of the preceding year. Employer contributions fund the defined benefit pension, while employee contributions go into individual pension accounts which are disbursed as an annuity upon retirement. In 1992, when Hainan's pension reform went into effect, enterprise pension contributions were set at 18 percent of the total wage bill and employee contributions at 3 percent of total wage.

Guangdong Province

Guangdong's social basic pillar has three separate plans: two defined benefit plans and a defined contribution plan. Workers with 10 years of creditable service are eligible for both defined benefit pensions. The first pension does not consider years of service beyond the qualifying 10 years. Each year eligible pensioners receive 30 percent of the previous year's local average wage (using a broad measure of wage -- standard wage plus bonuses, subsidies, and allowances). Old revolutionary cadres receive 35 percent. Retirees with 10-14 years of creditable service also receive a second pension equal to 1 percent of the employee's average wage times the number of creditable years. Retirees with 15 or more years receive a higher rate of 1.2 percent of average wage multiplied by years of creditable service. The second pension benefit is adjusted annually by the social insurance office according to the increase in city wages. Early retirements due to illness, not work related, result in reduced benefits. Employees with less than 10 years of creditable service are not eligible for the defined benefit pensions; instead, they receive a lump sum at retirement equal to two months wages for every year of creditable service. The defined benefit pensions are financed by employer contributions. Employee contributions to the defined contribution plan are credited to individual accounts and are converted to an annuity upon retirement.

Support for retirees is not limited to pension payments; in fact, pensions represented only 71 percent of total assistance to state retirees in 1994 [China State Statistical Bureau, 1995: 688]. Free or subsidized medical care continues after retirement as does a whole range of subsidy payments for expenditures such as transportation, heating, and haircuts. However, administrative pools are increasingly basing the defined benefit pensions on total wages (including bonuses, allowances, and subsidies) and indexing benefits for inflation, thereby eliminating the need for most of these separate subsidies to new retirees. Subsidies for medical expenses and funerals are usually the only additional benefits offered in these situations.

In general, benefits under the defined benefit plans end with the death of the pensioner, and a surviving spouse does not continue to receive the pension. Because China has a very high labor force participation rate among both males and females in urban areas, spousal and survivor benefits were not viewed as important under the old system nor are they under the reformed system.[9] Separate statistics are not available on survivor benefits, but they appear to be minimal. Pensions for survivors and funeral expenses for retirees of state-owned units combined totaled only 1.04 billion yuan in 1993, 1.4 percent of total assistance to retirees of state-owned units. Most provinces are specifying that employee contributions to the individual account are inheritable but often not the portion contributed by the enterprise. Hainan province, however, will only distribute the accumulated fund of individual contributions, including interest, in a lump sum to the legal heirs if the employee dies before reaching retirement age. If the insured terminates employment and leaves the country, accumulated funds will also be disbursed to the insured.

Pools vary in the distinction made among those who retired under the old system, workers hired under the old system but not yet retired, and workers hired under the new system. Nevertheless, all pools are required to honor previous obligations to existing retirees. Hainan province decided that pensions for contract and temporary workers and the newly employed will be based on the new system. Those who retired before the introduction of the new system are to be paid according to the old method. Present permanent employees are allowed to choose between the two systems. Guangdong province is crediting retirees and existing workers for years worked under the old pension system and will pay benefits to existing workers at retirement according to the new system. Existing retirees are being paid according to the new level of benefits unless this is less than their entitlement under the former system, in which case they receive benefits based on the old method.

Diversified Financing Sources

Pension financing is being diversified, with the employer (work unit) no longer the sole contributor to the pension fund. Employees now also make contributions, and the government is to contribute as needed in its role as pension guarantor. Employers are required to contribute a

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[9]In 1990, the employment participation rate among urban males ages 25-49 exceeded 90 percent and for urban females ages 24-44 it exceeded 80 percent [Harbaugh and West, 1993]. In 1993, women accounted for 44 percent of the employed urban labor force [Lu, 1994].

percentage of total payroll and employees a percentage of their wage income. The contribution rates for employers and employees vary across administrative pools, though in 1994 enterprises contributed an average of about 20 percent of total payroll and employees 3 percent of their wages. Most pools are increasing the employee contribution rate by 1 percent every 2 years. As the employee contribution rate rises, the employer's rate is to fall until each is contributing roughly 50 percent of total premium costs. Presently the employee contribution is usually credited solely to the individual account, while the employer contribution may be allocated in part to the social pool used to fund the defined benefit pension components and in part to the employee's individual account.

The premium, or contribution rate, is levied on the total wage bill. However, there are regional differences in how localities compute the total wage bill. Northern areas are more likely to include only the base salary of employees (excluding bonuses and subsidies) in calculating the total wage bill. On the other hand, in southern China where the base salary is often only one-fourth of total salary, bonuses are included.[10]

Many pools have set limits on the salary or wage subject to the pension contribution rate for both employees and employers. For example, a pool may specify that the portion of a wage which exceeds 300 percent of the local average wage is exempt from the pension payroll levy for employers and from the employee pension contribution levy [Lin, 1995]. On the other hand, regardless of how low the actual salary level is, employers and employees may be required to pay the pension levy on a minimum wage level, usually defined as 50-60 percent of the local average wage. This regulation is intended to introduce a measure of equality into the social basic pillar and to discourage employers from paying low wages in the hope of reducing their pension premium.

The government, from the local to the central level, stands behind the social basic pillar as guarantor. The government has stated that, in special circumstances in which the pension insurance fund is inadequate to meet obligations, subsidies can be drawn from government budget revenues. In addition, the government provides a number of tax concessions. Pension contributions by both employer and employee are tax deductible. Pension benefits and management fees paid to agents for program administration also are not taxable.

[10]An October 1993 survey of five cities revealed wide diversity in the share of the base salary, ranging from 43 percent of total salary in Fuzhou (Fujian province) to 64 percent in Lanzhou (Gansu province) [China State Statistical Bureau and Ministry of Labor, 1995: 487].

PROGRESS AND IMPACT OF PENSION REFORM

The reformed social basic pillar has already been adopted to varying degrees across China's urban areas. Thus, while experiments focused on refining the new system are still ongoing, it is not too early to begin to assess how well it has dealt with the weaknesses of the former system. The suitability of the new system for a socialist market economy and its implications for labor markets are also of interest.

Expansion of Coverage

Under reforms, first priority is being given to unifying and standardizing the pension system for state-owned enterprises, but pools are gradually expanding coverage to other types of urban enterprises. One of the first to be added has been urban collective enterprises, in particular those which have been offering pension benefits patterned after the state system. At the end of 1994, 176,125 urban collective enterprises were participating with 13.2 million workers and nearly 4 million retirees covered. Participation in the reformed old age security program also is slowly being opened up to workers outside the state and collective sectors. At the end of 1994, 1.6 million workers outside the state and collective sectors were participating in pension pools, of whom nearly 1 million were in foreign-invested enterprises [China State Statistical Bureau and Ministry of Labor, 1995: 493]. Participating workers in foreign-invested enterprises represented half of all staff and workers in enterprises of this ownership type [China State Statistical Bureau and Ministry of Labor, 1995: 443]. In some areas, such as the coastal provinces of Guangdong, Jiangsu, and Zhejiang, foreign-invested enterprises participate in a separate province-wide pool. Hainan province is one of the first administrative areas to offer participation in old age insurance to all urban workers regardless of the type of enterprise (state, collective, or private) or worker's status (temporary, contract, or permanent worker). Vice-minister of Labor Wang Jianlun announced that the new old age security system aims to cover all urban workers, including the self employed, by the end of this decade, with coastal and major inland cities expected to reach the goal before then [Xinhua, 1995].

For private enterprises and the self-employed (getihu), contributions are based on the local average wage for the previous year. This avoids the high administrative costs associated with determining and verifying wage rates for these individuals. Self-employed individuals contribute both the employer and employee share to the pension fund, with the majority of the contribution going into the individual account. For example, in Hainan, the self-employed contribute 20 percent of the province average wage for the previous year, of which 4 percent goes into the pooled social insurance fund to finance the social pension and the remaining 16 percent goes into their individual pension accounts. Qualifying conditions for employees of private enterprises and the self-employed in Shandong province are: 1) aged 60 or over for males and aged 50 and over for females; and 2) 5 years or more of contributions to the basic pension program [Jinan dazhong ribao, 1994]. In return, retirees are eligible to receive the pension, subsidies for medical expenses and funerals, and supplemental funds for dependents.

The expansion of the social pension program to cover urban workers across all ownership types may lead to a decline in labor force participation rates among the older population. Many workers outside the state and collective sectors have had to rely on personal savings and family to support themselves in old age. The lack of entitlement to a pension often forces them to continue working beyond the ages at which state employees may retire. In the near term this potential impact on the labor force is likely to be most noticeable in coastal provinces, in particular Zhejiang, Fujian, and Guangdong. In these areas, urban workers employed outside the state sector account for nearly 50 percent of all urban workers [China State Statistical Bureau, 1995: 84]. As the urban share of China's total population increases through rural to urban migration and reclassification of rural areas as urban, the decline in labor force participation rates among the older population will become more widespread. A decrease in labor force participation rates among older populations may be viewed as desirable given the large number of new job entrants, redundant labor force in state-owned enterprises, and surplus rural labor. In fact, the government eased retirement eligibility criteria in the late 1970's to deal with the large cohort of new job entrants expected in the 1980's. More recently, the "Provisions of Settlement of Surplus Labor" issued by the State Council in 1993, offers the option of early retirement with pension benefits and living allowance to surplus employees in state-owned enterprises with less than 5 years before normal eligibility for retirement [Lim and Sziraczki, 1995: 8].

While the reformed pension insurance system is embracing more workers, it is still largely limited to the urban labor force, which presently comprises just 27 percent of China's total labor force. The Ministry of Civil Affairs started a voluntary, defined contribution old age pension program in rural areas in the early 1990's. Contributions to this pension plan come from individuals, and only in the economically better off areas do rural enterprises and/or local governments offer to match a portion of the individual's contribution. Furthermore, the Ministry of Civil Affairs plan appeals to a limited number of rural households. It is not attractive to households in wealthy rural areas where farmers would rather invest their money in other endeavors that are perceived as more profitable and secure.[11] For households in extremely poor areas participation is not economically feasible.

By focusing only on the urban labor force, the reformed old age security system is unlikely to address the issue of growing rural-urban inequality. Over the period 1985 to 1995, real per capita income grew at an average annual rate of 5.7 percent in urban areas and at only 3.1 percent in rural areas [China State Statistical Bureau, 1996: 46, 53]. An International Labor Organization (ILO) and Ministry of Labor survey of 300 industrial enterprises in Beijing, Shanghai, Guangzhou, Tianjin, and Shenyang in 1995 found that while rural residents temporarily engaged in urban state and collective firms for a year or longer are supposed to be covered by the labor contract system and entitled to pension benefits, they are frequently denied these benefits. The survey found that enterprises often get around this provision by signing rural residents to multiple

[11]When the rural voluntary old age savings program was first introduced, funds were managed at the village level with many villages investing the funds in village enterprises. In some cases, the funds were lost as the enterprises failed.

short term contracts or simply by replacing them. [Lim and Sziraczki, 1995: 15].[12] It is not clear that the new Labor Law implemented in 1995, which calls for eliminating separate employment systems and placing all employees under the labor contract system, will resolve the discrimination [Xin, 1995].

The distinction made between the urban and rural labor force for the purposes of defining worker benefits is becoming increasingly inappropriate. Rural-urban labor mobility has increased tremendously with the easing of restrictions on labor movements in the early 1980's. Tens of millions of rural laborers migrate annually to urban areas to work; some working only part of the year in the city while others have lived and worked in the city for several years. The latter seldom are allowed to establish permanent residency in the city and hence are excluded from most urban pension pools. The Pearl River Delta of Guangdong province is one of the few places where cities are willing to provide coverage to workers whose legal residence is outside the city. With a large percentage of workers in the Pearl River Delta coming from outside the area, their inclusion is almost a necessity. Labor flows also are occurring in the opposite direction. Over 3 million laborers have left urban areas for employment in township and village enterprises [Lu, 1994].

The government points to limited administrative capacity and limited government funds in not offering comparable pension benefits to rural workers at this time. Nevertheless, an increasing share of the rural labor force consists of wage earners, and the potential exists for extending the reformed urban pension system to rural wage earners in the near future. Township and village enterprises employed 123.5 million workers in 1995 [China State Statistical Bureau, 1996: 21]. Some township and village enterprises are located in urban areas and are starting to be included in social pension pools. The ILO/Ministry of Labor survey found that 9.5 percent of surveyed township and village enterprises were participating in the reformed social basic pension system. The same survey found that nearly half of the township and village enterprises offered pensions independently, in some cases purchasing commercial pension insurance for their workers [Lim and Sziracki, 1995: 19].

Fragmentation of Pools

Once a pension pool is established in an area, participation is supposed to be compulsory, at least for state-owned enterprises. However, some enterprises refuse to join and still others are excluded from the pool by the local government. Frequently, it is the financially strong enterprises with relatively young work forces that object to joining. These enterprises argue that they should not have to subsidize inefficient enterprises with older work forces. Gradually, many are being convinced or coerced into joining, and in some cases, the local government offers these enterprises special tax concessions as an inducement to join. State-owned enterprises affiliated with a level of government above the city or county (such as prefecture, province, or central) are not required to participate in city or county level pools even though the enterprise is physically located within the pool and most employees are residents of that city or county. When these

[12]Solinger [1995] reports the same forms of discrimination for rural contract workers in urban enterprises.

state-owned enterprises are suffering financial losses, local governments have an incentive to exclude them from the pool in any case, not wanting to place local enterprises and local government fiscal resources at risk in supporting a pension system weakened by loss-making state enterprises. Of course, if these state-owned enterprises are financially healthy, the local pool may welcome their participation.

Early in the reform process five central ministries and industries set up their own pension pools. Variation in contribution rates and level of benefits across local pools has led additional ministries and industries to form pools that do not follow administrative lines. Thus far, the State Council has given permission for 11 ministries and industries (including railroads, posts and telecommunications, civil aviation, construction, nonferrous metals, coal, and banking) to set up their own social pension system [Feng, 1994]. Of these 11 separate pension systems, seven were started by central ministries [Lin, 1995]. For many of these industries, employees are geographically dispersed, and industry officials argue that their employees should be treated the same and not subject to variations across local pension pools. Therefore, enterprises under these central ministries and industries have withdrawn their employees from local pools.[13] For example, the Ministry of Coal Industry has established its own social security department and a pension insurance program that covers all employees of the trade, including those in joint ventures and temporary workers [Wang X., 1995]. In 1995 these workers contributed three percent of their salaries to individual accounts. The proportion is to increase one-half percentage point every year until reaching 8 percent. The employer is to deposit a matching contribution into each worker's individual account. In addition, employers are to contribute 15 percent of total payroll to the pooled social pension fund. The coal industry has 3.5 million employees, supporting 1.06 million retirees [Wang X., 1995].

The proliferation of pools diminishes the potential benefits of pooling and makes it more difficult to achieve the original goal announced in the early 1990's of moving pools up to the province level and eventually the national level. County and most city-based pools are arguably too small to offer sizeable benefits of risk sharing, especially when a number of work units opt out of the pool. Furthermore, a city may actually be maintaining separate pools for state-owned and for collectively-owned enterprises [Hussain, 1994]. The desire of local governments, especially in coastal regions, for a decentralized system with local determination of program details and management must first be overcome before a national scheme will be feasible. Enterprises in the Special Economic Zones located in Guangdong and Fujian provinces, with their relatively young work forces and present low contribution rates, have argued that they should be exempt from participation in any higher level pool and should be allowed to establish their own schemes.

[13]It should be noted that the State Council in a allowing various ministries and industries to establish separate systems said they could do so only until such time as a national system was established.

Portability

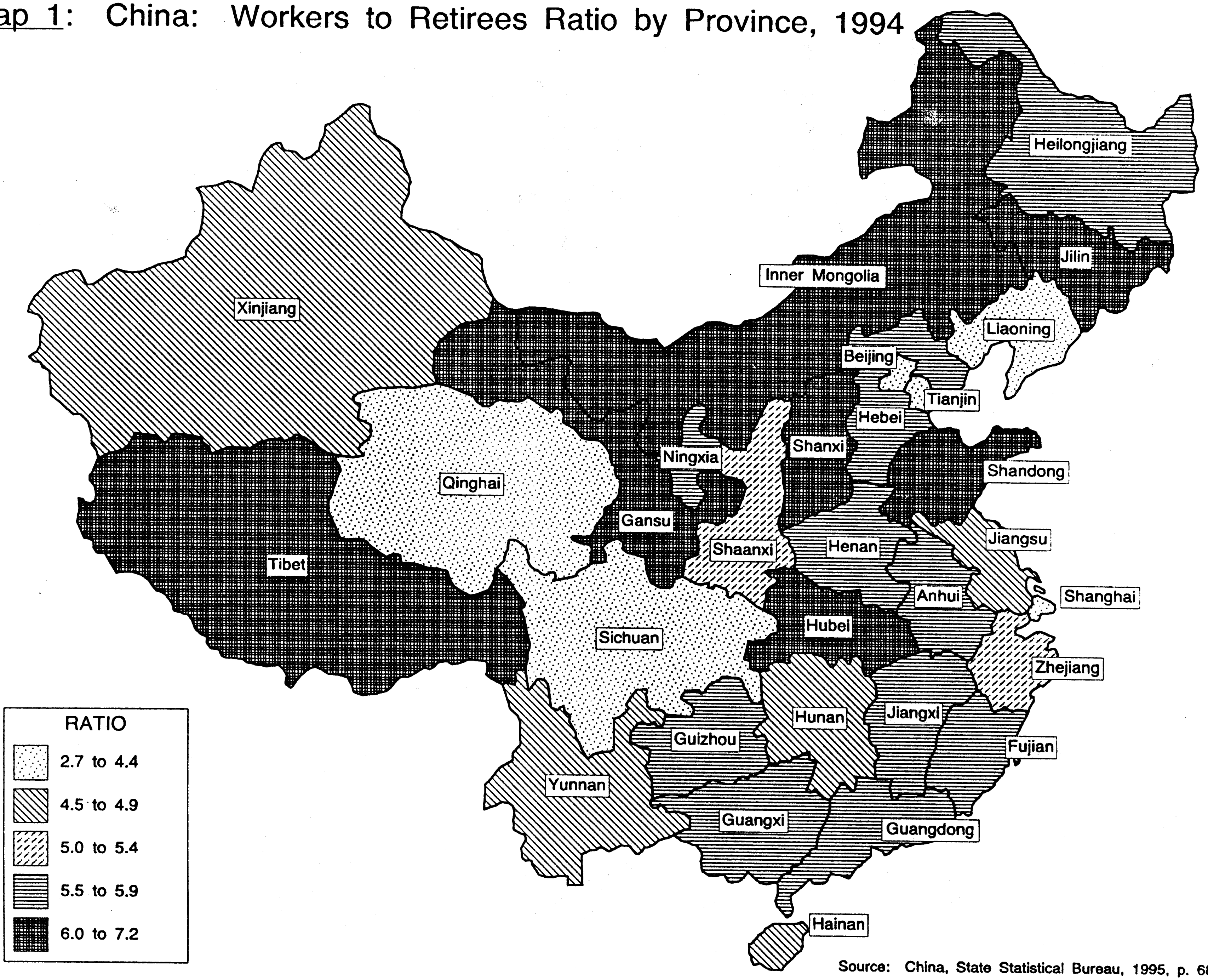
An important argument for moving pools to the highest level possible is to facilitate the development of labor markets. The persistence of numerous pension pools, whether geographically or industry based, serves to inhibit labor mobility. While it was not unusual in the past for a worker to have the same employer throughout his/her working life, today China has an increasingly mobile labor force. In the past decade, a number of workers have left the state or collective sector to join foreign-invested enterprises or to go into business for themselves. Workers also are switching industries within the state sector, many moving into the growing service sector. In 1993, the urban labor mobility rate for state units, collective enterprises, private enterprises, and the self-employed averaged 3.2, 3.8, 6.3, and 20 percent, respectively [Lu, 1994].

Even greater labor mobility can be expected as the restructuring of state-owned enterprises progresses. It is inevitable that a number of state-owned enterprises will need to shed redundant labor if they are to be competitive. A wide range of estimates of labor redundancy exists, including a State Statistical Bureau estimate of 20 percent of state-owned enterprise employees based on a December 1994 survey and a State Economic and Trade Commission estimate of one-third of the currently employed workforce [Lim and Sziraczki, 1995: 4-5]. Some enterprises will face bankruptcy and their entire work forces will need to find other jobs. It is increasingly likely that in the future new entrants to the labor force as well as redundant laborers will be absorbed by the nonstate sector. Experts estimate that during the Ninth 5-Year Plan period (1996-2000), cities and towns will need to deal with a total of 15 million redundant workers from urban enterprises in addition to those surplus rural laborers entering the cities [Xinhua, 1995]. Over time the issue of the transfer of pensions benefits and the portability of pensions will become increasingly important.

Provinces are starting to draft regulations to handle the transfer of pension insurance records and contributions when a worker moves to a work unit in another city in the same province. Interprovincial moves will be more difficult to address. Cities in the Pearl River Delta in southern Guangdong province will not let workers from the rest of China enter their pension systems without a transfer payment equal to what they would have accumulated had they always been in that city's system. Central government leaders have proposed that in cases of labor transfer across pools, the worker be allowed to transfer the amount they contributed to their individual account but not what their former employer contributed. The new employer then is to make up what the former employer had contributed to the worker's individual account.

Advocates for unifying contribution rates and management at the national level under the leadership of the central government are not likely to prevail in the foreseeable future given the existence of substantial regional and sectoral variation [Yang, 1994]. First, there is regional variation in the inherited obligations and relative burden under the former pension system. Because state-owned enterprises tend to be concentrated along the coastal areas and older state industries in Northeast China, the pension burden in many inland provinces is lighter (see Map 1). For example, Shanghai has a large number of old industries and consequently a very low workers-

Map 1: China: Workers to Retirees Ratio by Province, 1994



Source: China, State Statistical Bureau, 1995, p. 689.

to-retirees ratio of only 2.7. At the other extreme is Inner Mongolia with 7.2 workers per retiree. It will take persuasion and education to convince firms and regions with light burdens at present that their workers will benefit in the future under the reformed system. They also must be convinced that the system will still be intact 20 years from now and will not have been bankrupted by loss-making state-owned enterprises.

Second, salary levels vary across types of enterprises, with foreign-funded enterprises offering the highest wages and state enterprises providing more generous compensation than urban collectives (Table 2). Wage levels also vary across regions. The 1994 average annual wage (averaging across all types of urban work units) ranges from 3,375 yuan in Heilongjiang to 7,405 yuan in Shanghai, a ratio of 2.2 (Map 2). The unweighted average across provinces is 4,630 yuan with a standard deviation of 1,088 yuan. The more lucrative occupations include finance, real estate, and scientific research while the trade, manufacturing, and mining sectors offer relatively low wages [Zhongguo Xinwen She, 18 October 1995]. This variation in wages would make it difficult, for example, to establish a pension based on national average wages that would be acceptable to financial sector workers in Shanghai.

Table 2. Average Annual Wages of Staff and Workers by Ownership, 1994 (yuan)

State-owned units	4797
Urban collective-owned units	3245
Foreign-funded enterprises	6533

Source: China State Statistical Bureau, 1995, pp. 113 and 122.

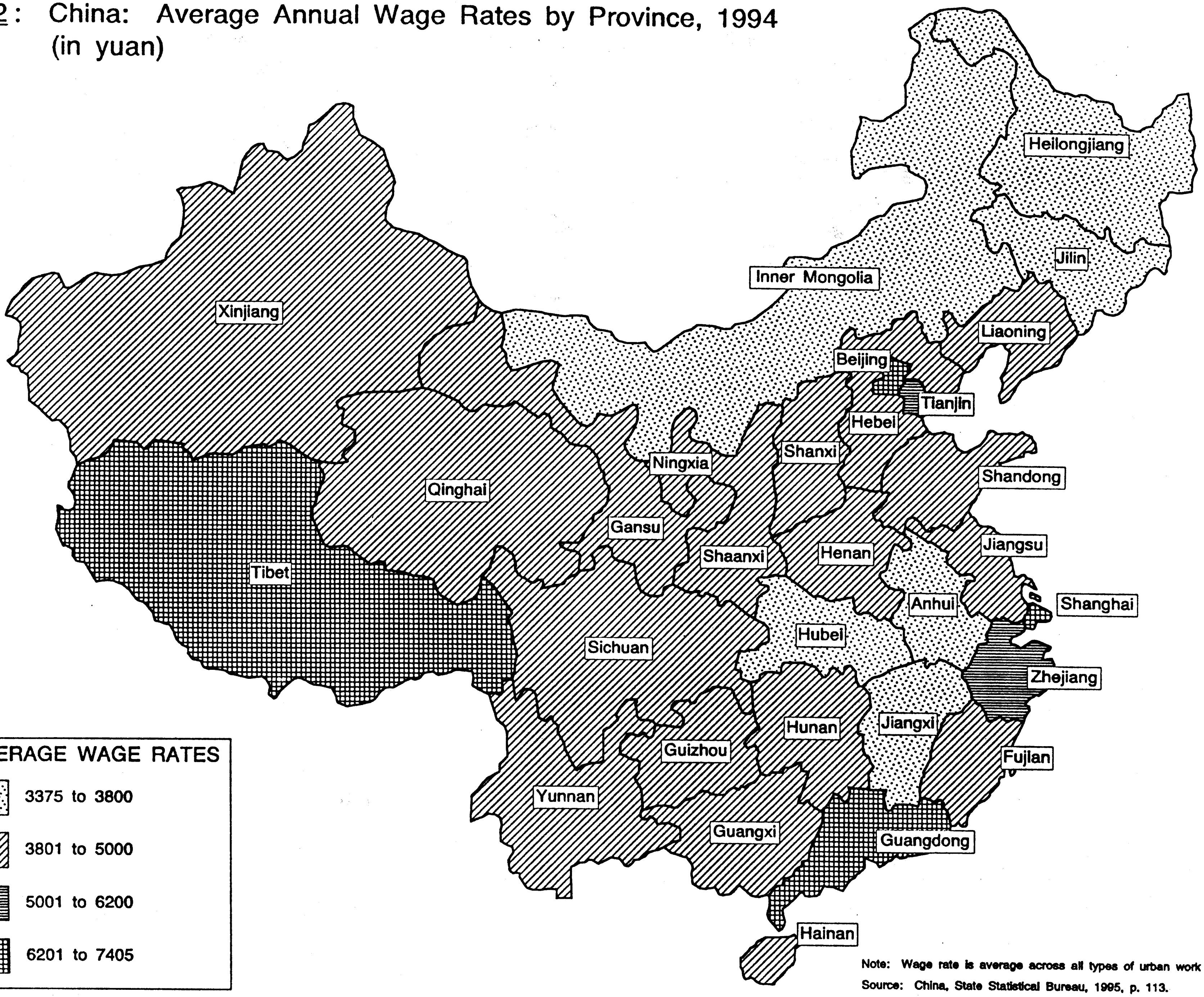
Fund Administration and Management

Thus far, most pension pools play a limited role, redistributing only surplus pension funds from a subset of enterprises to deficit enterprises. Enterprises generally continue to disburse pension benefits to retirees directly and turn over to the county- or city-based pool only the surplus pension premium remaining after meeting the enterprise's current pension obligations. Enterprises with a current pension outlay exceeding collected premiums receive an allocation from the pool to help cover expenditures. As of 1995, only about one-quarter of workers in state-owned enterprises were covered by pools which distributed pensions from banks instead of directly from the enterprise [Cao, 1995].

One goal of the reformed system is to establish a network of social insurance offices, under the Ministry of Labor and local labor bureaus, to collect, manage, and distribute pension funds.[14] By early 1994, more than 3,900 social insurance offices had been opened in provinces,

[14]These social insurance offices would also administer other pooled insurance programs such as medical, disability, and maternity.

Map 2: China: Average Annual Wage Rates by Province, 1994 (in yuan)



Note: Wage rate is average across all types of urban work units.

Source: China, State Statistical Bureau, 1995, p. 113.

prefectures, and counties with a total staff exceeding 31,000 [Zhongguo laodongbao, 1994a]. However, with an average staff size of only eight employees and limited automation, many social insurance offices still are not in a position to assume full responsibility for the administration of the pension program. A few cities, such as Shanghai and Dalian, have invested in computerization of records and accounts and are able to assume a more active role. The eventual transfer of record keeping and distribution activities from enterprises to social insurance offices will represent a tremendous increase in efficiency. Given the high cost of setting up and equipping social insurance offices, however, the expansion of pool size would allow even larger economies of scale and hold down administration costs. Social insurance offices or other agencies administering the pension funds are allowed to collect a management fee, typically in the range of 2-5 percent of total collections [Nanfang ribao, 1993]. Social insurance offices are to prepare income and expenditure statements and submit these statements and all other decisions to the province level social insurance office and relevant departments of the local government for approval.

One of the key objectives of the new pension system is to move away from a pay-as-you-go system to partial funding; however, in the near term, this may not be desirable for several reasons. First, regulations on fund management are incomplete and an effective enforcement mechanism is absent, making it very difficult to ensure safe and sound management of the pension reserve funds under the control of numerous local governments (counties, cities, prefectures, and provinces) and different ministries and industry groups. Second, financial markets in China are under-developed, providing few safe and profitable investments. The lack of regulations and volatility of the domestic stock market raises serious questions of the advisability of investing social insurance funds in the equity market at this time. The State Council holds this view and has issued regulations stating that 80 percent of accumulated pension funds are to be invested in central government bonds and the remaining 20 percent may be kept as reserves in bank savings accounts [Jingji ribao, 1994). During periods of high inflation, however, the return on government bonds has been negative. In response to this problem, the government is beginning to issue special social insurance fund bonds which have a longer payback period and offer higher rates of interest than other financial instruments. In 1994, 2 billion yuan worth of these special directed bonds were issued with set maturities of 5 years and interest yields of 15.86 percent (2 percent above the prevailing rate for long term bank deposits) [Jingji ribao, 1994].

Nevertheless, local governments often prefer to maintain control over the investment of these funds and to be able to invest in local development projects. For several years the Ministry of Finance and Ministry of Labor have been exhorting local governments which have invested social pension funds in local projects to recover these funds and invest them according to regulations. More recently, the State Council issued a regulation requiring that pension funds be placed in special financial accounts under the supervision of the Ministry of Finance and local finance bureaus. How safe the pension funds of current and future retirees will be under the oversight of finance bureaus also is of concern in the absence of effective regulations. Krieg, [1994] relates a declaration by a Hainan province official that insurance contributions are the property of the finance bureau because these contributions are mainly paid by state-owned enterprises, which are the property of the government. Similarly, a county in Guizhou had pension contributions listed as an entry under government budgetary revenue in 1994 [West, 1994]. China is beginning to establish the necessary safeguards, including setting up a separate budgetary accounting system for social security and auditing procedures.

Sustainability

Firms and individuals are reluctant to join pools because of concerns over the adequacy of funding for current and future obligations. As mentioned above, the reformed system is to be partially funded, but there does not yet appear to be a consistent policy on the degree of partial funding to be achieved. An annual surplus target of approximately 2 percent of total wages is mentioned by central government officials; however, Hainan province announced that it plans to accumulate no more than 10 percent of employer contributions in the pension fund [Krieg, 1994]. An accumulation will be needed to prepare for the future when retirees will increase because of both the maturation of the expanded coverage under the reformed system and the aging of the population. Because funds are scattered across numerous pools and under the supervision of different government departments, aggregate fund reserves are difficult to measure. According to Ministry of Finance statistics, at year-end 1993, reserves in the fund reached 26.8 billion yuan, equal to 7 months of current expenditures [West, 1994]. By the end of 1995, reserves had reached 50 billion yuan and because of rising pension expenditures, reserves were still less than 1 year's annual expenditure [West, 1996].

A number of enterprises in financial difficulties have joined the new pension pools but are being granted a transition period before they are subject to the new system's regulations. In 1994, nearly one out of four enterprises participating in pools needed assistance in meeting contribution obligations. The problem is most serious for urban collective enterprises, with 28 percent of those participating in pools unable to meet their obligations in 1994 (Table 3). The unmet obligation per employee for urban collectives is higher than for state-owned enterprises (683 yuan as compared to 449 yuan) even though state worker salaries are higher. Only 2 percent of foreign-funded enterprises participating in pools had difficulty meeting obligations in 1994. Pension pools reduced premiums by a total of 10.4 billion yuan in 1994, representing about 15 percent of the funds that should have been collected [West, 1996]. The terms of the reduction were negotiated with the individual enterprise and usually allowed the enterprise to pay later or to pay according to a lower contribution tax rate.

To deal with these difficulties some areas are using a portion of the pooled pension insurance fund to assist enterprises unable to meet contributions. For example, in Guangdong, 1 percent of pension contributions is designated for use in assisting enterprises having financial difficulties within the local pool and 1 percent is transferred up to the province for redistribution across pools in the province, also to subsidize enterprises unable to fulfill contribution obligations [Nanfang ribao, 1993]. Shenyang, the provincial capital of Liaoning, established a life insurance company in 1989 in part to deal with this problem. This insurance company is providing 12 million yuan in loans to 215 enterprises which could not meet their pension fund obligations to the citywide pool [Gongren ribao, 1994]. According to regulations, all enterprises eventually are

Table 3. Enterprises Participating but Unable to Meet Obligations to Pension Pools, by Enterprise Ownership Status, 1994

	Total	State-owned	Urban collective	Foreign funded	Others
Number of enterprises	143,167	92,968	49,075	193	931
Share of all participating enterprises (percent)	22	22	28	2	3
Number of employees	20,519,168	15,549,824	4,820,287	68,339	80,718
Number of retirees	9,169,699	6,476,230	2,627,557	19,361	46,551
Unfulfilled pension obligation (thousand yuan)	10,374,110	6,979,270	3,291,600	30,170	73,070
Unfulfilled pension obligation per employee (yuan)	506	449	683	441	905

Source: China State Statistical Bureau and Ministry of Labor, 1995, p. 493.

required to pay off their arrears and the penalties for nonpayment. However, it is questionable whether most enterprises will ever be able to clear these arrears or whether the government will have to supply the funds. The problem appears to be worsening, with arrears nearly doubling in 1994 over 1993 [China State Statistical Bureau and Ministry of Labor, 1994].

The pension contribution rate levied on total payroll varies across pools but, in general, is quite high. Shanghai, with its low ratio of workers-to-pensioners, levies one of the highest rates--30 percent is paid by enterprises and another 4 percent by employees (Table 4). In contrast, Xian levies only 19 and 2 percent on employers and employees, respectively. The current structure of benefits requires a high contribution rate. Table 5 shows the tradeoff between the contribution rate and income replacement ratio for a simplified model of the basic pension system.[15] Under the current visage of the reformed pension system (upper part of Table 5), a contribution rate of over 30 percent will be required to provide pensioners with 90 percent of the current average salary if a positive balance is to be maintained in the pension reserve fund to the year 2025. Even if the income replacement ratio is reduced to 70 percent, the contribution rate must exceed 20 percent to keep the system solvent to the year 2025.

Table 4. Pension Contribution Rates by City
(percent of payroll)

City	Paid by Enterprise	Paid by Employee
Beijing	17-19	5
Shanghai	30	4
Xiamen	20	3
Guangzhou	24	3
Chengdu	22	2
Qingdao	25.5	3
Xian	19	2

Source: US-China Business Council in Stevenson-Yang, 1996, pp. 10-11.

Both the former system and the reformed system offer generous benefits with high income replacement ratios (about 80 percent) and relatively young retirement ages [West, 1996]. The ratio of the population in the working ages of 20-59 to the population aged 60 and over is projected to decline from 6.7 in 1995 to 5.0 in 2010 and to only 2.7 in the year 2025. Without significant changes in the retirement age, not only will the number of retirees explode, but the retirement period also will expand (Table 6). One possible change is to raise the retirement age for women to 60 and then gradually raise the retirement age for both men and women to 65. By

[15]See appendix for details on assumptions and projections of pension revenue and expenditure streams.

Table 5. Year in Which Pension Reserve Fund Becomes Negative

Closed Urban System				
Contribution rate	Income replacement ratio			
	.9	.8	.7	.6
.15	<1994	<1994	2000	2009
.20	2002	2009	2015	2021
.25	2014	2018	2023	>2025
.30	2021	2025	>2025	>2025
Open Urban System				
Contribution rate	Income replacement ratio			
	.9	.8	.7	.6
.15	<1994	<1994	2003	2013
.20	2006	2013	2019	2025
.25	2018	2023	>2025	>2025
.30	>2025	>2025	>2025	>2025

Note: <1994 indicates the pension system starts in a deficit position at the beginning of the projection period and remains negative. >2025 indicates that the pension system remains in a surplus position throughout the projection period (1994-2025). See appendix for details on the projection.

Table 6. Remaining Life Expectancy at Ages 60 and 65 By Sex for 1990, 2000, 2010, and 2020

	1990	2000	2010	2020
	(Years)			
Remaining Life Expectancy at age 60				
Total population				
Male	15.3	16.4	17.8	18.9
Female	18.2	19.4	21.5	22.9
Urban				
Male	16.1	16.9	18.4	19.4
Female	19.3	20.5	23.0	23.7
Rural				
Male	15.1	16.1	17.5	18.5
Female	17.8	18.9	20.6	22.3
Remaining Life Expectancy at age 65				
Total population				
Male	12.0	13.0	14.2	15.2
Female	14.4	15.6	17.5	18.8
Urban				
Male	12.6	13.4	14.7	15.6
Female	15.4	16.5	18.9	19.6
Rural				
Male	11.8	12.8	13.9	14.9
Female	14.2	15.2	16.7	18.2

Source: China Urban-Rural Projection, International Programs Center, U.S. Bureau of the Census.

the year 2020 life expectancy at age 65 will be comparable to life expectancy at age 60 presently (Table 6). While avoiding this topic, in the short run, may be necessary to garner support for reforms, it must eventually be addressed. It will become increasingly difficult to sustain the current levels of benefits in the future, and contribution rates already are high by international standards.

Reducing the income replacement ratio to 60 percent or lower in the near future is under discussion, with proponents arguing that the other two old age security pillars should fill in the gap. Under an income replacement ratio of 60 percent and a tax rate of 20 percent, pension expenditures start to exceed pension revenues in 2011 and pension fund reserves become negative in 2021, with the accumulated shortfall exceeding 1.3 trillion yuan by 2025. If participation in the reformed social basic pillar is expanded to include long term rural migrant labor and employees of township and village enterprises located near cities, the financing burden of the system is greatly eased because of the relatively young age structure of these workers and because they do not bring unfunded preexisting liabilities to the system. For any given income replacement ratio and contribution rate, the basic pension system remains financially viable for a longer period of time (lower half of Table 5). By expanding coverage, more maneuverability is available in setting the contribution rate or income replacement level.

CONCLUSION

China has made an excellent start in laying the foundation for a more stable old age security system. The new system includes what the World Bank [1994] refers to as multiple pillars, although the distinction between the public and private pillars remains unclear in China. The financing burden is being shared by employees, employers, and the government rather than being borne exclusively by the individual work unit. The framework for a defined contribution plan and partially funded defined benefit pension plans is set to replace a pay-as-you-go system. Also, pensions are being indexed to control the erosion of pension value by inflation.

Pension reform is incomplete and a number of important issues remain to be tackled in the short and longer term. In the short run, it is critical that regulations and supervision catch up with the new system. In common with other countries, China needs to safeguard pension funds and yet achieve sufficient growth to meet the demands of future retirees. Contributors and beneficiaries alike need to be assured that accurate records are being maintained and that funds are properly managed. In the longer term, expansion of coverage and benefit adjustments need to be considered. As China's economy continues to develop, "modernization" with all its ramifications and increased geographical mobility are weakening traditional forms of support in rural and urban areas.

If pension reform is to be successful, it is imperative that state-owned enterprise reform proceed. There are many aspects to state-owned enterprise reform, including the establishment of unemployment insurance, housing reform, and a determination of how to value and sell off state assets while preserving a portion of assets from bankrupt enterprises to cover pension obligations. Delay in completing state-owned enterprise reform runs the risk of the reformed pension system unraveling if the current need to bail out state-owned enterprises continues indefinitely. At the same time, a reformed pension system has an important role to play in increasing labor efficiency through labor mobility and thus enterprise efficiency. A financially sound and broad based old age security system is critical for the development of labor markets.

APPENDIX

Pension reserve funds are projected for the period 1994 to 2025 by modeling China's reformed pension system under a set of simplifying assumptions. Two parameters, the payroll tax rate and income replacement ratio, are then varied to test their effect on pension reserves. Pension revenues and expenditures are derived from a simple algorithm expressed in the following equations:

$$R_t W_t I = B_t$$

$$E_t W_t T = C_t$$

$$PR_t = \sum_{t=1994}^{t} (C_t - B_t)$$

where

- E is the number of employees participating in pension programs,
- W is the average wage received by current employees,
- T is the pension contribution tax rate
- C is revenue from pension contributions
- R is the number of retirees receiving pensions,
- I is the income replacement ratio,
- B is expenditure on pension benefits,
- PR is pension reserve funds.

The projection starts in 1994 with the actual number of employees contributing to pension programs and the number of retirees receiving pensions in 1994. The number of employees is projected to the year 2025 by applying the five year average annual growth rates for the urban population in the age groups 20-59 for males and 20-54 for females. The number of retirees are projected to the year 2025 by applying the five year average annual growth rates for the urban population aged 60 and over for males and 55 and over for females. For the closed urban system, these growth rates are taken from an urban population projection that allows only for natural increase in the population and assumes no migration and no reclassification of rural areas as urban. For the open urban system, these growth rates are taken from an urban population projection that allows for natural increase in the population as well as migration and the reclassification of rural areas as urban. Both sets of urban population projections are from the International Programs Center, U.S. Bureau of the Census. The simplifying assumption of full indexation of wages and benefits for inflation is made. Real wages are assumed to rise (through increases in labor productivity) at an annual rate of 5 percent during 1994-2000, 4 percent during 2001-2010, and 3 percent during 2011-2025. It is also assumed that retirees' benefits are adjusted for increases in real wages.

Appendix Table A1. Employee and Retiree Growth Rates Used in Pension Fund Projection

Period	Closed Urban Pension System		Open Urban Pension System	
	Employees	Retirees	Employees	Retirees
1994-1995	59	4.30	4.16	6.00
1996-2000	0.59	3.40	2.90	4.59
2001-2005	0.45	3.26	2.48	4.24
2006-2010	0.08	3.90	2.10	5.32
2011-2015	-0.42	3.70	1.47	5.09 1.
2016-2020	-1.04	3.61	0.86	4.64
2021-2025	-1.81	3.43	0.06	4.61

Source: Derived from population projections constructed at the International Programs Center, U.S. Bureau of the Census.

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