



The New Pensions in Kazakhstan: Challenges in Making the Transition

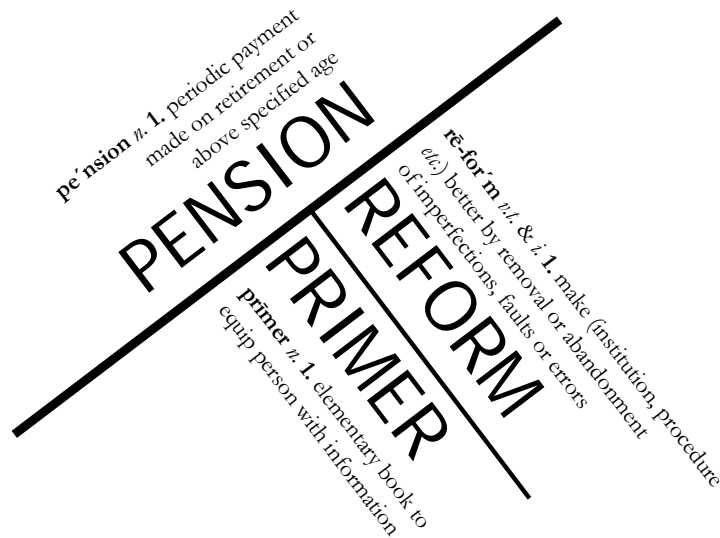
Richard P. Hinz, Asta Zviniene
and Anna-Marie Vilamovska

September 2005

The New Pensions in Kazakhstan: Challenges in Making the Transition

Richard P. Hinz, Asta Zviniene, and Anna-Marie Vilamovska

September 2005



Social Protection Discussion Papers are not formal publications of the World Bank. They present preliminary and unpolished results of analysis that are circulated to encourage discussion and comment; citation and the use of such a paper should take account of its provisional character. The findings, interpretations, and conclusions expressed in this paper are entirely those of the author(s) and should not be attributed in any manner to the World Bank, to its affiliated organizations or to members of its Board of Executive Directors or the countries they represent.

For free copies of this paper, please contact the Social Protection Advisory Service, The World Bank, 1818 H Street, N.W., Washington, D.C. 20433 USA. Telephone: (202) 458-5267, Fax: (202) 614-0471, E-mail: socialprotection@worldbank.org. Or visit the Social Protection website at <http://www.worldbank.org/sp>.

The New Pensions in Kazakhstan: Challenges in Making the Transition

Richard P. Hinz, Asta Zviniene, and Anna-Marie Vilamovska

Abstract

In June of 1997 Kazakhstan embarked on a dramatic reform of its pension system, replacing the inherited pay as you go regime with one based entirely on fully funded individual accounts. The paper provides projections of the effects of this reform on income replacement rates and considers some possible adjustments to the system design, including those enacted in early 2005, that could address the projected outcomes of the reform. The initial reform which did not include any minimum pension guarantee is projected to result in a significant reduction in the individual income replacement rates derived from the pension system, especially for women. When the reform was mature and the old system fully phased out, women are projected to have received pensions at level of less than 15 percent of their pre-retirement earnings. Various potential adjustments to the reform, including the recent introduction of a citizens pension or “demogrant”, are found to have the capacity to significantly raise these income replacement rates. The fiscal costs of alternatives are found to vary considerably due significantly to the degree to which they would target expenditures to lower income groups. The analysis of the original reform design and possible adjustments provides some useful lessons about the design of individual account systems in transition economies.

TABLE OF CONTENTS:

1. INTRODUCTION	4
2. THE 1997 REFORM: DESIGN AND OPERATION	5
2.1. Pension system coverage.....	6
2.2. Eligibility and payment of benefits	7
2.2.1. <i>General Regulations</i>	7
2.3. PAYG pension benefits.....	8
2.3.1. <i>Types of Benefits</i>	8
2.3.2. <i>The PAYG Benefit Formula</i>	9
2.4. Fully funded pension benefits	10
2.5. Social assistance pension benefits.....	10
3. PROJECTED OUTCOMES OF THE INITIAL REFORM DESIGN	11
3.1. Analytical background	11
3.1.1. <i>Economic Scenario for Projections</i>	11
3.1.2. <i>Demographic and Labor Market Dynamics</i>	13
3.1.3. <i>The PROST Model</i>	17
3.2. Benefit projections	18
3.2.1. <i>Benefits from the PAYG Component</i>	18
3.2.2. <i>Fiscal Impact of Phasing Out the PAYG System</i>	21
3.2.3. <i>Benefits from the Fully Funded Component</i>	22
3.2.4. <i>Combined Pension Income</i>	25
4. ANALYSIS OF ALTERNATIVE DESIGN PARAMETERS	27
5. CONCLUDING OBSERVATIONS	37
ANNEX I: PENSION BENEFIT FORMULA	40
REFERENCES:	42

1. INTRODUCTION

In June of 1997, a few short years after achieving independence following the collapse of the Soviet Union, the Republic of Kazakhstan embarked on a dramatic reform of its pension system, replacing the foundering pay as you go system inherited from the prior regime with an approach derived from the Chilean design of the early 1980's. Behind the bold measures of the reform were substantial arrears in the existing system, the inability to achieve meaningful progress in moving toward long term sustainability through more incremental means and powerful ideological pressures that had molded a "triangular economic development strategy" based on privatization, capital market developments and pension reform. The allure of the double digit returns and promises of fiscal responsibility that made Chile the darling of free market reformers the world over was reinforced by teams of "experts" from a variety of donor agencies to quickly launch the fledgling nation toward the leading edge of innovation.

Kazakhstan's new pensions took the primary design feature of Chile and carried it even further toward a pure privatization, freezing all accruals under the old system and moving workers of all ages immediately into the new system of mandatory individual accounts. Perhaps most significantly, the reform, as initially enacted, included no guarantee or floor on the level of retirement income that workers would attain through the proceeds from the new fully funded accounts, eschewing the return guarantees and minimum annuity levels that were among the less prominent but essential elements of the Chilean pension system and virtually all of the other similar approaches that have followed. Although the reform recognized accrued rights as earned to date, it simply terminated the old system on the first day of the New Year, rapidly phasing out payments as workers with acquired rights retire over the ensuing decades, with the residual system having little role within thirty years -- far more rapidly than will be the case in other countries.

In June 2005 the President of Kazakhstan signed into law several new measures that would provide, among other revisions to the pension system, for a "demogrant" or "citizen's pension" that is to be provided to all persons reaching retirement age regardless of work history or contributions to the pension system. This new basic pension is currently set at 3,000 tenge per month, about 40 percent of a subsistence income, and is scheduled to be adjusted on a yearly basis through the budget process reaching a target of 75 percent of subsistence sometime in the future. The new pension will be in addition to those earned under the residual old system and the new Fully Funded accounts.

Although significantly altered with the recent changes (that become effective on July 1, 2005), the unique nature of Kazakhstan's original bold experiment provides valuable insight into the dynamics of privatization and individual pension accounts. The reform isolates, to the greatest extent observable among recent reforms, the behavioral and income replacement effects of the individual account paradigm. Although the environment in which the reform has occurred, a country with considerable oil wealth, may limit to some degree the translation of the experience to other setting, Kazakhstan is sufficiently similar to other transition and developing economies to yield some useful lessons provided that they are taken in the appropriate context. There are now seven years of experience to consider and an opportunity to render an initial evaluation of what has happened and what the future may hold and what several alternatives to the recent changes could have had on the outcomes of the pension reform.

The following paper provides an evaluation of the design of the original reform and considers some of the potential approaches to addressing the issues raised by this review (including the recent changes) and the effects that several possible approaches to providing a guaranteed income floor within the pension system could be expected to have. The first sections provide an

overview of the design and operation of the original reform. This is followed by projections based on the World Bank's PROST model of the outcomes that this original design could be anticipated to have in terms of income replacement at retirement for successive cohorts of workers. This analysis illustrates the dynamics of the transition as the old system rapidly disappears and retirement income is increasing provided by mandatory fully funded individual accounts. This is followed by a section providing analysis of alternative design parameters that could potentially address some of the findings of the analysis of the initial system design and offering some observations about the lessons that can be derived from the experience of Kazakhstan to date.

2. THE 1997 REFORM: DESIGN AND OPERATION

Following the 1997 reforms old-age pension benefits would be provided through two elements – (1) the residual PAYG component that at present constitutes the major source of pension benefits; and (2) the new Fully Funded DC component now in its initial accumulation phase. The Fully Funded system will rapidly become the dominant source of retirement income with the PAYG system completely phased out within 40 years.

The reformed pension system began operation on January 1, 1998. At that time benefit accruals under the old system ceased and all workers were required to participate in the new system through mandatory contributions into the new individual pension savings accounts. Retirees continued to receive their benefits under the old system and workers who had accrued benefits prior to that date retained the right to receive those benefits on reaching their respective retirement age in the future. The residual benefits of the old system will be financed through the continued payment of a Social Insurance Tax of 21 percent of wages now applied to all workers (regardless of whether they had accrued any benefits under the PAYG system) that also finances several other types of social assistance and health benefits.

The new system utilizes a centralized collection and record keeping system. Employers are required to forward the Social Insurance Tax, contributions to the individual accounts and the associated identifying information to the State Pension Payment Center (SPPC). Although the Social Insurance Tax was earmarked for specific benefits this has lost meaning over time and the funds are now simply transferred to the general budget which allocates funds for the payment of benefits under the PAYG system to the same institution. Social Insurance Taxes and contributions to the Fully Funded accounts are excluded from salaries and wages for income tax purposes. Benefit payments from either type of pension are taxable as income.

Mandatory Fully Funded pensions are financed by a contribution of 10 percent of wages, allocated to individual accounts in the newly established Pension Accumulation Funds (AFs). Each employee is required to choose one AF to manage his/her pension savings. These contributions are collected by the employer and transferred on a monthly basis to the SPPC which subsequently re-directs the funds to the AF designated by the employee. The mandatory pension contributions cannot be paid by third persons¹ into the worker's account. Workers are permitted to supplement the mandatory contributions with voluntary contributions to the accounts. On reaching retirement age individuals who choose to continue working are exempted from the mandatory contributions. There are 15 private pension accumulation funds (NSAFs) and one

¹ For instance it is impossible for parents to pay pension contributions to the individual account of their unemployed children. This rule does not apply to voluntary pensions.

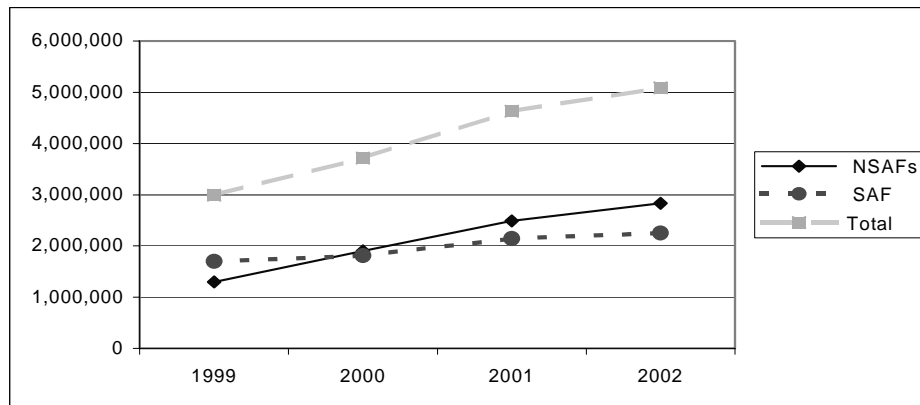
state accumulation fund (SAF) in Kazakhstan. The SAF was created as an alternative to the private funds and serves as a default AF for all who failed to designate a fund.

Initially, each NSAF was required to contract one Asset Management Company (AMC) for the day-to-day management of its portfolio, consistent with an investment strategy defined by the NSAF. AMCs were allowed to manage the assets of more than one NSAF. A recent change in regulations allowed AFs to manage accumulated assets on their own by creating asset management units within their administrative structure. This change acknowledged a general practice of common ownership for the AF and its AMC. This was also a step towards unification of the rules applied to the SAF and NSAFs. For the time being, however, AMCs continue to manage the assets of AFs. The general oversight of pension assets is entrusted to custodian banks.

2.1. PENSION SYSTEM COVERAGE

In 1996, the pension system covered about 5 million workers, out of a 7.8 million workforce². However, in 1998 when the pension reform was enacted, only 3 million individual accounts were created. The main reasons behind the sudden drop were the administrative problems the SPPC faced in creating the individual pension accounts and in assigning individual social insurance codes (SICs). Coverage rates are also likely affected by the relatively loose linkage between benefits and the overall Social Insurance tax which, in conjunction with a relatively high income tax rate creates strong incentives for under reporting of income and movement into the informal economy. According to estimates based on corporate reporting data and statistics of enterprises, in 2002 out of 6.7 million employed individuals only 2.9 million regularly paid Social Insurance Taxes³, yet data shows that it is reasonable to assume a pension system coverage rate for 2002 of more than 43 percent of the economically active population, with a large number of individuals paying contributions on an irregular basis (see Figure 1 for coverage dynamics).

Figure 1:. Number of Individual Pension Accounts in Kazakhstan, 1999-2002



Sources: Ministry of Labor and Social Policy, and National Bank of Kazakhstan

By international comparison, with average coverage rates of 59 percent for East Europe and the former Soviet Union and 81 percent for OECD countries, the pension system of Kazakhstan is

² Andrews, E. (2001) Kazakhstan: An Ambitious Pension Reform

³ S. Khakimizhanov, K. Mynbaev “Old age Poverty and Pension System in Kazakhstan, 2001”

small⁴. Two main factors account for this -- the persisting administrative difficulties in operating the individual accounts, and the existing disincentives for participation in the system. The division of regulatory functions among different institutions and the lack of regulatory experience, system supervision and information management capacities has led to numerous cases of contributors not being issued SICs or contributors having more than one account. For example, in early 2003 the SAF operated about 700,000 accounts with unidentified owners, many of who likely to hold accounts with one of the NSAFs. Anecdotal evidence also suggests that when workers switch pension funds⁵, their assets are not always transferred to the newly chosen fund, so some of the insured have more than one account. However, the most significant reason for the low coverage of the FF DC system is the tax regime -- the burden of what is effectively a 31 percent Social Insurance Tax rate on earned income is often considered too high a price to pay for participating in the system in light of the expected benefits. This also explains why current coverage rates are highest among urban formal sector workers, and lowest for farmers, self-employed, small entrepreneurs, and the temporarily unemployed.

2.2. ELIGIBILITY AND PAYMENT OF BENEFITS

The legal and institutional framework for the reformed system is set forth in the Pension Reform Act of 1998 which also set the terms for recognition of accrued benefits, and imposed the mandatory pension savings requirement. It was drafted to cover all aspects of the FF DC pension system. After its creation this law was amended on seven occasions by decrees in 1999, 2001, 2002, 2003 and most recently in 2005. However, certain important aspects of the pension system are still left unresolved. These predominantly concern the design of the payout phase of the pension system, the future of the minimum pension guarantee, and the prospective characteristics of social assistance pensions.

2.2.1. General Regulations

Eligibility

According to the Pension Law, citizens of the Republic of Kazakhstan, as well as non-citizens, permanently residing in the country, have the right to old-age pensions upon meeting the eligibility criteria. Retirement-age people who continue to remain employed are also eligible to receive pension benefits. As of July 1st, 2001 retirement ages are 63 years for men and 58 years for women. At that age contributors become eligible to receive both their PAYG pensions and gain the right to access the savings in their individual accounts under the Fully Funded system. The same age requirements generally apply to voluntary funded pensions, social allowance and survivorship pensions. Disability pensions are granted upon the certification of the person as a Group I or Group II handicap.

Payment of benefits

The State Pension Payment Center (SPPC) is responsible for paying PAYG pension benefits to all who reached retirement age and have paid the Social Insurance Tax for at least six months prior to January 1st, 1998. PAYG pension benefits are paid in equal monthly installments for life.

The payout phase for the fully funded pension benefits has yet to be fully developed. Currently retirees receive their accumulated funds as a lump-sum. The Law envisages that FF pensions (mandatory and voluntary) will be paid out as annuities through insurance companies. According to the Law, only a person who has funds sufficient to provide him/her with a minimum pension is

⁴ Palacios, R. and M. Pallarès-Miralles (2000) International Patterns of Pension Provision. Social Protection Discussion Paper No. 0009. The World Bank, Washington, D.C.

⁵ Large number of such switches is from SAF to one of the NSAFs

allowed to purchase an annuity. A regulation from July 2003 specifies that retirees whose individual accounts are less than 20 minimum pensions or less than 100,000 Tenge will receive their pensions as lump-sums. The Law also provides for inheritance of funds in individual accounts. Apart from these provisions no concrete arrangements are made (such as on the types of annuities to be offered and the annuity factor to be used).

State guarantee for pensions

The State guarantees pensions to all who retired prior to January 1, 1998. For those who retired after this date, and who have continued to work for at least three months following this initial implementation of the reform, the State guarantees that their PAYG pension benefits will be at least equal to the Minimum Pension (MPG). For the Fully Funded accounts, Accumulation Funds (AFs) are required to guarantee contributors that the real value of their contributions will be at least maintained, effectively ensuring that over the working life of contributors they do not incur a net negative return on aggregate contributions. The level of the MPG is set by the Government and adjusted on an ad hoc basis. As of June 1st 2003 the MPG was increased from 5,000 to 5,500 Tenge.

For accounts in the AFs, the Pension Law states that if the value of the account balance at the time of retirement is less than the aggregate level of contributions indexed to inflation, due to bad management on behalf of the AF, the Asset Management Company, or the custodian bank, the institution responsible is required to supplement the individual account of the retiree up to the real value of the contributions.

Indexation of benefits

PAYG pension benefits are supposed to be indexed on a regular basis to the consumer price index (CPI). Prior to the June 2003 general recalculation of PAYG benefits, which indexed all pensions to sector-specific wage growth, only minimum pensions were indexed to inflation on an ad-hoc basis.

2.3. PAYG PENSION BENEFITS

2.3.1. Types of Benefits

Full service old-age pension benefits

All men having a work record⁶ of at least 25 years and all women with a minimum of 20 years as of January 1 1998 are eligible to receive a full service old-age pension benefit from SPPC, upon reaching retirement age.

The Law provides for the following exceptions to this rule:

1. Individuals who have lived for at least 10 years in the extreme and maximum risk zones of the Semipalatinsk nuclear testing site, during the period from August 29, 1949, through July 5, 1963, are eligible for full old-age pensions as follows: men upon reaching the age of 50 and women upon reaching the age of 45 with minimum work experience of 25 years.
2. Women living in rural areas who have delivered 5 or more children and have brought them up to the age of 8 are eligible for pension upon reaching the age of 53.

⁶ The Pension Law of 1998 refers to “work (service) record”. For brevity we have adopted “work record”, to mean the same.

Partial old-age pension benefits

Partial old-age pension benefits are awarded to those citizens who do not meet the work record requirements for full service old-age PAYG pension benefits. The size of the pension benefit is adjusted to the number of years worked prior 1998.

Length-of service pensions

Military personnel and personnel of internal affairs bodies are eligible for length-of-service pensions if they are dismissed because of staff reduction or a health condition. Pension payments to military and internal affairs personnel with minimum 10 years of service as of January 1 1998, are calculated at the rate of 2.4 percentage points of the salary received for every year of service. For every year of military and internal affairs service beyond 25 years pension benefits are increased by 2 percentage points.

Rules on the work record for PAYG pensions

The length of the work record should be certified by a work record book, or alternatively by a court decision, or by documents on the payment of insurance contributions to an AF.

There are over twenty special cases for calculating work records, including provisions on child care, education, taking care of a handicapped person, seasonal labour, and activities during the Second World War⁷. Under these conditions the majority of those born before 1960 for women and 1955 for men are entitled to a full service PAYG pension.

2.3.2. The PAYG Benefit Formula

The Pension Law stipulates that for contributors with full service working history, pension benefits would be 60 percent of the average of the monthly salaries received during any three successive years of work, preferably after 1995 to minimize the impact of inflation. For each additional full year worked, over full service and prior 1998, one percentage point is added to the replacement rate, up to a maximum of 75 percent. The income base used to calculate the value of SPPC pensions cannot exceed 15-times the monthly base enumerate for the given year⁸, set at 13,080 Tenge in 2003 equivalent to about US\$90⁹.

Despite the legal requirement for PAYG pensions to be indexed to the average yearly CPI index, only the minimum pension has been adjusted periodically to inflation. Thus, due to the high inflation rates¹⁰, the real value of old-age pension benefits has gradually eroded to a point where within in a few years after retirement the majority of retirees were receiving minimum pensions.

⁷ When calculating the work history in the record, the following are treated as relevant:

employment as per labour agreements, including military service; business activity; child-care period of non-working mothers until each of the children reaches the age of 3, with the total period not exceeding 12 years; training at the secondary, higher, and post-graduate levels, vocational and professional training, both within and outside the Republic of Kazakhstan; taking care of a Group I invalid, a single Group II invalid or an old-age pensioner (over 80 years in need of assistance), as well as of an invalid child under 16 years injured by nuclear tests, ecological disasters, or infected with AIDS; disability period of non-working war invalids and persons equated to them; a period of unreasonable detention, or imprisonment, in case of subsequent rehabilitation, which is tripled in the record; work and military service in the areas neighbouring the Semipalatinsk testing site during the period from August 29, 1949 through July 5, 1963 (tripled in the record), and from July 6, 1963 through January 1, 1992 (multiplied by 1.5 for the record); other work, provided social insurance contributions were paid.

⁸ The monthly base enumerate (MBE) is an administrative number specified in the budget for calculating PAYG pension benefits. The MBE for 2003 was set at T 872.

⁹ Data relevant for 2003.

¹⁰ Period average inflation for 1998 was 7.1%, for 1999 – 8.3%, for 2000 – 13.2%, for 2001 – 8.4%, 2002 – 5.9%, and is expected to be 6.4% for 2003.

This imposed the need for a general PAYG old-age pension benefit indexation and an indexation of the pension assessment base.

In June 2003, the PAYG pensions of all who retired prior 2003 were subjected to a one-time indexation equal to the wage growth (until the end of 2002) in the specific branch where the retiree worked. This resulted in a 23 percent increase of the average PAYG pension. However, the formula employed for this recalculation placed a low cap on the maximum pension, leading to a large number of retirees receiving the maximum benefit.

The residual PAYG benefit formula is complex and utilizes several factors and coefficients related to the wage level, work history the level of wages in the sector of the economy in which workers were employed. The benefit formula after the June 2003 (on which the analysis in this paper is based) is presented in further detail in Appendix I.

2.4. FULLY FUNDED PENSION BENEFITS

Fully funded pensions are provided through mandatory and voluntary contributions. Whereas the mandatory pensions are funded by a 10 percent payroll tax (paid up to a ceiling of 75 times the minimum wage thereby covering virtually all earnings), contributors are free to decide on the size of their contribution to their voluntary pension savings.

Pensions from AFs are paid to contributors who have accumulated pension savings in their individual pension accounts upon attaining retirement age. Pensions are also paid when the contributor becomes unemployed and does not resume working, but has paid pension contributions for a minimum of 35 years and has reached the age of 55.

Pensions from voluntary pension contributions to non-state pension accumulation funds are paid upon fulfilling any of the following conditions:

1. Voluntary pension contributions have been accumulated for at least 10 years and the contributor has reached the age of 55. For certain categories, as determined by the Government, eligibility can be lowered to age 50;
2. Disability;
3. Loss of the bread-winner (the contributor to the AF);
4. The conditions for eligibility for a SPPC pension are fulfilled;
5. The conditions for eligibility for length-of-service pensions.

2.5. SOCIAL ASSISTANCE PENSION BENEFITS

Social assistance pensions, which include disability, survivorship and old-age social allowance pensions are provided by the State from the same 21 percent Social Insurance payroll tax which funds PAYG pensions. These may only be received by persons who have ceased working. Retirement-aged individuals can receive either an old-age pension or a social assistance pension, but not both.

According to the Pension Law, in addition to old-age retirement at the age of 58 for women and 63 for men, contributors can retire if they are certified as disabled, or if they suffer injuries which permanently prevent them from participating in the labor force. If, at the time of retirement due to disability, the pension system contributor has accumulated benefit rights for service prior 1998, he/she receives a PAYG pension which may be either a full pension, if the service requirements are met, or a partial pension. This pension may be substituted with a disability pension, if the latter is larger. If the disability retiree started working after 1998, and is not entitled to a PAYG

pension, then in the case of retirement due to disability he/she can receive their funded pension. Disabled retirees, who did not participate in the pension system (due to unemployment or because of young age), may be granted a disability pension benefit. In 2002, 17 percent of all social assistance and pension recipients received a disability pension. The 2005 law changes modified the nature of these benefits.

The old-age social allowance pension covers all who do not participate in the pension system. In 2002, 10.5 percent of pension recipients received a survivorship social allowance, and 0.7 percent – an old-age social allowance.

3. PROJECTED OUTCOMES OF THE INITIAL REFORM DESIGN

The reform of the pension system that was implemented in Kazakhstan in 1998 dramatically altered the way in which the pension system is organized and more importantly the process and patterns of benefit accruals and receipt. Although in principle the reformed system was modeled on the well known Chilean reform of the early 1980's, it differed in several key respects that give this reform its own distinctive results. The consideration of these unique features in relation to the anticipated outcomes of the new pension system, and in particular the dynamics of the transition to the fully funded system, provide some important lessons about the relationship of key design issues and outcomes that can inform and influence reforms in a variety of other settings. Among the most important of these distinctive features are the abrupt termination of new accruals in the old PAYG system (in contrast to the age specific cutoffs, or provision of choice to a transition cohort included in similar reforms) and the absence in the original reform of a minimum level of annuity guarantee for the new Fully Funded accounts. The remainder of this paper examines some of the projected outcomes of the reformed system based on the first 5 years of experience and considers some alternative designs that could address some of the key issues identified through this analysis.

The evaluation of the new pension system is conducted using the World Bank's Pension Reform Options Toolkit (PROST) model to evaluate the anticipated future benefits of the reformed pension system and provide information about the dynamics of the transition from the PAYG to the Fully Funded system. This analysis is focused on the level and distribution of benefits projected for retirees as the reformed system becomes fully implemented over the next 50 years. The analysis begins with a description of the economic scenarios on which the projections were based and discussion of the underlying demographic and labor market factors that will determine the future financing and benefits of the pension system. This is followed by a more detailed description of (i) projected benefits that considers the overall level and composition of benefits, (ii) their capacity to replace the earnings, (iii) benefits in relation to average earnings in future periods and (iv) the implied financing requirements of the reformed system. Anticipated benefits for future years are considered in the context of the value of benefits for new retirees for each year (the flow of new benefits) and also in relation to the benefits received by all retirees, including all those who retired in previous years (the stock of benefits).

3.1. ANALYTICAL BACKGROUND

3.1.1. Economic Scenario for Projections

The relevant period for the analysis of a pension reform is 50 to 75 years, the length of time that it will take for the new system to fully replace the old system and for the reformed system to mature

to the point that the dynamics of its benefits and financing can be reliably determined. This obviously makes the analysis highly sensitive to the underlying path and characteristics of the economy over a sustained period of time. Kazakhstan is undergoing a rapid economic transformation making the formulation of scenarios for the very long term a challenge. In this context several economic scenarios are possible, including the so-called “Dutch Disease” scenario of rapid growth inducing severe macroeconomic imbalances that lead to extended stagnation, or a sustained rapid growth in which wages and interest rates remain near the level of overall growth.

These two extremes however are unlikely and would make the main issues relevant for the evaluation of a pension system -- the value of savings and capital accumulation in relation to wages -- less relevant. Therefore, a mid range scenario of sustained, but moderate, growth was adopted incorporating the basic assumptions shown below. The sustained growth scenario is based on the experience of the non-oil sector of other resource-rich countries during periods of sensible economic policies and management. The scenario is intentionally conservative because its main objective is to highlight the key issues in Kazakhstan’s pension system rather than try to be an accurate prediction of Kazakhstan’s economic development.

Table 1: Economic Scenario

	2002	2006	2015	2025	2050
Real GDP Growth	6.2%	3.5%	3%	3%	3%
Real Wage Growth	6.2%	3%	2.5%	2.5%	2.9%
Real Interest on Individual Accounts	8.3%	8%	5.8%	5.8%	4.9%

Source: PROST input file for Kazakhstan

The projections of the conversion of pension savings account balances into retirement income are made using gender specific life expectancy tables. Although no policy decision has been made regarding the annuity payout from the system, the results are presented in this way to demonstrate the dynamics of the transition to the new system because of the gender difference in longevity at retirement. The assumptions on which the projections are based are presented in Tables 2 and 3, and Figure 2.

Table 2: Assumptions for Projections

PAYG Pension Indexation	to inflation
Funded Pillar Annuity Indexation	to inflation
Minimum Pension Indexation	to wage growth
Social Pension Indexation	to wage growth
Maximum Pension Indexation	to wage growth
Average Length of Service at Retirement (males)	36 years
Average Length of Service at Retirement (females)	28 years
Decrease in Interest Rate at the Decumulation Phase	1%

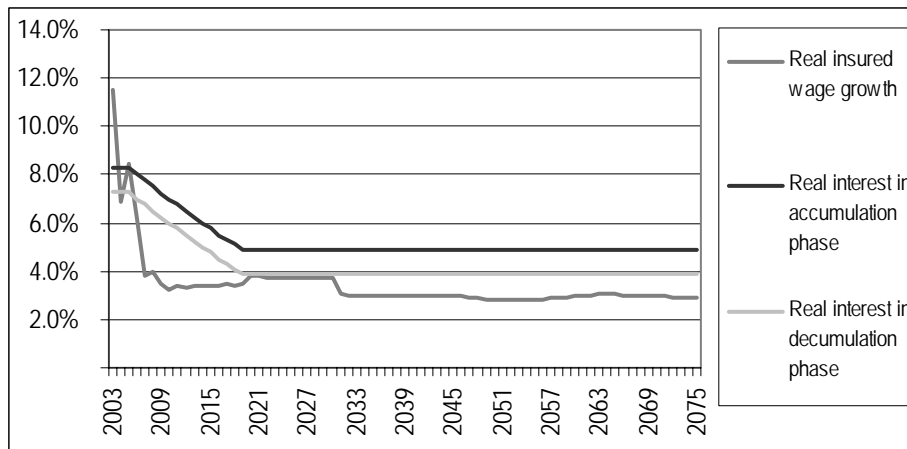
Source: PROST input file for Kazakhstan

Table 3: Macroeconomic Assumptions for “Sustained Growth” Scenario

Year	Real GDP Growth	Real Wage Growth	Growth of Total Number of Contributors	Inflation Rate	Real Interest on Individual Account
2003	6.2%	6.2%	0%	5.7%	8.3%
2004	5.5%	5%	1%	5.7%	8.3%
2005	4.9%	4.4%	1%	3%	8.3%
2006	3.5%	3%	1%	2%	8%
2007	3.6%	3.1%	1%	2%	7.8%
2008	3.1%	2.6%	1%	2%	7.5%
2009	2.9%	2.4%	1%	2%	7.2%
2010	3.1%	2.6%	1%	2%	7%
2011	3%	2.5%	1%	2%	6.8%
2012	3%	2.5%	1%	2%	6.5%
2013	3%	2.5%	1%	2%	6.2%
2014	3%	2.5%	1%	2%	6%
2015	3%	2.5%	1%	2%	5.8%
2016	3%	2.5%	1%	2%	5.5%
2017	3%	2.5%	1%	2%	5.3%
2018	3%	2.5%	1%	2%	5.1%
2019	3%	2.9%	1%	2%	4.9%
2050	3%	2.9%	2%	2%	4.9%

Source: Authors` calculation

Figure 2: Real Wage and Real Interest



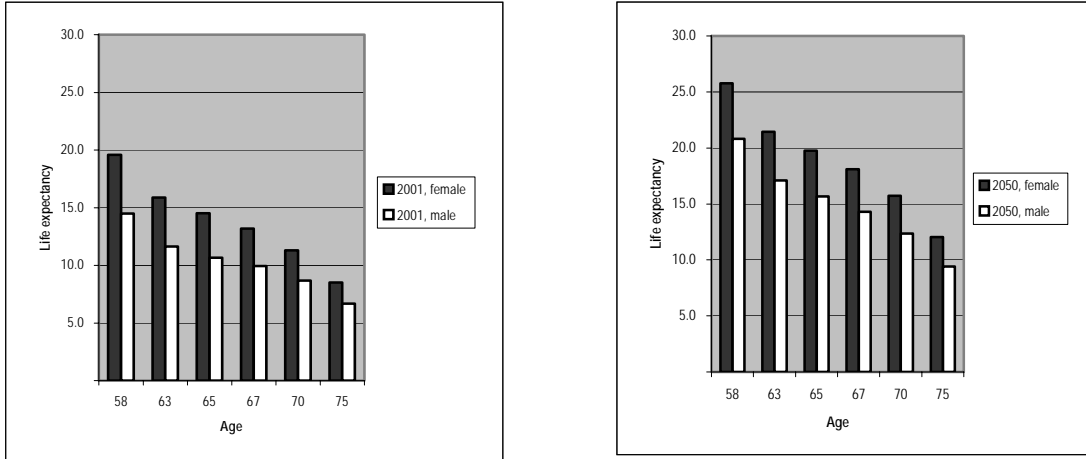
Source: PROST input file for Kazakhstan

3.1.2. Demographic and Labor Market Dynamics

As is the case with most of the transition economies in the region, Kazakhstan is undergoing fundamental demographic changes. During the 1980s the demographic structure of Kazakhstan largely facilitated a PAYG pension system as the share of retirement-aged people was much smaller than that of those actively participating in the work force. Towards the end of the decade this began to change rapidly as increased longevity and falling fertility began the process of population ageing.

While fertility rates are expected to stabilize at current levels, life expectancy at retirement is projected to continue to increase -- up to almost 26 years in 2050 for women at the age of 58 years for women, and 17.1 years respectively for men at 63 (see Figure 3).

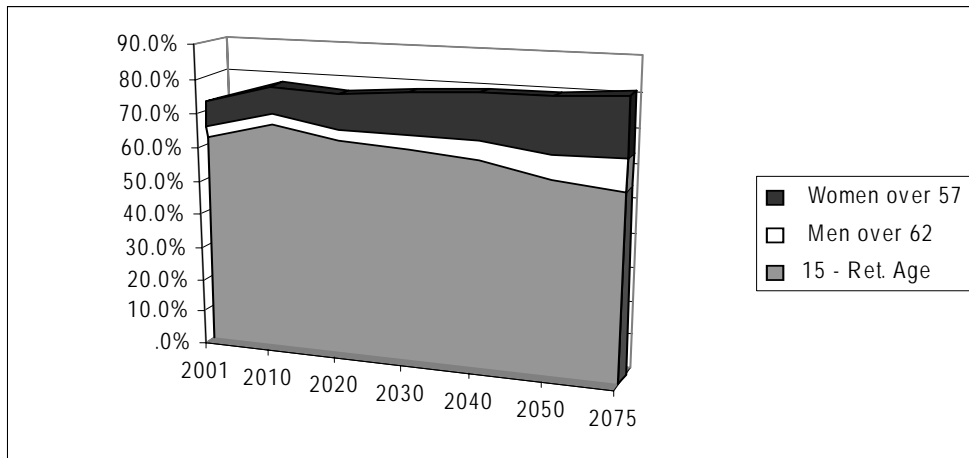
Figure 3: Life Expectancy at Attained Retirement Age, 2001 and 2050



Source: PROST input file for Kazakhstan

Driven by the longevity increases beginning in about 2010 the age structure of the population will start to change significantly as the share of the retirement age population increases from 10 percent to 29 percent by 2075, as shown in Figure 6 below. To a large extent this transformation will be the result of a rapid increase in the share of retirement age women. In 2001 they constituted 7.7 percent of the general population, and retirement-age men -- 3.1 percent. It is expected that in 2075 17 percent of the general population will be retirement-aged women, while retirement-aged men will be 9.4 percent of it.

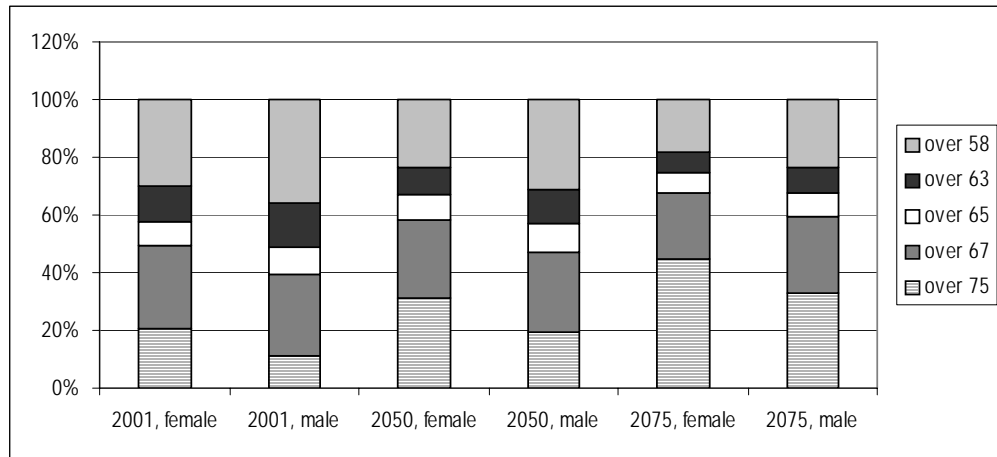
Figure 4: Demographic Structure of Population



Source: PROST input file for Kazakhstan

A key element of this will be a large increase in the proportion of very elderly women, most of whom are likely to be widows due to higher mortality rates for men at equivalent ages throughout the period. For example, while in 2001 only 11 percent of retirement-aged men were older than 75 years, 20 percent of retirement-aged women were over 75. Figure 5 shows the further evolution of these numbers -- to a point when in 2050 women over the age of 75 make up 31 percent of all elderly women (for men the corresponding figures is 19).

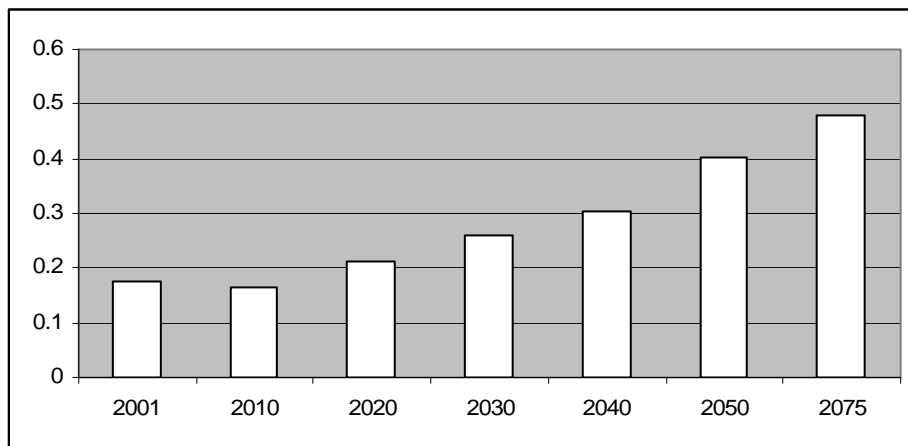
Figure 5: Demographic Structure of Retirement-Aged Population



Source: PROST input file for Kazakhstan

The main outcome of this demographic transformation is a steady increase in dependency ratios (see Figure 6) -- although in 2001 retirement-aged people constituted 17.4 percent of Kazakhstan's population, in 2030 this will increase to 30 percent, and in 2070 will rise to 48 percent.

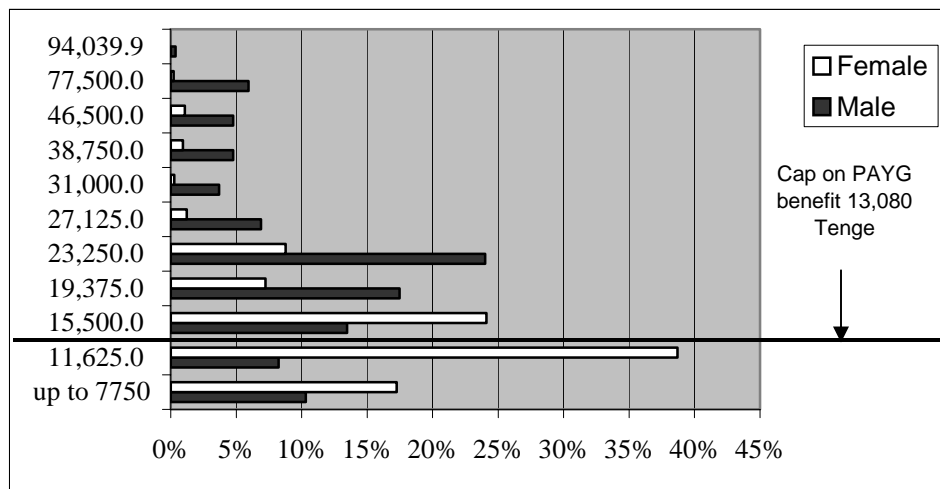
Figure 6: Share of Population Above Retirement Age



Source: PROST input file for Kazakhstan

In addition to these demographic dynamics, expected changes in the labor market are the other set of factors having a key bearing on pension system outcomes. Here, of particular relevance are the anticipated wage structure, as the pattern of earning levels impact the amount of contributions accumulated in FF accounts, as well as the wage base on which FF pensions are calculated. Figure 7 shows these for 2001. It clearly illustrates the gender wage differential characterizing the labor market in Kazakhstan -- a phenomena unlikely to change in any significant degree over the projections horizon. Female earnings average 57 percent those of men with average male earnings of 21,887 Tenge compared to 12,444 Tenge for women. Figure 7 also shows that women are concentrated in the lower quintiles of the earning scale, compared to the broader distribution for men. Furthermore, current data indicate that 55 percent of women earn income lower than the cap placed on the wage base for the calculation of PAYG benefits, compared to 20 percent of men. All of these factors will have significant consequences for the dynamics of the transition to the Fully Funded system, suggesting that the value of accumulations in the individual accounts of women can be predicted to remain significantly lower, on average, than that of men.

Figure 7: Wage Distribution of Population in 2001



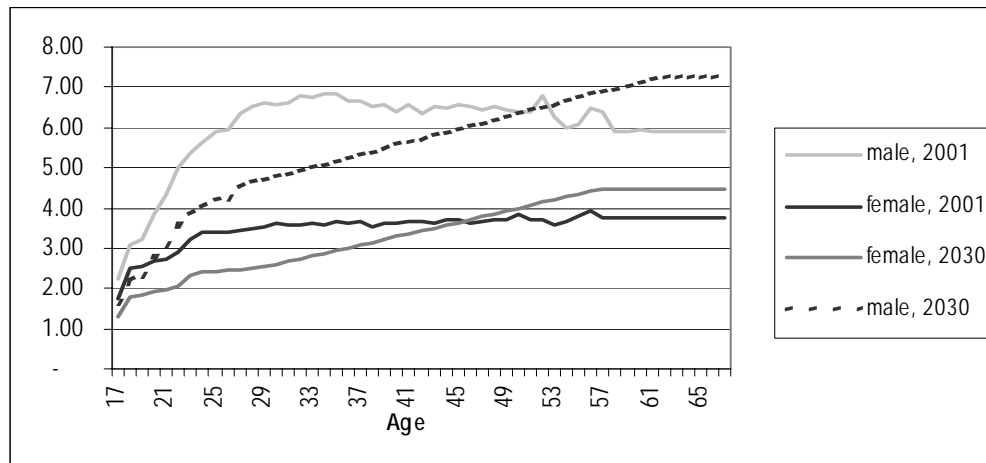
Source: PROST input file for Kazakhstan

The last factor to be considered determining for pension system outcomes is the distribution of wages by age. Kazakhstan is anticipated to undergo a transition in the age profile of earnings similar to that of other transition economies in which the current flat age-earnings profile is gradually replaced by a positively sloped pattern that provides about a one percent real wage increase with each year of age. Figure 8 illustrates the current and expected age-earnings profile used in the modeling, expressed in multiples of the minimum wage. The assumed age-wage profile results in significantly lower wages in the early years of work and higher levels at older ages. The evolution over the transition period of the wage profile in conjunction with the transition in age composition of the population also results in varying relationships of average wages to assumed interest rates that affect the projections.

The above-described demographic and labor-market dynamics also have a range of impacts on projected pension outcomes depending on the measure used for evaluation. The pattern shown below, as it implies higher wages at older ages and lower wages (and therefore contribution levels) early in the working life, make for a relatively conservative estimate of the capacity of the Fully Funded system to replace income at retirement. Although there is great uncertainty about the future path of wage growth in Kazakhstan, this assumption was used to provide a reasonable,

but cautious, assumption of the outcomes of the reformed system. The sensitivity of the assumption on the results of the projection is briefly discussed in along the presentation of results. In general it was not deemed to alter the nature of the findings, hence alternative age-wage profiles have not been incorporated into the analysis.

Figure 8: Current and Future Average Wage by Age (in terms of minimum wage)



Source: PROST input file for Kazakhstan

3.1.3. The PROST Model

To estimate the benefits that the original design of the reformed pension system would have been expected to yield over the next 75 years, the macroeconomic projections for the sustained growth scenario and the underlying wage and demographic projection, as well as the characteristics of the two elements of the pension system were applied to the World Banks' Pension Reform Options Simulation Toolkit (PROST) model. The simulations illustrate the likely path and dynamics of the benefits that will be derived from both the PAYG and Fully Funded components, and provide a framework for the evaluation of the overall benefit levels, their distribution and likely fiscal consequences. These in turn provide the basis for the formulation of policy measures aimed at improving the performance of the pension system.

It is important to keep in mind the simulations undertaken were only for a static projection of the development of the pension system. Exogenous demographic and economic inputs were used and there was no attempt to estimate interactions that might occur between the parameters of the pension system and the underlying labor market or demographic characteristics. For example, there is no attempt to estimate the effect of the pension system reform on the prevalence of work in the informal sector or any interactions between the increasing reliance on Fully Funded pensions and future benefits levels on labor supply decisions.

Although the path of wages in the formal economy is projected to move gradually from the current to future distribution, as discussed previously other aspects of the labor market are held static. Workers in the formal economy are assumed to retire at the current eligibility ages while informal sector workers are assumed to accrue no additional pension rights and to consequently become eligible for social assistance benefits.

Furthermore, the modeling did not allow for labor mobility between the formal and informal sectors, or for fragmented or interrupted careers. By holding these underlying parameters constant the projections are intended to isolate and highlight the effects of the pension system design.

3.2. BENEFIT PROJECTIONS

The future benefits of the pension system will be comprised of a changing mix of those derived from the gradually phasing out PAYG system and those from the new Fully Funded accounts. Presenting the PAYG component in isolation first followed by the projection of benefits from the FF accounts illustrates the contribution of both elements to the pattern of benefits that are observed over the transition and when the new system is fully in place. This provides the opportunity to identify some of the key issues that will determine the overall effect of the reform.

3.2.1. Benefits from the PAYG Component

The 1998 pension reform would eventually transform Kazakhstan's pension system from one based on the PAYG principle, to one in which pension benefits originate from the assets accumulated in individual accounts. As the entitlements to PAYG old-age benefits of the younger cohorts decrease, the PAYG component will be gradually phased out. The PAYG component is expected to completely disappear around 2043. During the intervening period retirees will receive their benefits from a combination of the two sources -- the PAYG and the FF schemes.

Two methods are used to evaluate the value of pension benefits. The first measures benefits in comparison to the final gross wage of retirees. This provides a measure of the capacity to replace consumption. The gross wage replacement rate represents a conservative approach to this type of measure because marginal tax rates are likely to be lower after retirement thus enabling a lower gross replacement rate to support a somewhat higher net consumption level. This approach was used to simplify the calculations and due to considerable uncertainty regarding future tax rates. The results should be interpreted with this important caveat in mind. The second measure compares the pension received with the average gross wage in the economy. This indicates the extent to which benefits keep pace with a broader measure of earnings, related to overall economic growth, and provides a more general measure of pension outcomes, one that can be a potential indicator for the political economy of the reform.

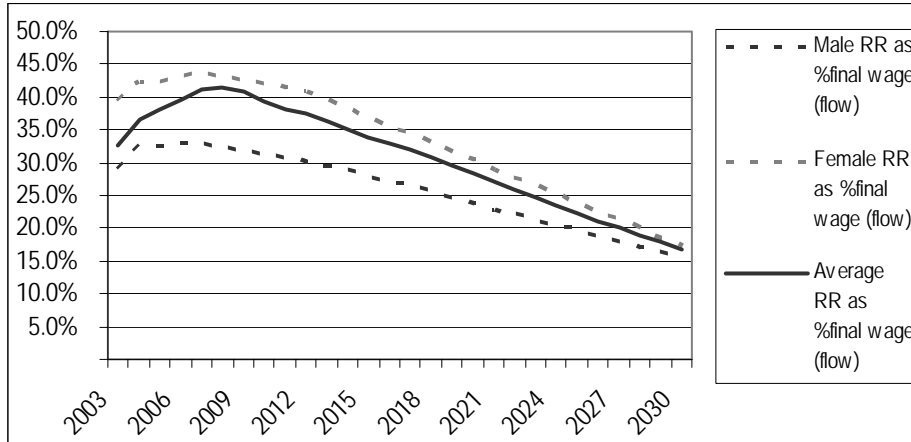
Measures of pension outcomes are presented in two ways -- one that applies them only to new retirees in a given year (the flow of beneficiaries) and the other that applies them to all retirees remaining alive in the year (the stock of beneficiaries). It is assumed that residual PAYG benefits will be indexed to inflation, a rate lower than the nominal growth of wages. Consequently, over time the value of these benefits erodes relative to the average wage.

Preliminary sensitivity analysis indicates that the net effect of a flatter age-wage profile (previously discussed in the context of assumptions) would be to raise projected income replacement rates by about 15 percent in regard to final wage and 30 percent in relation to average wage. This is a rough way to estimate an alternative upper bound of a reasonable projected replacement rate. A final wage replacement rate of, for example, 20 percent may therefore be interpreted to represent a range of 20 to 23 percent depending on what path of wage distribution is assumed for the future. A 20 percent of average wage replacement rate represents a range of 20 to 26 percent.

Figure 9 below shows the value of PAYG benefits in terms of the gross wage replacement rate for new retirees. It illustrates that among new retirees, women currently receive benefits that replace 42 percent of their last year's wage, compared to a 32 percent replacement rate for the average new male pensioner. As the PAYG system is gradually phased out these replacement rates decline to 17 percent for women and 15 percent for men by 2030. The higher female replacement rates are largely a function of the presence of the Minimum Pension Guarantee (MPG) within the PAYG system that raises the implied replacement rates for a large proportion of women. This occurs due to the heavy concentration of women in the lower wage groups, as can be seen in the

income distributions discussed earlier, for which the old PAYG formulas would provide benefits below the minimum guarantee level that subsequently raises women’s expected replacement rates.

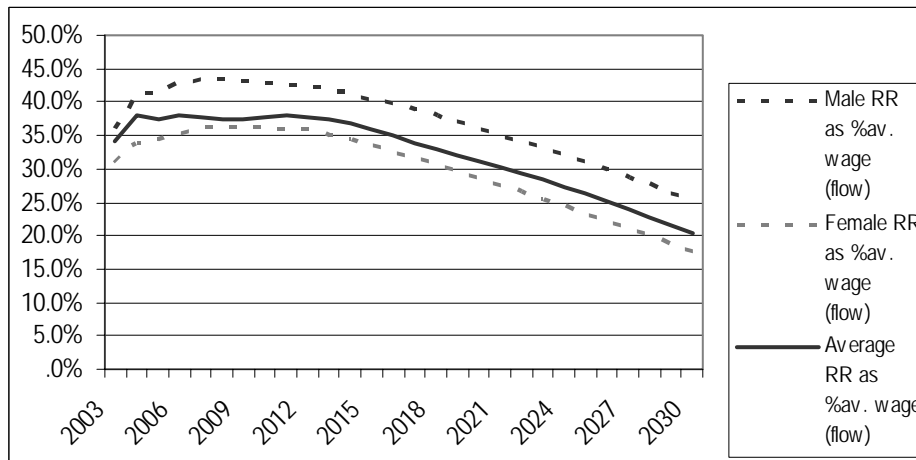
Figure 9: Replacement Rates of New PAYG Pensions, Relative to Final Wage (flow)



Source: PROST output file for Kazakhstan

A similar pattern of declining wage replacement rates is seen if new retirees for the year are compared to average wages (see Figure 10). This delivers the same rapid drop in the value of benefits beginning in 2015 when new retirees no longer have the full 20 or 25 years under the old system. What is notable about the difference between the two measures is that the relative position of men and women is reversed. This is because although women have high income replacement rates resulting from the MPG -- which they are more likely to receive -- their earnings are well below the average of all workers, thus resulting in pension benefits that are low when measured in comparison to overall average earnings.

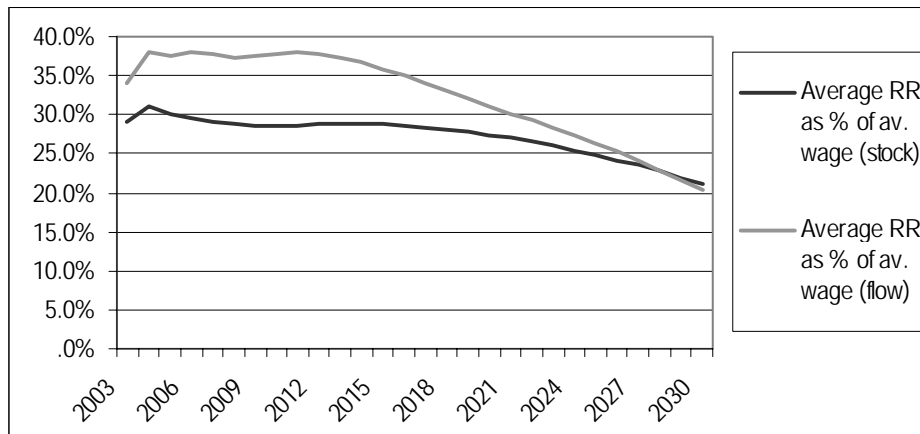
Figure 10: Replacement Rates of New PAYG Pensions, Relative to Average Wage (flow)



Source: PROST output file for Kazakhstan

Comparing the benefits for new retirees (the flow measure) to the stock of existing retirees is more instructive about the nature of the transition. As shown in Figure 11 there is a full 10 percentage point differential (40 percent compared to 30 percent until 2011) between new retiree’s benefits in relation to average wages in comparison to the replacement rate for the larger group (or stock) of all retirees, with both showing the rapid decline to less than 25 percent in the period from 2015 to 2025.

Figure 11: Replacement Rates of PAYG Pensions, Relative to Average Wage

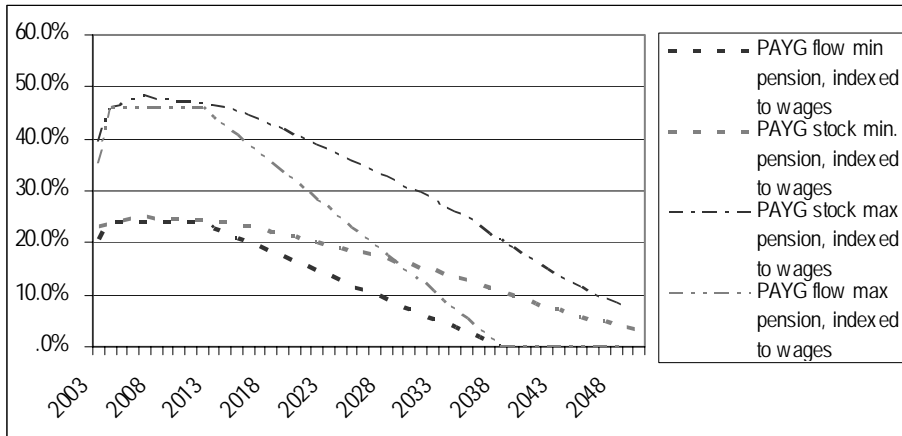


Source: PROST output file for Kazakhstan

This pattern of the phase-out illustrates several key aspects of the PAYG system that are very important in understanding the implications of the transition to the Fully Funded system. Perhaps the major one is that the distribution of benefits among men and women is far more compressed than the underlying wage distributions. This happens because male pension benefits (and replacements rates overall) are constrained by the method of calculating benefits that limits the reference wage to 15 times the administratively established Monthly Wage Enumerate. This effectively caps the benefits of many male pensioners well below what they otherwise would receive under the 60 to 75 percent of earnings formula. At the same time the Minimum Pension Guarantee raises the benefits of low earning workers well above what they would have received. The net effect is a compression of what would otherwise be a large disparity by gender in pensions relative to average wages.

This role of the MPG, maximum pension cap and the rapid rate at which they are phased out is shown in Figure 12 below. Minimum and maximum pensions for youngest pensioners (flow of pensioners) will decline more rapidly, due to their lesser participation in the pre-reform PAYG system. Older existing pensioners would still have a right to higher portion of unreduced minimum and maximum pensions which would result in “average” minimum pension declining at a slower pace.

Figure 12: Gender Distribution of Minimum Pension



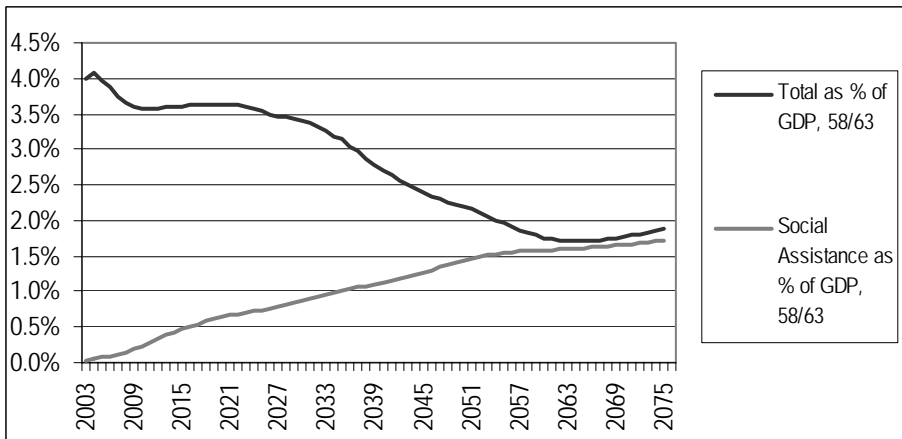
Source: PROST output file for Kazakhstan

3.2.2. Fiscal Impact of Phasing Out the PAYG System

The fiscal impact of the gradual elimination of the PAYG pension component and the rise in social benefit payments due to drop in formal coverage are presented in Figure 13 in terms of GDP share, and in Figure 14 as a percentage of the wage bill.

Total payments of old-age PAYG benefits currently are close to 4 percent of GDP. These will stabilize around the level of 3.5 percent of GDP in the period 2010-2030. After 2030 these expenditures can be expected to rapidly fall to below 2 percent of GDP when they will be largely comprised of the anticipated social assistance benefits for the large proportion of workers who are not participating in the FF system. Social assistance benefits will account for nearly all of the anticipated PAYG costs by the year 2050.

Figure 13: Pension Costs as Share of GDP

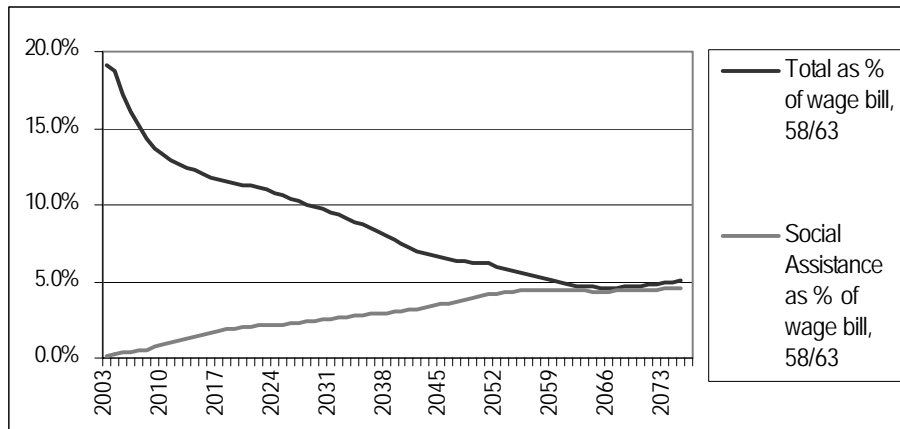


Source: PROST output file for Kazakhstan

If calculated as a share of the wage bill, total costs are currently just below 21 percent of wages - a level consistent with the Social Insurance Tax (see Figure 14). PAYG pension payments will rapidly begin to decline with total pension costs falling to below 5 percent of the wage bill by the

time the transition is fully effectuated. This demonstrates the significant scope for either a reduction in the Social Insurance Tax or the re-allocation of some portion of the expenditure portfolio to other pension initiatives. The decline is projected to be sufficiently large to accommodate elements of both of these proposals.

Figure 14: Pension Costs as Share of the Wage Bill



Source: PROST output file for Kazakhstan

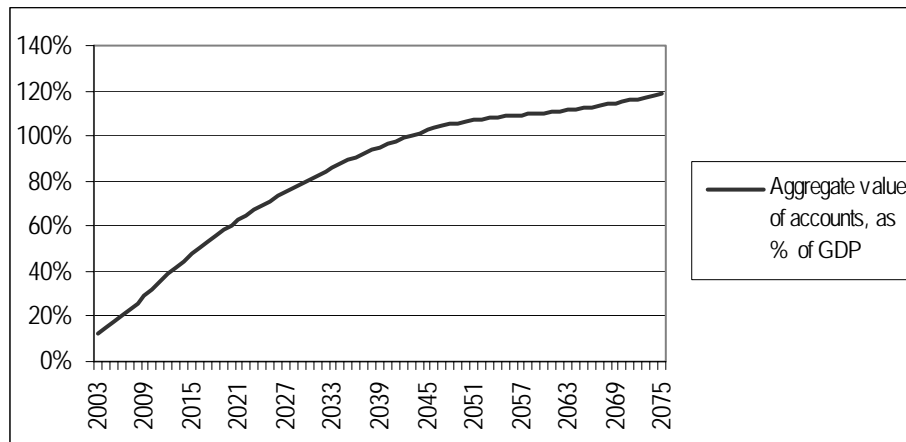
Both comparisons, however, clearly show that expenditures on social assistance increase rapidly with the phasing out of the PAYG component. This is primarily due to the lower expected coverage of the FF pension system, which is projected to reach about 53 percent of the economically active population, in contrast to the current 90 percent coverage of the PAYG component. At that point the social assistance program is expected to cover about 35 percent of the retirement-aged population -- people who will be left out of the FF system. Thus, spending on the social assistance programs is expected to rise to 1.5 percent by 2050. When measured as a share of the wage bill, these expenditures increase to almost 5 percent in 2050.

3.2.3. Benefits from the Fully Funded Component

By 2020 the new cohorts of retirees will no longer have the full years of service, entitling them to receive complete old-age PAYG benefits, and the importance of the funded pensions will rapidly increase. However, the share of the funded pension within the total pension benefit will become dominant eventually only for men. In the case of women, despite the decreasing value of the PAYG benefit (in terms of the average wage) and the decreasing entitlement to full service PAYG pensions, the PAYG benefit will continue to be the main element in their total pensions for a longer period. This will be caused by the lower value of accumulated assets in the individual accounts of women -- attributable to shorter contribution periods and the gender gap in earnings.

The growth of the Fully Funded system at the aggregate levels is shown in Figure 15 which presents the value of mandatory individual accounts as a share of GDP. While in 2003 the aggregate value of these accounts is only 13 percent of GDP, in 2011 it is projected to be 35 percent, and reach 96 percent by 2040. The slower growth of the funds after the year 2045 occurs because of the retirement of the cohorts that benefited from the rapid wage growth and higher interest rates during the initial transition years providing them with a relatively higher value of their accounts that leave the system when they begin to enter retirement.

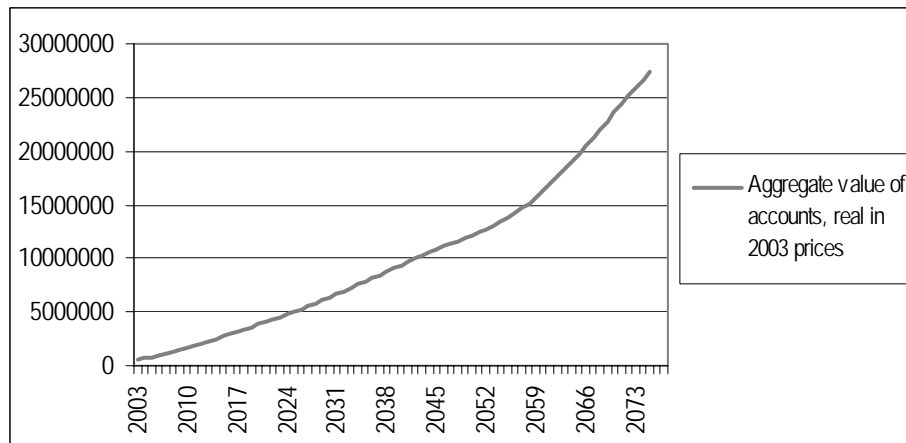
Figure 15: Aggregate Value of Accounts as Share of GDP



Source: PROST output file for Kazakhstan

The growth in the aggregate value of individual accounts in real 2003 prices is shown in Figure 16 indicating the steadily increasing value of the assets of the FF system. In 2040 the value of individual accounts is projected to be 9,374 million Tenge rising to 19,788 Tenge by 2065.

Figure 16: Aggregate Value of Accounts in Real 2003 Prices, Tenge

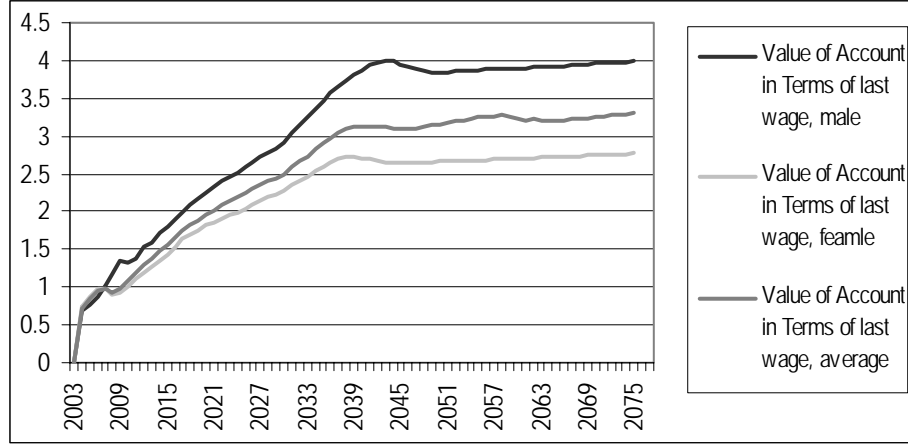


Source: PROST output file for Kazakhstan

In contrast to the aggregate numbers, Figure 17 shows the value of the average individual account at retirement age expressed as a multiple of the final wage, an indicator of the capacity of the savings accounts to replace income. This shows a moderate rate of increase across the transition period and a flat level of values after 2040 that contrasts with the sharp decline in the value of PAYG benefits. The average account at the fully mature stage of the system will be only slightly more than 3 times the final wage, indicating a low capacity to replace earnings over retirement periods that will average more than 17 years for men and just under 26 years for women by 2050. It also illustrates the effect of the gender disparity in earnings and shorter work periods of women on the accumulations in the accounts. It should of course be noted that this outcome is a direct consequence of the established 10 percent of wage contribution level. A similar financing stream

provided to a Pay as You go or mixed financing arrangement would yield a similar aggregate flow of benefits.

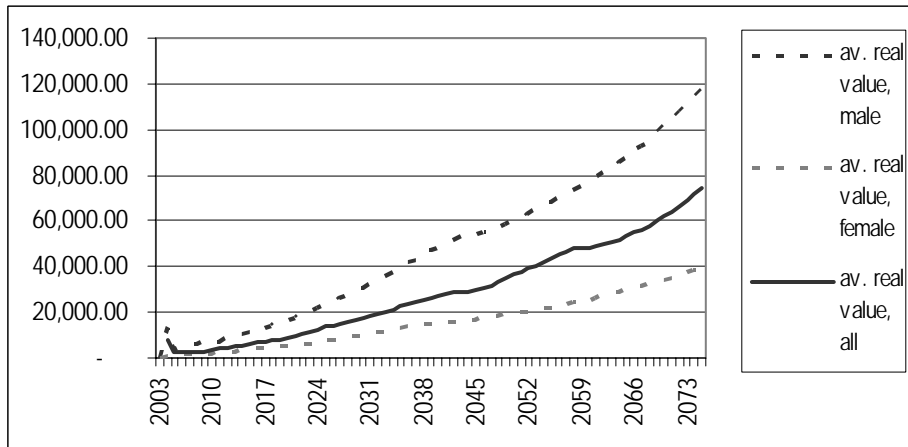
Figure 17: Average Value of Account at Retirement, Relative to Final Wage



Source: PROST output file for Kazakhstan

The effect of the relationship between longevity and the anticipated value of individual accounts is clearly illustrated when the account balances are converted into an implied annuity value. Figure 18 shows the average real value of annuities that could be derived from the account balances. This indicates that the FF system will produce a steadily increasing real value of retirement income. It also shows the degree to which the value of these income streams for men and women rapidly diverge, in contrast to the outcomes observed for the residual PAYG system.

Figure 18: Average Real Value of Annuity in Terms of Real 2003 Prices, monthly Tenge

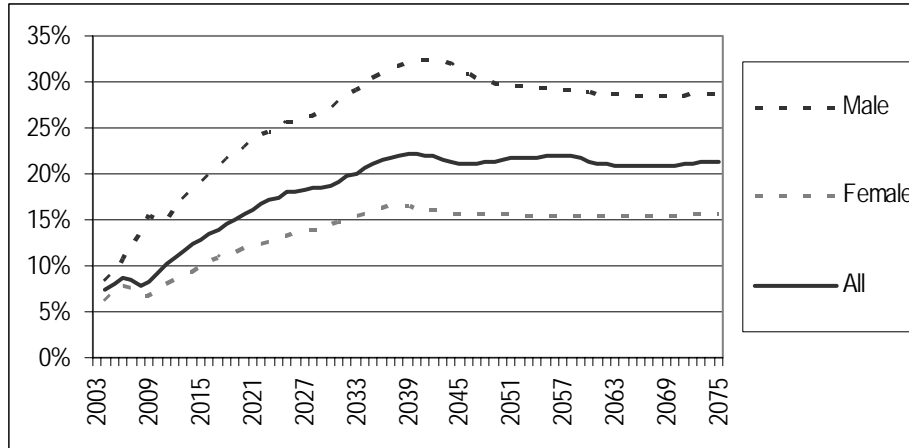


Source: PROST output file for Kazakhstan

A somewhat different outcome, however, is seen when these values are converted into a gross income replacement rate as shown in Figure 19. When compared to the final wage of the retirees, the value of the annuities that the projected individual account balances would produce does not exhibit such sharp and uninterrupted growth. Indeed, they reach a steady state around 2043 in the

case of women when they replace 15 percent of the last wage, and 2059 in the case of men, when they replace 28 percent of the last wage.

Figure 19: Average RR from Annuity in Terms of Last Wage, by Gender

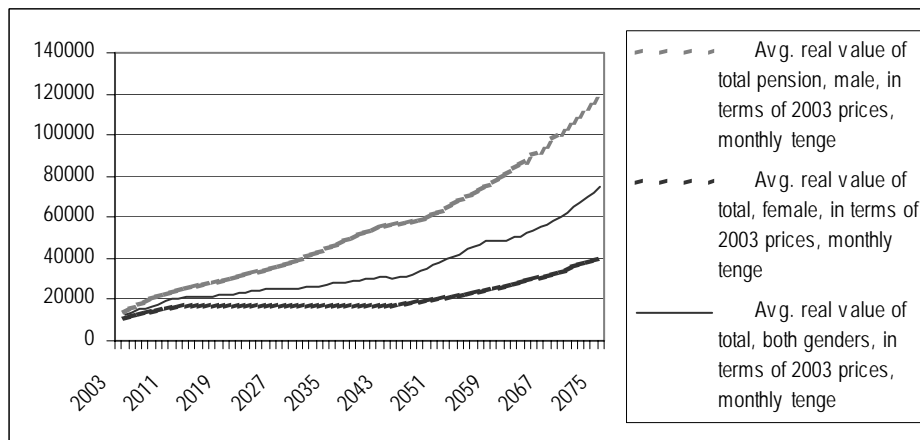


Source: PROST input file for Kazakhstan

3.2.4. Combined Pension Income

The net effect of the transition to the reformed pension (without the addition of the recently enacted demogrant) can be seen by combining the information on the phase out of PAYG benefits with projected annuities values derived from the FF system. Again in terms of real values total incomes of retirees are expected to steadily increase as shown in Figure 20. The purchasing power of these benefits is constantly increasing and in the future retirees will enjoy a larger absolute consumption value than they do today. As with other aspects of the system the level and rate of increase is significantly higher for men.

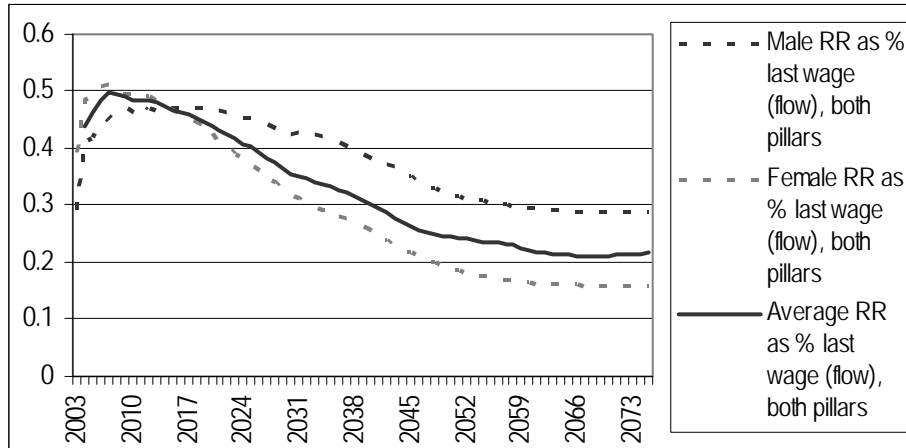
Figure 20: Average Value of Total Pensions in Real 2003 Prices



Source: PROST output file for Kazakhstan

An entirely different and far more indicative outcome is seen when the value of the total benefits is measured as share of the final gross wage in Figure 21. Here it is shown that the earnings replacement value of future total benefits will actually decline over time as the rate of increase in the FF component is not sufficient to fully offset the greater rate of decline experienced in the PAYG system. Average benefits decline from about 50 percent for all new retirees in the early transition to just over 20 percent by 2060. The decline is even steeper for women who drop from more than 50 percent in 2006 to about 16 percent by 2057.

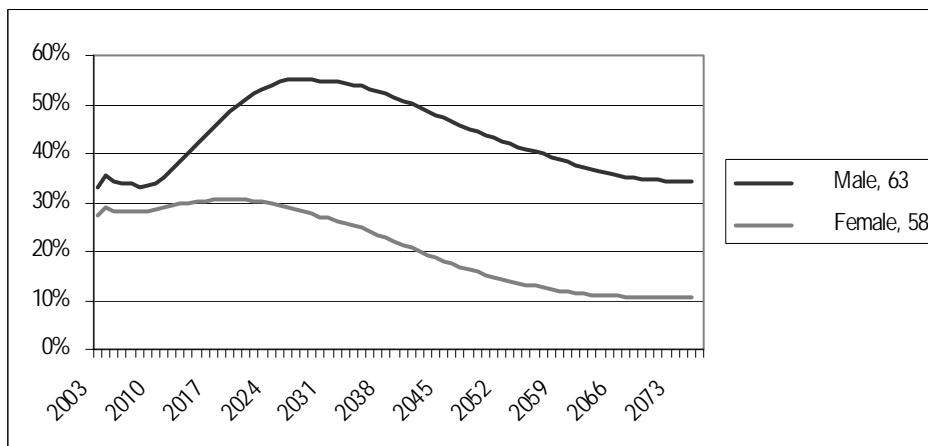
Figure 21: Replacement Rates for Total New Pension Benefits, Relative to Final Wage



Source: PROST output file for Kazakhstan

When total benefits of the reformed system are considered for all rather than just new retirees and in relation to the average wage (a broader indication of the capacity of the pension system to maintain the consumption of retirees relative to the population) the value of benefits after the transition is even lower and gender differences in benefit levels are more accentuated. The generally lower levels are due to the fact that FF benefits are anticipated to be fixed at retirement and therefore erode in relative value as average wages increase. Figure 22 shows that pensioners will receive on average about one third of prevailing wages in 2003.

Figure 22: Replacement Rates for Total Average Pension Benefits by Gender, no MPG



Source: PROST output file for Kazakhstan

This will increase to above 50 percent in the case of men during the early transition as workers with full benefits under the PAYG system also accumulate FF accounts but then drop as the PAYG system, and importantly the effects of the Minimum Pension Guarantee, are phased out. This drop will stabilize in the early 2060s at a rate of 35 percent for men and close to 11 percent for women.

As discussed previously, women would experience far worse outcomes by this measure because of generally lower wages that lead to smaller benefits relative the average wage but also equally because of the gradual phase out of the Minimum Pension Guarantee which affects women more than men. This is accentuated over time by women's longer life expectancies as their benefits at retirement erode in value, compared to a growing wage level, more over the longer period that they spend in retirement. As noted, under the original design the average female retiree would expect to see the value of their pension benefits decline from about a third of average wages to 15 percent of the average as the reform became fully implemented -- a level well below the current Minimum Pension Guarantee and very close to the current threshold for Social Assistance.

This result is partly due to the fact that despite the higher replacement rates men will experience in the fully funded pension system, they are expected to participate to a lesser extent in the pension system -- a presumption based on current patterns of activity in the informal economy. The latter also explain why the incidence of social assistance benefits is slightly higher among men. With the current parameters of the pension system (contribution rate and retirement age) and of the labor market, the majority of women will receive old-age pension benefits of less than 13 percent of the average wage -- the current social assistance threshold. It must be kept in mind that because women will, over the longer term, represent about two thirds of the retired population, when the transition in complete this will mean that the benefits received by the typical retiree (a woman significantly older than the current retirement age) will be very low compared to current levels and the majority of pensioners in the future will be women receiving benefits well below the current Minimum Pension Guarantee level. This outcome raises potentially significant questions about the political economy of the reform over the long term.

The net effects of these trends on the welfare of women in old age will depend on a number of other factors not included in these projections. Most significant among these are patterns of marriage and widowhood, household wealth accumulation and inter-generational support in old age. A very important determinant of how women will fare in the new system will be the manner in which annuities derived from the Fully Funded system are structured. If a requirement for survivor annuities is imposed many women will also receive these as widows and will have significantly higher household incomes than is suggested by the analysis. Considerable further analysis on a household level is required to fully understand the implications of the pension system and how male pension receipt will affect women. The results do, however, provide a general picture of the effects of the transformation of the pension system on the sources of income and on potential income replacement rates.

4. ANALYSIS OF ALTERNATIVE DESIGN PARAMETERS

The projections of the outcomes of the current pension system indicate that the design of the system as adopted in 1997 would have lead to a significant decline in the income replacement rates received by future retirees. By the time that such a system was fully phased in, women in particular would have been anticipated to have income replacement rates that, on average, were projected to be below 20 percent of their pre-retirement earnings. The following discussion

examines elements of the original design of the system associated with these outcomes and the projected effects of the recent changes as well as several alternative approaches that could have been taken to address the problem of low replacement rates.

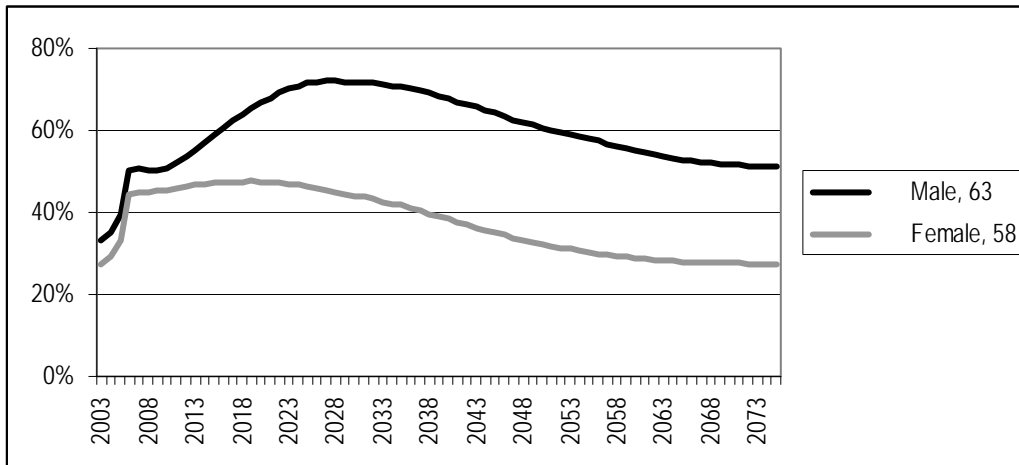
There are a broad range of factors that will determine an individual account or defined contribution pension system's income replacement rates. These may be divided into two groups. First there are factors that are largely exogenous to the design of the pension system. These include patterns of earnings among different groups and across individual lifetimes, rates of participation in covered employment (the formal sector) that determine the density of contributions and the life expectancy of the covered population. Although there are certainly important interactions, especially in regard to incentives to engage in informal labor, that may be affected by the design of the pension system, these are largely second order effects with complex dynamics that are extremely difficult to evaluate in any meaningful way. Consequently they are not included in this discussion.

The second group of factors are those that are directly incorporated in the design of such a pension system. These include the addition of a flat benefit provided to all person reaching a certain age as was done in the June 2005 revisions to the system, altering investment requirements to seek to increase the rate of return on the assets that are accumulated in the individual accounts, increasing the required contribution rates, adding a minimum pension guarantee to the Fully Funded Accounts that establishes a floor under which post retirement income is not permitted to fall, and increasing the age at which retirement is permitted. These are all factors that are substantially endogenous (primarily determined by the design of the pension system) and are considered in the following discussion.

Portfolio Restrictions. The investment earnings on the individual accounts is probably not an area where there is the potential for any material gains in the outcomes of the system. The rate of return within the fully funded accounts is already assumed to be quite high in the simulations. The only design change that would have a material effect in raising this would be to alter the portfolio restrictions applicable to the fully funded accounts. To some extent a gradual evolution to assets with higher returns is incorporated in the current assumption about real returns on the accounts that are 2 to 4 percent above real GDP growth. Any higher assumption would involve an associated increase in risk that would be both inappropriate (as well as politically unsustainable) for a pension system and require an explicit risk adjustment of outcomes that would result in little net long term effect. Furthermore, at present one of the main challenges facing Kazakhstan is to achieve a sufficient deepening of the capital markets to accommodate the levels of funds that continue to flow into the system making it very unlikely that higher returns can be achieved in the near future.

Demogrant or "Citizen's Pension". The recently introduced demogrant will have a substantial impact in providing a minimal retirement income for all of the elderly whether or not they have participated in the pension system. The effect of this is shown in Figure 23 below in which a wage indexed demogrant at the level recently enacted has been added to the anticipated income from the old PAYGO pensions and the new fully funded accounts. In contrast to the rapid decline in replacement rates that are indicated in Figure 22 in the previous section in which the average gross replacement rate for women was projected to decline to drop from about 30 percent in 2024 to about 10 percent were the original reform to have reached maturity without any modification, this indicates that the addition of the demogrant will maintain these replacement rates well above 40 percent until about 2035 after which they will gradually decline to about 23 percent when the last remnants of the old PAYGO system have disappeared by 2050. Male replacements rates can be expected to increase as well although proportionally less dramatically but nevertheless reaching a long term level above 50 percent of gross pre-retirement earnings.

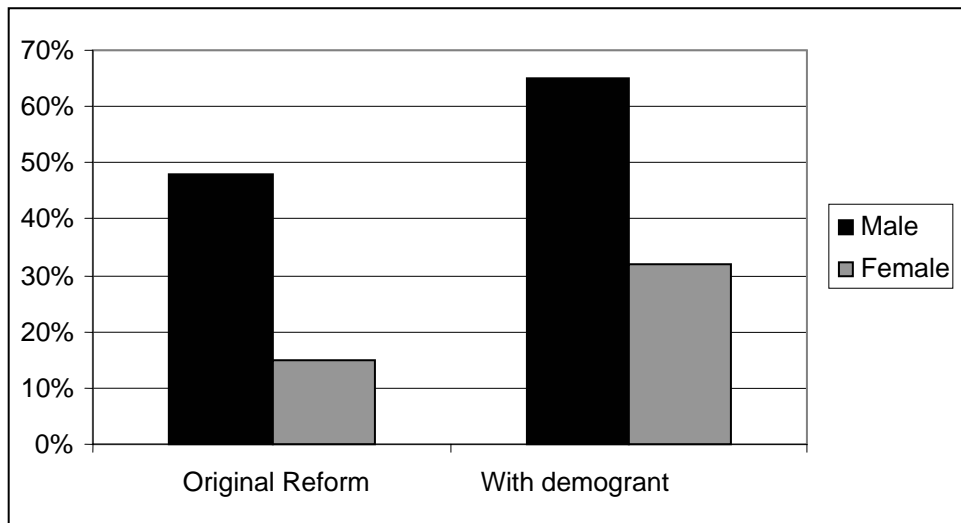
Figure 23: Replacement Rates for Total Average Pension Benefits by Gender



Source: PROST output file for Kazakhstan

The long term effect of this change can be more simply shown in Figure 24 below that compares the average rate of replacement of the final wage in the year 2050 for the original design of the reform and what is projected with the addition of the new demogrant. It useful to note that, with the new demogrant, a married couple of average earnings retiring at the age of 63 can be projected to achieve a gross wage replacement rate of about 50 percent of the household earnings.

Figure 24: Average RR in 2050 for Original Reform Design and with New Demogrant



Source: PROST output file for Kazakhstan

Although this revision to the reform design will clearly address the primary issue of direct income support to the elderly it will come at a significant cost. Although no formal estimates were available for this analysis, using the same modeling techniques applied to the other alternatives discussed, the payments for the newly established benefit are projected to be 6 percent of GDP in 2050. To make this comparable to the other fiscal impact estimates above this should be offset by

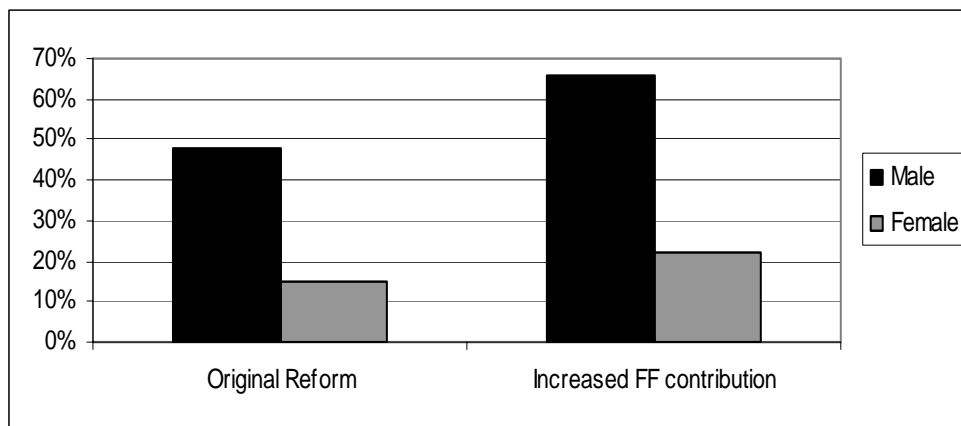
the full amount of the projected social assistance expenditures under the original reform design because presumably there will be no need for this type of social protection program in the presence of a demogrant for all of the elderly. Thus the net cost of the recent changes to the reform can be estimated at about 4.5 percent of GDP in 2050, a very large commitment in any economy.

The addition of the demogrant also entails a revision of some of the primary objectives of the reform including diminishing the incentive for participation in the new funded system and potentially crowding out other forms of savings. Several other alternatives to this approach are feasible and are briefly discussed below.

Increase in Mandatory Contributions to Individual Accounts. Increasing the contribution rate could also have been a viable option, particularly because in conjunction with the phasing out of the costs of the old PAYGO system over the next 25 years as illustrated in Figures 13 and 14 the direct costs of the pension system (not including the new demogrant) were projected to decline from about 5 to about 2 percent of GDP or from the current 21 percent to around 5 percent of the wage bill. This could have permitted a modest increase in the level of mandatory contributions to the new accounts while still permitting a modest decline in the level of the social insurance “tax rate” (presuming that mandatory contributions are perceived as simply an element of this).

A plausible path for such a change would be to gradually phase in an increase in contributions beginning in 2010 by adding 1 percent every five years until the mandatory contributions reach 15 percent of earnings in 2030 (approximately when the old system disappears). This would likely not disrupt the incentives for participation in the formal labor market as it would still permit some decline in the tax rate and achieve less dramatic but meaningful fiscal effects. This change would increase the average replacement rate for men to 66 percent and for women to 22 percent by 2050 as shown in Figure 25 below, a similar but slightly higher level than is projected for the recently revised system. This would achieve much the same overall outcome (albeit with different distributional characteristics) at a significantly lower fiscal cost and with stronger incentives for participation in formal labor market. It is not clear at present what the net fiscal effect of such a change will be. The income tax effects of contribution levels are not considered in the modeling of the reforms so for purposes of comparability with the other alternatives they are assumed to be zero in the year 2050. This is likely to be very close to the actual outcome if a consumption tax regime is applied because flows at that time are likely to be largely offsetting.

Figure 25: Average RR in 2050 with and without Increased FF Contribution Rate (flow)



Source: PROST output file for Kazakhstan

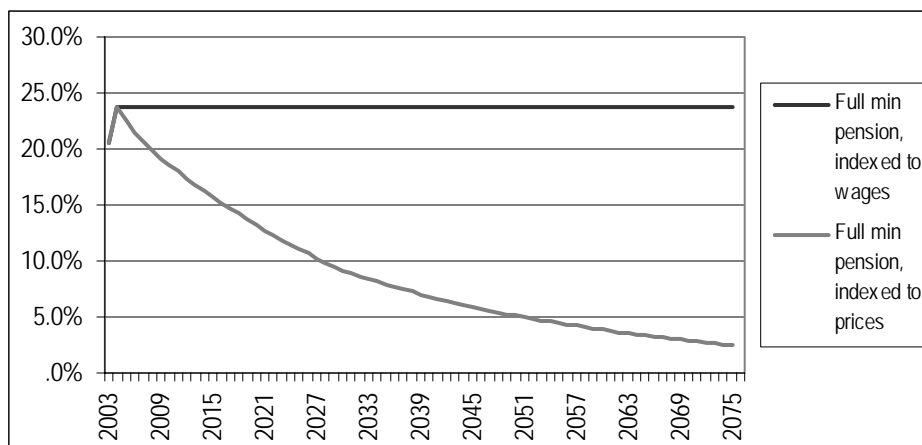
Minimum Pension Guarantee. As noted earlier, the gradual phasing out of the Minimum Pension Guarantee (or more specifically the absence of any guaranteed income level from the fully funded accounts) has a very significant impact on the income replacement rates that can be anticipated under the reformed system. Under the old PAYG system, workers with low earnings or intermittent work histories were provided with a minimum income in retirement that maintained a relatively high average replacement rate within the system. As this is effectively phased out with the old system the income replacement rates of women decline rapidly. The absence of any guarantee related to the Fully Funded accounts was one of the features of the reform in Kazakhstan that distinguished it from virtually all of the other similar designs including that of Chile.

Another alternative similar in intent to the demogrant that was recently implemented would have been to re-introduce a guarantee by establishing an income floor ensuring that the proceeds from the fully funded accounts would purchase an annuity that was at least equal to a specified level. There are a myriad of possible ways in which this could be constructed. One of the simplest of these would be to provide a “top up” payment that would bring the account balance up to a specified level at the time of retirement. This would effectively provide a more targeted approach to achieving much the same goal by only providing the additional payment to those falling below a specified threshold.

The MPG in 2003 (adjusted in an ad hoc manner as discussed earlier) was set at the equivalent of 23.8 percent of the average wage which represents a good starting point for evaluation of this type of policy. This sort of guarantee could be extended into the future system either by indexing this level to either prices or wages. Price indexing would hold the guarantee at a constant purchasing power while wage indexing would retain pensioners in a relatively constant position in relation to the workforce during their retirement.

Price indexing, however is unlikely to be a viable approach in the anticipated economic environment characterized by relatively stable moderate inflation and high wage growth. A comparison of the two methods in relation to the average wage is provided in Figure 26 below. This indicates that by the time the original reform matured in 35 years (when the PAYGO system has been phased out and the guarantee becomes a meaningful issue) a wage indexed level would, by definition, remain constant, a price indexed level would have fallen below 10 percent of wages within 25 years and thus be of little consequence in maintaining incomes among the elderly.

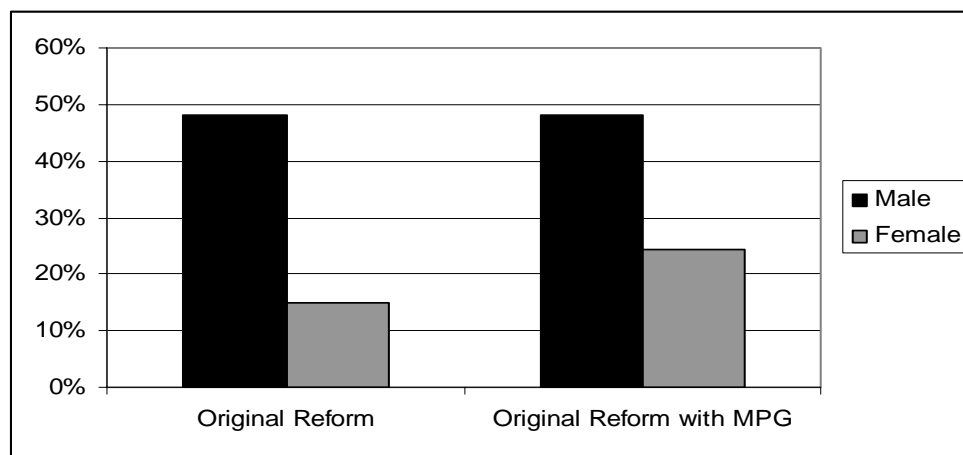
Figure 26: Minimum Pension Under Wage or Price Indexation



Source: PROST output file for Kazakhstan

A wage indexed guarantee or “floor” associated however provides a viable alternative. Were the pension system to provide a guarantee that the proceeds of the Fully Funded accounts would convert to at least an annuity that was equivalent to the current minimum pension and hold this guarantee constant in regard to the wage level, the average wage replacement rates that can be expected under the new system would be raised from 29 to 34 percent when the new system is mature in 2050. However, as shown in Figure 27 below this would have a far greater effect on women than men, with no noticeable increase in average replacement rates for men currently at 48 percent while average female replacement rates increase from 16 to about 24 percent. This result is again largely a consequence of the targeted nature of such an intervention, little of which would accrue to men due to their higher overall wage levels. It also results in lower overall averages, because, in contrast to the demogrant, it would not raise the replacement rates of middle or higher income workers at all.

Figure 27: Average RR in 2050 with and without MPG (flow)



Source: PROST output file for Kazakhstan

Simply introducing such a guarantee, however, would make it somewhat pointless to structure the new system in the form of individual accounts in the first place because nearly 2/3^{ths} of retirees at that time (including 95 percent of women) would simply be receiving the guaranteed pension. In this respect the demogrant can be perceived as an approach that is more compatible with the underlying intent of the original reform, despite its likely higher overall costs and less targeted nature.

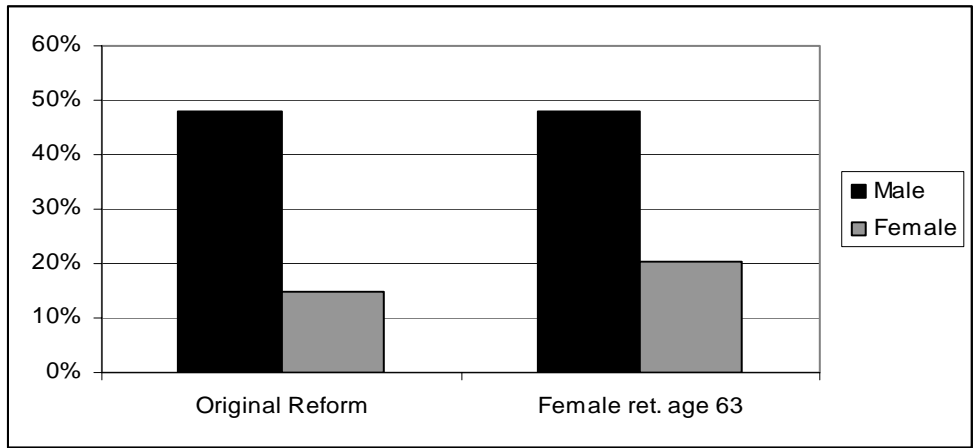
Introducing a guarantee will have negative fiscal consequence because it requires additional expenditures to raise the value of the pension accounts to provide the required replacement rate. Although a large number of individuals would receive such “topping up” allowances they would be relatively small amounts required for each that is eligible. Introducing a wage indexed guarantee to the original reform is estimated to cost only about 0.9 percent of GDP in the year 2050, or significantly less than the broader demogrant.

Increased Retirement Age. The evaluation of the initial reform also indicates that the retirement age is a key factor in determining the outcomes of the fully funded system. By maintaining the retirement age for women at 58 and men at 63, the anticipated increases in longevity result in periods of retirement that will be far too great in relation to the accumulation periods to enable the proceeds from individual accounts to translate into income replacement rates that can come close to matching earnings levels. This is particularly the case for women who on average have

longer life expectancy. In conjunction with the lower retirement age this results in retirement periods that will be nearly equivalent to their years of work in which they would be contributing to the accounts.

Increasing the retirement age would therefore also have a meaningful impact on the replacement rates from the system. Figure 28 shows the average income replacement rate in 2050 that would result from raising the retirement age of women by three months each year beginning in 2004 until it reached 63 in 2023 making it equal to that of men. This indicates that such a change would increase the average replacement rate to about 20 percent, still a very low level in comparison to current rates.

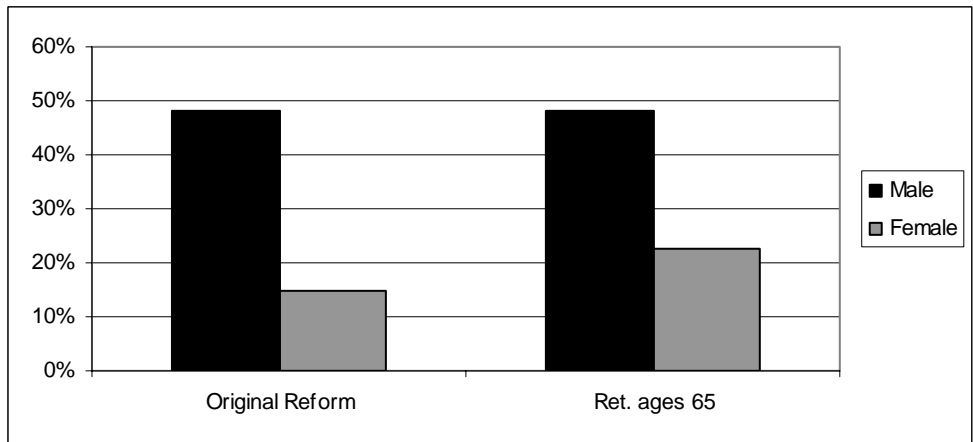
Figure 28: Average RR in 2050 with Retirement Age for Women Increased to 63 (flow)



Source: PROST output file for Kazakhstan

A more dramatic alternative would be to increase the retirement age for both genders to what has become a more common international standard of age 65. Figure 29 shows the effects of increasing the age for both men and women by 3 months per year until it reaches 65 in the year 2031. This would improve the replacement rate for women to 22 percent and raise that of men to about 48 percent.

Figure 29: Average RR in 2050 with Retirement Age for Women Increased to 65 (flow)

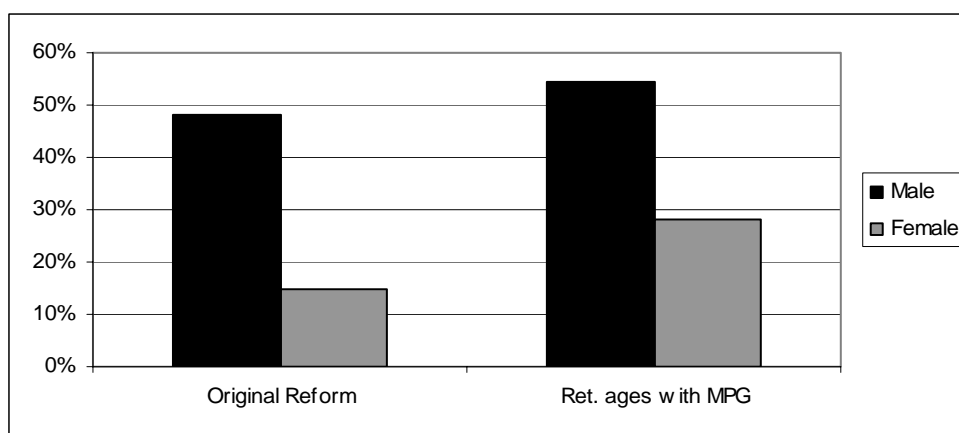


Source: PROST output file for Kazakhstan

Combined Effects. These findings suggest that it would likely require a combination of the two changes to have improved the income replacement rates from the original reform design to provide a level of income in retirement that will be politically sustainable and keep the majority of pensioners out of poverty. Figure 30 shows the combined effect in 2050 of introducing two changes at once. With both a wage indexed minimum guarantee and higher retirement age the replacement rate for women would reach about 28 percent or nearly double what can be expected under the current arrangement.

It is particularly notable that these levels of income replacement are about five percentage points lower than what is projected for the recently introduced demogrant but nevertheless likely represent a similar level of income improvement for the low and moderate income elderly because all of the gains from the guarantee are within these groups. The demogrant provides an additional benefit equally to both high and lower income retirees with the differences in the average outcomes a result of increase in the income of the higher income groups that would not occur under a minimum benefit guarantee.

Figure 30: Average RR in 2050 with MPG and Retirement Age Increased to 65 (flow)

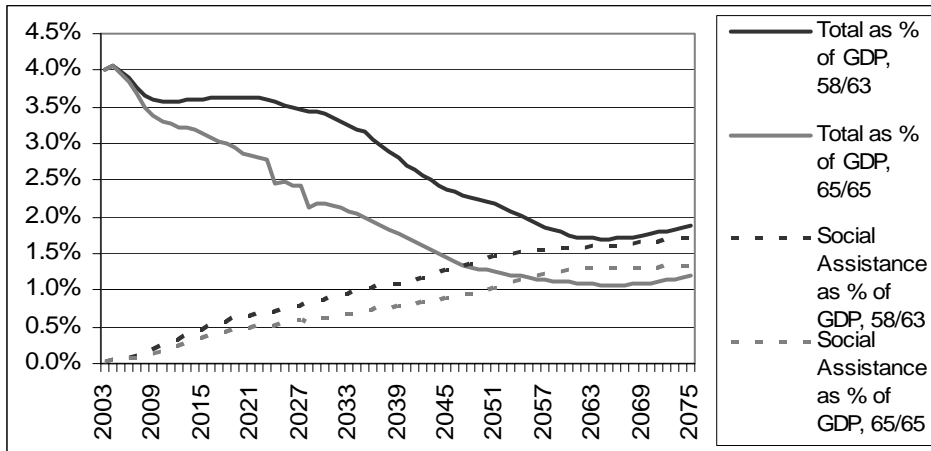


Source: PROST output file for Kazakhstan

Combining a minimum guarantee with higher retirement ages would have a lower fiscal cost than simply establishing the guarantee. As is illustrated in Figure 31 below, a key dynamic of the transition to the reformed system will be a rapid decline in the costs of PAYG pensions that is in part offset by increases in the costs of social assistance resulting from the rapid decline in coverage and employment in the formal sector that is observed in the early period of the reform. Under the original design, social assistance payments would have been nearly all of the pension costs by 2050.

Raising retirement ages would presumably make access to social assistance available at a later age as well which would have positive fiscal effects because there would be fewer persons eligible in any year. Higher retirement ages would also diminish the cost of any guarantee for similar reasons. Increasing retirement ages to 65, because it would result in longer accumulation periods (and therefore lower rates of eligibility for the guarantee as well as lower costs for those eligible), would lower the cost of such a guarantee to 0.3 percent of GDP in 2050.

Figure 31: Cost of Social Security and Social Assistance without MPG

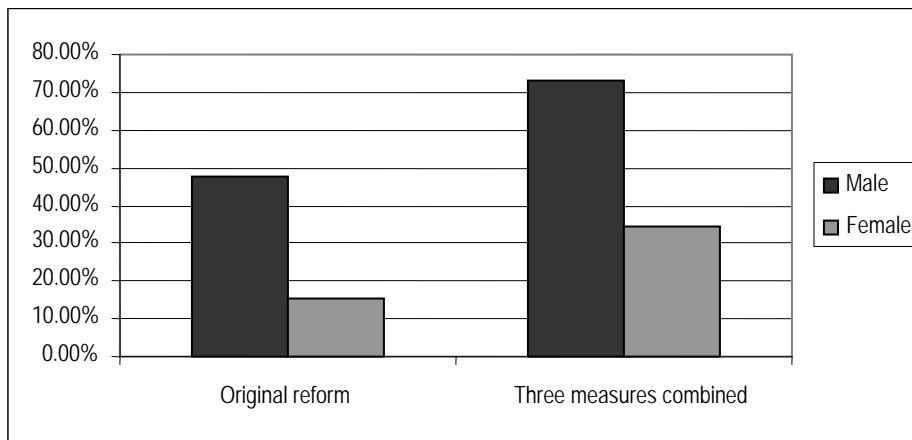


Source: PROST output file for Kazakhstan

It is interesting to note that the combined effect of both measures, raising the retirement age to 65 and establishing a guaranteed pension of 23.8 percent of average wages are projected to have nearly offsetting fiscal effects, resulting in a similar fiscal cost in 2050 as was projected for the original reform while achieving a significant increase in retirement income rates, especially for women.

A final alternative to would be to combine all three alternative measures, higher retirement ages and a minimum guarantee with a phased in increase in contributions to 15 percent. As shown in Figure 32 below this would increase female replacement rates to about 35 percent and male rates in excess of 70 percent. More significantly, higher contribution rates in combination with increased retirement age would significantly diminish eligibility for social assistance benefits and therefore diminish the cost of the projected fiscal impact to 0.1 percent of GDP in 2050. As noted earlier this would of course limit the ability to reduce the perceived social insurance contribution by adding five percentage points to the mandatory contribution although the labor market effects of this would surely be muted because, consistent with basic reform, it would likely be perceived as an individual contribution rather than a tax.

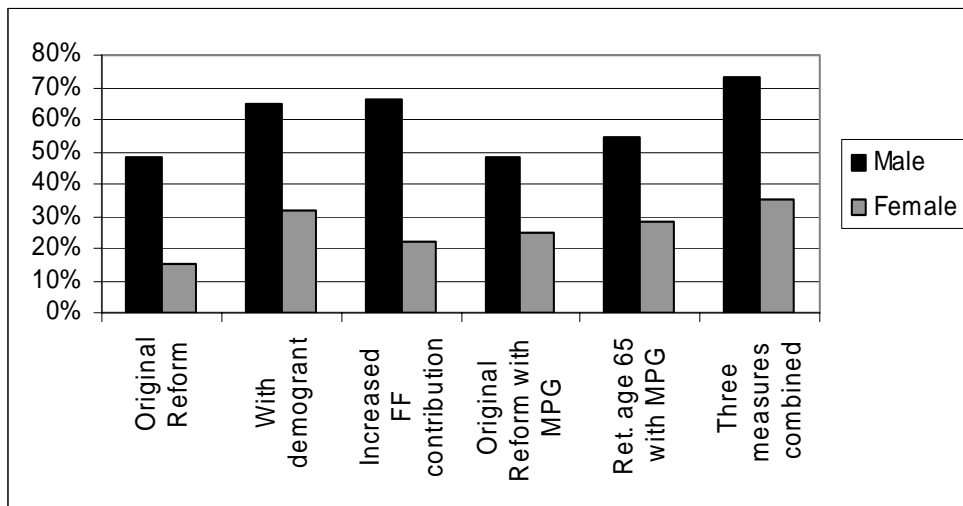
Figure 32: Average RR in 2050, Three Reform Measures Combined (flow)



Source: PROST output file for Kazakhstan

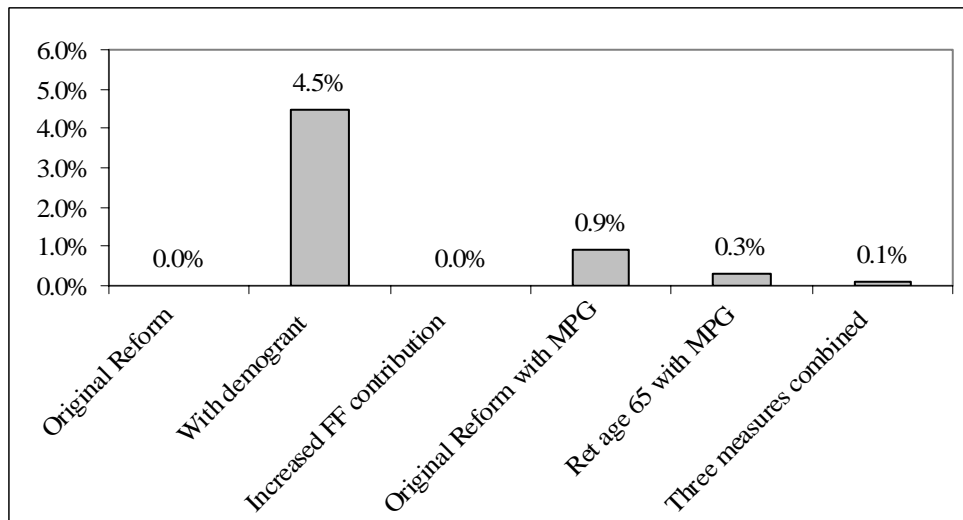
Comparison of Alternatives. The preceding discussion outlines some of the alternative approaches that could be undertaken to address the projected rapid decline in income replacement rates that were projected to occur as a result of the original design of the pension reform in Kazakhstan. These are summarized below. Figure 33 shows the replacements rate for men and women projected for the original reform and several alternative adjustments to the reform that are discussed above. Figure 34 just below this indicates the projected fiscal impact in relation to the projections for the original reform in the year 2050. These range from very small effects for options that would have increased the rate of contributions to the Fully Funded accounts (presuming that there would be a netting of recaptured tax expenditures for the year against any foregone revenues for new contributions) to modest effects of .9 percent of GDP for a guarantee to a high of 4.5 percent of GDP that is projected for the newly enacted demogrant.

Figure 33: Comparison of Pension Reform Alternatives



Source: PROST output file for Kazakhstan

Figure 34: Marginal Fiscal Effects in 2050 for Various Reform Measures



Source: PROST output file for Kazakhstan

The foregoing analysis indicates that policy makers faced a set of choices that could be expected to have widely varying effects in terms of the extent that they would increase retirement benefit levels. It also demonstrates that the choices have even a greater variation in regard to their long term fiscal implications. The choice that was ultimately made, to introduce a demogrant, will have a very significant effect on income replacement rates but can be expected to have a commensurately higher fiscal cost than some of the other less dramatic alternatives. Some of the more intermediate type of approaches such as introducing a minimum guarantee would have significant but more modest effects. Their public costs however would be much lower costs because they would more closely target resources to lower income groups.

5. CONCLUDING OBSERVATIONS

Kazakhstan's dramatic pension reform provides a number of valuable insights and lessons about the results that can be expected from a relatively simple transformation of a traditional Pay As You Go earnings related pension system to one based solely on individual retirement savings accounts. As with any such review, the outcomes that are projected to be derived from this reform are to a significant degree the result of the particular conditions under which it was enacted and will progress. Kazakhstan does, however, have many attributes that are typical of the countries that have inherited a financially unsustainable earnings related pension system operating on essentially a PAYG basis and have undertaken or may be contemplating such a reform. It is also a country that is undergoing a rapid transformation from a centrally planned state-controlled economy to one that is market-oriented, making many of the basic observations about the underlying dynamics of the reform valuable in other settings. The differences from other environments are related to the presence of an oil-based economy that is anticipated to be characterized by relatively high and stable rates of growth, moderate unemployment and inflation, making it in some respects a more optimistic scenario for the evaluation of the effects of such a bold approach.

The manner in which the reform was initially designed would have dramatically redistributed the benefits from the pension system compared to what could be expected from the inherited Soviet style system, aligning them in direct proportion to lifetime earnings with virtually none of complex patterns of redistribution associated with most defined benefit arrangements, especially those with base don final salary or that use benefit formulas that vary by earnings levels or provide minimum benefits and guarantees. In conjunction with the gradual phasing out of minimum pension guarantees and maximum benefit ceilings, along the demise of the old PAYG regime, this would have lead to a significant dispersion of future income replacement rates. Although the capacity of the pension system to replace earnings would have increased early in the transition period -- as workers with meaningful periods of earnings under the old system receive these accrued benefits that are supplemented by the proceeds from the individual accounts -- over the longer term there would be an overall decline in replacement rates as the old system disappears. This is in part be the result of the movement to a pattern of increased age-related earnings that is characteristic of a market economy (which raises the denominator in such a ratio) but is largely driven by the inherent nature of such a reform.

The most dramatic outcome, however, would have been a rapid long term decline in the wage replacement rates of women. Despite the fact the female earnings are, on average, about 57 percent those of men, buttressed by the minimum guarantee and capped at a maximum, the old system provided very similar earning replacement rates. During the early transition when most

female retirees have substantial years of coverage under the old system this rough parity would have continued. However, when the point at which few retirees had sufficient years of work under the old system to attain much benefit from the MPG was reached, female replacement rates would have declined dramatically.

This is the result of the interaction of several key factors. Most importantly -- a five year differential in retirement age in combination with a similar differential in expected longevity leads to average periods of retirement that are nearly twice as long for women, resulting in a far lower annuity value for even an equivalent account balance. This is further accentuated by lower anticipated length of service for women even at equivalent ages. The gradual elimination of a minimum guarantee that substantially compensated for the much lower overall female earnings in the old system would have led to a sharp increase in gross wage replacement rates for women. Men, on average, would have been expected to produce accounts that yielded an income stream a bit lower than the old pensions when the reform was fully mature in 50 years. Female income replacement rates would be expected to decline to an average of about 15 percent of the final years earnings.

It is not clear what the net effect this decline in female gross wage replacement rates might have had on the capacity the reformed pension system to support the maintenance of consumption levels by households in retirement. A typical household would likely have been able to translate the accounts in to an annuity stream of perhaps 40 percent of gross earnings. Depending on the structure of income taxes this would likely have been less than half of net income. Early widowed and never married women would have surely faced severe difficulties in maintaining their living standards absent substantial intra family transfers or asset accumulations outside of the formal pension system. It surely would have placed a substantial portion of elderly women (who constitute nearly 2/3rd of retirees) at severe risk of poverty in old age. In addition, the experience of the initial years of the new system indicated that the Social Insurance Tax rate of 21 percent (in conjunction with other factors associated with such a transition) created powerful incentives for movement out of the formal labor market and evasion of payments. This was projected to lead to only about half of the population will accruing benefits under the new system with the remainder covered only by relatively low social assistance payment.

An increasing awareness of these projected outcomes (and other factors) has led to a reassessment of the reform and consideration of adjustments to the system's basic design to raise prospective benefits levels. This has led to the introduction of a demogrant or "citizens pension" to be provided to all persons reaching retirement age. This would supplement the proceeds from the new pension accounts and presumably substitute for social assistance payments. This can be expected to have a significant effect in raising income levels for retirees in the future but will entail a very high cost, around 6 percent of GDP as the population ages. It will also potentially exacerbate some of the incentives and participation problems of the new system.

A variety of other approaches are potentially feasible. Perhaps the simplest would have been to raise contribution levels above the current 10 percent. This would increase benefits proportionally and would still permit some decline in the tax rate and involve a minimal fiscal impact. However, it is also not clear at present whether the domestic capital market could absorb the higher flows over the short term. This might, however, represent a viable policy if phased in over the long term, especially if the declining costs of the PAYG system permit some portion of the Social Insurance Tax to be redirected.

Another alternative is to extend the Minimum Pension Guarantee concept from the old system to the new Fully Funded accounts. With expected high wage growth and moderate inflation, extending the guarantee on a price indexed basis would have little consequence. Maintaining a guarantee at the current 24 percent of average wage would have a reasonable impact, raising

average replacement rates by nearly 10 percentage points for women. This could be done at a modest cost of less than 1 percent of GDP over the long run, a fraction of the fiscal savings from the movement to a fully funded system. Such an initiative would also presumably increase participation in the system. Were this done, however, there would be little point in maintaining the individual accounts as virtually all female workers would simply receive the minimum pension amount, making it more efficient to operate the system as a social pension or demogrant.

A more politically problematic approach would be to raise minimum retirement ages. This has a compound effect of lengthening accumulation periods and shortening the period in retirement. Equalizing male and female retirement ages at 63 or raising both to 65 through incremental increase would achieve somewhat smaller effects than extending the guarantee. Raising retirement ages would actually have positive fiscal effects as it would diminish the cost of social assistance benefits as the age of eligibility for these would need to be raised as well. Raising retirement ages to 65 and extending a wage indexed guarantee would result in effectively offsetting fiscal effects while nearly doubling female replacement rates. Importantly this policy would also introduce a significant difference between social assistance benefits of informal workers and retirement income of those in the formal sector strengthening the incentives to formalize.

By adjusting all three of these parameters -- phasing in a higher contribution rate, extending the guarantee and gradually increasing retirement ages to the point where the time spent in retirement in proportion to working years -- a system such as Kazakhstan's could compensate for the projected rapid decline in retirement income and come very close to replicating the replacement rates under the old system while simultaneously achieving some of the fiscal improvements, ideological objectives and other developmental goals that motivated the pension reform.

Kazakhstan's bold experiment in pension reform provides some valuable insights about both the environment in which such a reform is likely to be feasible as well as the importance of carefully adjusting the parameters of the system design. Making the transition to a system exclusively based on individual accounts when there are large systemic wage differentials (such as those between men and women) will predictably extend these disparities in retirement income. Variations in longevity, if correlated with earnings differences, will accentuate these disparities.

These differences however can be addressed through measured adjustments in a reformed system's parameters. Adding a demogrant, aligning retirement ages with longevity, extending a modest minimum guarantee and phasing in contribution rates that are aligned with the proportion of retirement years to contribution periods are key issues that can adjust the parameters of such a pension system to enable it to achieve many of the original goals of reform while also ensuring a reasonable level of income support for the elderly. Although there is an understandable tendency to focus attention on the basic concepts and ideological motivations of the Chilean Model, its transferability to other settings is as much a function of adjusting parameters to individual country conditions, as it is to any inherent characteristics of the design. Evaluating the anticipated effects of such adjustments indicate the key tradeoffs involved in making such decisions. More importantly they illustrate the extent to which these choices are related to the philosophical basis and political economy of a reform in addition to its economic effects, ultimately making these kinds of decisions very specific to the circumstances and conditions of any country making them.

ANNEX I: PENSION BENEFIT FORMULA

The June 2003 recalculation formula includes the following elements: a personal participation coefficient (**PPC**), the personal work history coefficient (**PWH**), the personal labor participation coefficient (**PLP**), the average monthly personal income, the base on which the pension was originally calculated (**AMP**), and the monthly average wages by branches of the economy (**MAWBE**), calculated for the period 1960-2002.

The PPC coefficient represents the ratio between the AMP and MAWBE for the year in which the pension was calculated. It has the effect of updating the wage history for increases that have occurred since retirement but does this by using a factor that is specific to the industry. PWH represents the years worked prior 1998 (as shown by State Pension Payment Center data). The PLP coefficient is the PWH multiplied by the PPC.

To establish the amount of the increase in the pensions, PLP is multiplied by MAWBE for 2002, which cannot exceed the 15-times monthly base enumerate set in the budget for 2003. The pension increase, calculated with the above formula, cannot exceed 75 percent of 15-times monthly base enumerate for 2003, or 9,810 Tenge equivalent to US\$70. The recalculated pension cannot be lower than the old pension or the new minimum pension of 5,500 Tenge.

Given:

New Pension = PLP x MAWBE for 2002

PLP = PWH x PPC

PPC = AMP/ MAWBE (last AMP year)

Therefore the new formula for calculating the increase in pensions is:

New Pension = old pension x growth in MAWBE

New Pension = PWH x PPC x MAWBE for 2002 , or

New Pension = PWH x AMP/MAWBE (last AMP year) x MAWBE for 2002

Example 1:

A male pensioner, who worked as a teacher for 30 years and retired in 1998, would have previously received a monthly pension of 2,947.9 Tenge. Yet the previous minimum pension was set at 5,000 Tenge, which is the amount of pension benefit this person received. With the new formula his pension would be 5,922.9 Tenge, which is above the new minimum pension of 5,500 Tenge. Thus, the increase brings him above the minimum pension. This is also an increase, which is acceptable since it is less than limit of 75 percent of the 15-times MBE for 2003, set on the pension increase¹¹.

Assuming:

MAWBE 2002 = 12,698 Tenge (which does not exceed the 15-times MBE for 2003 of 13,080 Tenge)

MAWBE 1997 = 6,320 Tenge

PWH = 65 percent

¹¹ For this and the next calculations we assume that the average yearly pensions received were 95 percent of the MAWBE for the same year. Data for MAWBE is taken from Government resolution No. 564 (from 6/11/03) on the PAYG pension recalculation. The size of one base enumerate fixed in the state budget for 2003 is 872 Tenge.

AMP = 95 percent of averaged MAWBE for the education sector for 1996 and 1997, divided by three = 4,535.3 Tenge

Old Pension = 65 percent of AMP = 2,947.9 Tenge

New Pension = PWH x AMP/MAWBE `97 x MAWBE `02 = 5,922.9 Tenge

Example 2:

A male pensioner, who worked for 30 years in the electro-generation industry and retired in 1998, would have previously received a monthly pension of 8,697.9 Tenge. With the new formula his pension would be 4,755.6 Tenge. Since according to the law, the recalculated pension cannot be lower than the old one, this pensioner would maintain his old pension.

Assuming:

MAWBE 2002 = 22,800 Tenge.

Since this exceeds the 15-times MBE for 2003 of 13,080 Tenge, the same 13,080 Tenge is accepted as MAWBE for 2002.

MAWBE 1997 = 15,550 Tenge

PWH = 65 percent

AMP = 95 percent of averaged MAWBE for the electro-generation industry for 1996 and 1997, divided by three = 13,381.4 Tenge

Old Pension = 65 percent of AMP = 8,697.9 Tenge

New Pension = PWH x AMP/MAWBE `97(2003 15-times MBE limit) x

MAWBE `02 = 4,755.6 Tenge (which is unacceptable as it is lower than the old pension)

REFERENCES:

- ANB-AMRO Report. Kazakhstan Economic Focus, November 10, 2003.
- Acuña, R. and A. Iglesias P. (2001) Chile's Pension Reform After 20 Years. Social Protection Discussion Paper No. 0129. The World Bank, Washington, D.C.
- Andrews, E. (2001) Kazakhstan: An Ambitious Pension Reform. Social Protection Discussion Paper No. 0104. The World Bank, Washington, D.C.
- Barr, N. (2002). The Pension Puzzle: Prerequisites and Policy Choices in Pension Design. IMF Economic Issues Series, No. 29. Washington, D.C.
- Chlon, A., M. Góra and M. Rutkowski (1999) Shaping Pension Reform in Poland: Security Through Diversity. Social Protection Discussion Paper No. 9923. The World Bank, Washington, D.C.
- Devesa-Carpio, J.E. and C. Vidal-Meliá (2002) The Reformed Pension Systems in Latin America. Social Protection Discussion Paper No. 0209. The World Bank, Washington, D.C.
- Doyle, S. and J. Piggott (2002) Mandatory Annuity Design in Developing Economies. Social Protection Discussion Paper No. 0208. The World Bank, Washington, D.C.
- Fox, L. and E. Palmer (1999) Latvian Pension Reform. Social Protection Discussion Paper No. 9922. The World Bank, Washington, D.C.
- Gill, Idemit (2003) Keeping the Promise of Old-Age Income Security in Latin America. Regional Studies Program. The World Bank, Washington, D.C.
- Gruber, J., and D. Wise (1997) Social Security Programs and Retirement Around the World: Introduction and Summary of Papers. NBER Working Paper No. 6134. Cambridge, MA.
- Holzmann, R. and R. Palacios (2001) Individual Accounts as Social Insurance: A World Bank Perspective. Social Protection Discussion Paper 0114. The World Bank, Washington, D.C.
- Holzmann, R. and S. Jørgensen (2000) Social Risk Management: A New Conceptual Framework for Social Protection and Beyond. Social Protection Discussion Paper 0006. The World Bank, Washington, D.C.
- Holzmann, R., E. James, A. Boersch-Supan, P. Diamond and S. Valdes-Prieto. Comments on Rethinking Pension Reform: Ten Myths about Social Security Systems. In Holzmann, R. and J. Stiglitz (eds.) *New Ideas about Old Age Security*. World Bank, pp. 57-90. The World Bank, Washington, D.C.
- Holzmann, R., M. Orenstein, and M. Rutkowski, eds. (2003) *Pension Reform in Europe: Process and Progress*. The World Bank, Washington, D.C.
- Indicative Plan of Social and Economic Development of the Republic of Kazakhstan for 2004-2006.
- Lindeman, D., M. Rutkowski, O. Sluchynskyy (2000) The Evolution of Pension Systems in Eastern Europe and Central Asia: Opportunities, Constraints, Dilemmas and Emerging Practices. The World Bank, Washington, D.C.
- Midterm Fiscal Policy of The Republic of Kazakhstan for the Years 2004-2006.
- Orszag, P. and J. Stiglitz. Rethinking Pension Reform: Ten Myths about Social Security Systems. In Holzmann, R. and J. Stiglitz (eds.) *New Ideas about Old Age Security*, pp. 17-57. The World Bank, Washington, D.C.

- Palacios, R. and M. Pallarès-Miralles (2000) International Patterns Of Pension Provision Social Protection Discussion Paper No. 0009. The World Bank, Washington, D.C.
- Palacios, R. and R. Rocha (1998) The Hungarian Pension System in Transition. Social Protection Discussion Paper No. 9805. The World Bank, Washington, D.C.
- Rutkowski, M. (1998) A New Generation of Pension Reforms Conquers the East – A Taxonomy in Transition Economies. *Transition*, vol. 9, no. 4.
- Schwarz, A. and A. Demirguc-Kunt (1999) Taking Stock of Pension Reforms Around the World. Social Protection Discussion Paper No. 9917. The World Bank, Washington, D.C.
- Thompson, L. (1998) Older and Wiser: the Economics of Public Pensions, The Urban Institute Press.
- Walliser, J. (2000) Regulation of Withdrawals in Individual Account Systems Social Protection Discussion Paper No. 0008. The World Bank, Washington, D.C.
- Whitehouse, E. (2000) How Poor are the Old? A Survey of Evidence from 44 Countries Social Protection Discussion Paper No. 0017. The World Bank, Washington, D.C.
- World Bank (1994) Averting the old age crisis : policies to protect the old and promote growth. Washington, D.C.
- World Bank (2000) Balancing Protection and Opportunity: A Strategy for Social Protection in Transition Economies. Washington, D.C.
- World Bank (1998) Kazakhstan - Living standards during the transition. Washington, D.C.
- World Bank (2003) Administrative Charges in Second Pillar Pensions in Europe and Central Asia. Mimeo.



In June of 1997 Kazakhstan embarked on a dramatic reform of its pension system, replacing the inherited pay as you go regime with one based entirely on fully funded individual accounts. The paper provides projections of the effects of this reform on income replacement rates and considers some possible adjustments to the system design, including those enacted in early 2005, that could address the projected outcomes of the reform. The initial reform which did not include any minimum pension guarantee is projected to result in a significant reduction in the individual income replacement rates derived from the pension system, especially for women. When the reform was mature and the old system fully phased out, women are projected to have received pensions at level of less than 15 percent of their pre-retirement earnings. Various potential adjustments to the reform, including the recent introduction of a citizens pension or "demogrant", are found to have the capacity to significantly raise these income replacement rates. The fiscal costs of alternatives are found to vary considerably due significantly to the degree to which they would target expenditures to lower income groups. The analysis of the original reform design and possible adjustments provides some useful lessons about the design of individual account systems in transition economies.

HUMAN DEVELOPMENT NETWORK

About this series...

The World Bank Pension Reform Primer aims to provide a timely and comprehensive resource for those engaged in the design and implementation of pension reforms around the world. Policymakers and those who advise them will find useful information on other reform experiences, the current thinking of pension specialists and a vast array of cross-country evidence. A flexible and dynamic format ensure that key developments are updated as they occur.

For more information, please contact Social Protection, Human Development Network, World Bank, 1818 H Street NW, Washington, D.C. 20433; telephone +1 202 458 5267; fax +1 202 614 0471; e-mail socialprotection@worldbank.org. All Pension Reform Primer material is available on the internet at www.worldbank.org/pensions.