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BAKALÁŘSKÁ PRÁCE

**Pension reform in Kazakhstan:
Lessons from Chile**

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Prohlášení

Prohlašuji, že jsem bakalářskou práci vypracoval samostatně a použil pouze uvedené prameny a literaturu

V Praze dne 30.07.2009

podpis studenta

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ABSTRACT

The purpose of this thesis is to describe the social security system of Kazakhstan. Even though the reform was launched 12 years ago, it is still reformulating. First there is described the “mother model” – Chilean pension security and the second part of the work is dedicated to Kazakhstani variation adopted from Chile. There is given basic notions of pension reform in the beginning of the thesis. Only then there are described appropriate models. The second part (which is chapter four) gives the analysis from accumulative pension system payouts. It is supposed that future pension payouts depend on the accumulation investment yield. All discussion of Kazakhstani model is given for 1998-2008 (2009) time period.

ABSTRAKT

Cílem této práce je zkoumání systému penzijního zabezpečení v Republice Kazachstán. I když penzijní reforma v Kazachstánu byla započata už před 12 lety, ona se stále reformuje. Na začátku práce se nejprve popisuje důležité pojmy z penzijní reformy a až poté se popisuje „mateřský systém“ penzijního zabezpečení použity v Kazachstánu, tj. Penzijní systém Chile. Čtvrtá kapitola je věnována případu Kazachstánu. Popisuje se starý systém a přechod k novému. Důležitou věcí v této reformě je právní podklad a regulace systému. Pokračováním této kapitoly složí regresi analýza páté části práci. Případ Kazachstánu je zkouman v rozmezí 1998-2008 let.

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1. Introduction

The purpose of this thesis is to describe one of the most important social transformations in the life of Kazakhstani population, the process of pension reform which has taken its rise from Chilean pension security.

Social protection policy is one of the most popular government instruments in modern world. Taking care of unprotected part of population is indefeasible element of the state policy.

Pension system is complicated mechanism any failure of which is reflected on social, political and economic situation in the country. On the other hand, any economic, social or political changes influence the pension system. According to that pension security significantly generates way of living of pensioner so it's important to realize responsibility for taken decisions and elaborately consider all consequences of the reform.

The pension system matters are very important nowadays. The main reason is increasing in the proportion of retirement aged persons to workers. And this concerns also to the case of Kazakhstan.

“A citizen of the Republic of Kazakhstan shall be guaranteed a minimum wage and pension, and **guaranteed social security in old age**, in case of disease, disability or loss of a breadwinner and other legal grounds”¹. One of the stages of human's life is old age, when man due to objective circumstances isn't able to provide himself deserving existence in old age or his ability to do so is limited. That's why one of the government goals is creation of mechanism that will support the old aged and disabled population in order to realize citizen's Constitutional Rights and help to protect the society from tension, struggles and poverty. Such a mechanism is pension system, what is aggregation of state created legal, economic and organizational institutes and guidelines. This legal base is established to provide financial assistance not only for old age beneficiaries but also assure disability or loss of a breadwinner supports.

Kazakhstan has become independent state, from the dissolution of Soviet Union in the beginning of 1990's. The new born state had to rebuild the whole system of governance, create its own symbols of sovereignty and in most cases inherit some functions and regulations from the former soviet system. So the social protection system was the one of those that newly independent state has inherited from the Former Soviet Union. The system that supported retired, survivor and disabled part of population was based on government financing and called pay-as-you-go system (PAYG). But later or earlier this kind of system faces a problem like in any other state that transforms its economy and builds the entire institutional framework of the state.

¹ Constitution of the Republic of Kazakhstan. Article 28

Thus Kazakhstan recurred to the global experience in reforming insolvent system to the more appropriate one that suited for the base conditions of the country. And this suitable one had become Chilean Social Security System.

2. Basic notions

2.1. Pension reform definition

The pension system security is the base and the most important social warranty for stable development of the society, only because of one reason: it is about interests of that part of population which is disabled for work that stands for about one third of whole population of the each state.

Pension reform in the observed two countries is the tool that has been directed to the modification of existing distributive system of pension charges to the one, which changed the social security of old aged population with the coming of the new institutions – **accumulative pension funds** (APF). The basic goal of the reform was achieving the long-term financial equilibrium of pension system.

The essence of the reform consisted in fundamental change relationship between employer and employee: the improving and increasing employee's self-responsibility for his own old age provision and raising the employer's responsibility for the transfer of relevant part of the wages. The old system didn't give the opportunity to earn deserving "normal" pension benefits. It only redistributed the income from one part of population to the others; whereas the new system allows getting higher pensions with the higher income during person's economic active population period and with higher contributions.

Contributions are in the both countries is obligatory 10% part of the wage which is contributed to personal account in the chosen fund during the participant's economically active age. When the person retires he became the beneficiary of the accumulated pensions by the chosen payment plan.

Pension benefits in Kazakhstan are combination of state guaranteed minimal pension and accumulated contributions on the personal accounts in APF. The calculation of personal account accumulation payments are given by authorized body of the Republic of Kazakhstan.

2.2. Pension funds and other important notions

Accumulative pension funds are financial institutions of the conventional saving type. From the law they are legal entities implementing activity of attraction of pension contributions by the way of depositions; discharging pension payouts, as well as pension assets investment management activity in order stated by the law of the given country. Accumulative funds aren't

engaged in redistribution but making money in process of investment what is the main difference from the solidarity system.

Asset Management Companies are also legal entities implementing investment activity that manages assets of accumulative pension funds. In the legal frames of the Republic of Kazakhstan the accumulative pension funds are prohibited to execute investment of pension contributions and assets. These functions were devolved to specially created legal entities, to so called Asset Management Companies, briefly AMCs. They were licensed and controlled by the National Securities Commission. But licensing authority from 2004 was passed to newly emerged institution - Agency of the Republic of Kazakhstan on regulation and supervision of financial market and financial organizations (AFN). The AMCs are allowed to manage more than one accumulative pension fund. But every fund is allowed to have only one AMC.

With the AMC's there is also another institution which is very important for accumulative pension funds. It is custodian bank. The main function of this bank is technical maintenance, it accounts transactions of all operations on accumulative pension funds' assets, their allocation and obtaining investment income, as well as informing the accumulative pension funds about the status of their accounts and about the activity of AMCs. Custodian banks also provide controls of the accumulative pension funds' activities. Mainly this control means target use of the resources and observance of the investment limits.

So let us return to the cradle of the Kazakhstani pension security reform.

3. New Social security system in Chile

3.1 Overall situation before the reform

Before exploring the pension system and reform of Chile it is worthwhile to observe the country's whole economic situation.

Chile was one of those countries that couldn't evade the influence of socialistic ideology. Thus the solution for the crises of the second decade in the 20th century led to the reinforcement of state power, its political and economical regulation and overall control. Important parts of this mechanism were:

- Significant portion of the state property;
- State management of economic activity, it was like in Soviet Union that almost all prices were dictated, and were regulated by the chaotic taxes. Also Chilean international trade was pointed out by state regulations.
- Monopoly on the labour market. There existed lots of labour unions that turned the institute of wage creation into the system of different privileges and discriminations because of their impact on the State.

Therefore the whole **economic performance** of the country was cruel. So export was limited and lost its competitive ability, prices were regulated, and so did wages. Every new state intension to extend its control over economy worsened the whole situation. Production almost stagnated, investments decreased, wage level had fallen and inflation rose.

In the beginning of 1970's there had happen military turnover in Chile. But it doesn't bring only new authority, but a new economic order. Even it was uncertain way of liberalism the country went under it. And one of those liberal reforms of Pinochet's² government was total changeover of Social Security system. So Chile became the pioneering government in new pension system that wasn't only changed but completely reconstructed social security view.

3.2 Pre-funded pension system

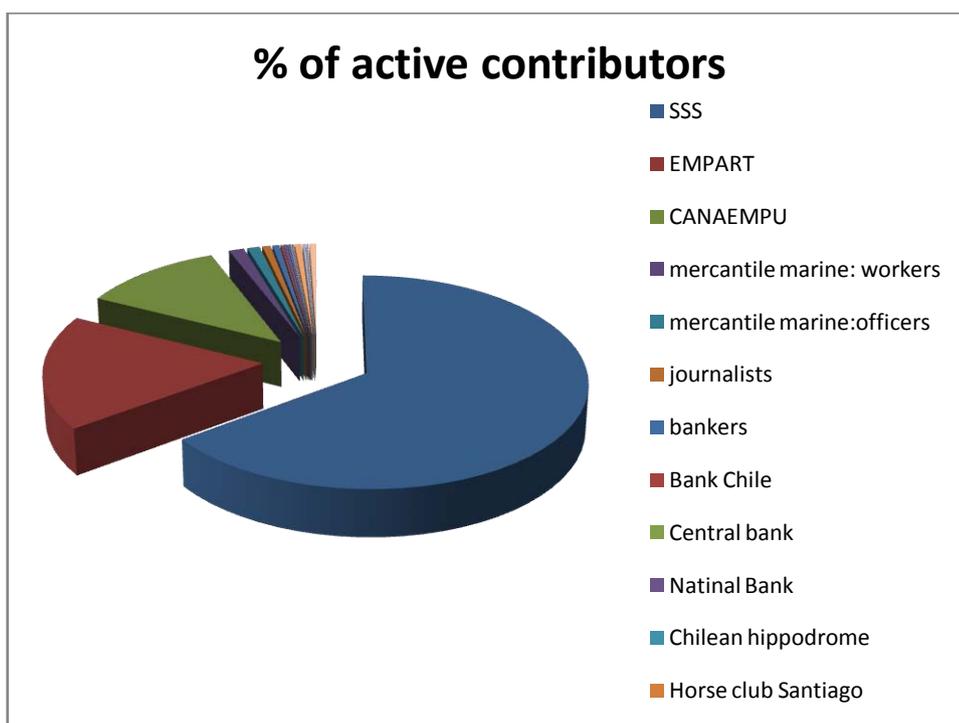
It was world-widely spread from the last century that pension system should be mandated and provided by the government. Chile at pre-reform period had such system of Social security that was inherited from broadly extended ideology at that time – Socialism.

² Augusto Pinochet. 30th President of Chile. He governed until Chile turned to democracy way. While his governing he appealed to Chilean economists from Chicago University to initiate laissez-faire economy reforms.

Active workers of the society had to finance the passive ones in solidarity system, i.e. workers, employers and state had to provide pensions to those who had retired yet.

The development of Chilean Social Security system can be divided into 3 periods. The first of them is “incipience” of pension security. Chile has become the first country in Latin America that had launched its national Social Security program. This occasion took place in 1924 and lasted till the 1970’s. In the middle of this period 3 major funds – “cajas” – ensured the old age pensions for the most salaried Chilean population, while another two funds covered old age benefits for military sphere. Others’ importance wasn’t so significant thus they covered only a small part of population. In 1979 only two of the rest funds had 1% population, the others had more below that level. This division of the active population could be observed in the Figure 1.

Figure 1. *Distribution of active population by the funds*



Source: Cheyre, H

Due to the plurality of the funds quantity there were lots of regimes. All of funds were governed by different type of regimes. Thus there were not a unique regulation and regimes these led that new funds had emerged. With emergence of them (35 different funds³) had born more and more other new regimes and their amount in 1970’s had reached the total number of 150.

³ Alberto Arenas de Mesa

In addition to all funds' pension payment receiving requirements had been differentiated. It could be observed in Table 1 on the example of existed three main pension security institutions in Chile: the Servicio de Seguro Social (SSS), the Caja de Previsión de Empleados Particulares (EMPART) and the Caja Nacional de Empleados Públicos y Periodistas (CANAEMPU).

Table 1. *Old age benefits of the three main institutions in the old system*

Institution	Retirement	
	Requirement	Amount
SSS	<ul style="list-style-type: none"> - Men: 65 years - Women: 55 years - 800 weeks' contributions - Contribution density of 0.5 	<ul style="list-style-type: none"> - 50% BS⁴ + 1% BS for each 50 weeks in excess of the first 500 - Not exceeding 70% BS
CANAEMPU	<ul style="list-style-type: none"> - Men and women: 65 years - 10 years contribution 	<ul style="list-style-type: none"> - BS*No of years of service/30 - Not exceeding BS
EMPART	<ul style="list-style-type: none"> - Men: 65 years - Women: 65 years minus 1 year for each 5 years' service with a maximum of 5 	<ul style="list-style-type: none"> - BS*No of years' contributions/35 - Not exceeding BS

Source: Cheyre, H.

There is observed that there was gender division of retirement age in some funds and different calculations in future payouts that were based on basic monthly salary. And even there were varied pension payouts ceilings. With these requirements that specified special conditions for receiving retirement benefits these funds were also distinguished by their membership requirements. If members of SSS had to pay in 1968-1980 7.25% of their taxable wages and employers – 14.25% in the beginning and 15.70% in 1979-1980, then CANAEMPU burden the highest part of taxes on contributors who had to pay 11% of their taxable wages and those who are hiring them only 5%, thereby the total contribution composed from 16% of taxable wage. The highest burden was in EMPART where contribution was compound from 26% wages, and 17% of them where was created by employers' obligation.

Most governments from 1950's tried to solve this stratification process in pension coverage, segmented structure and unfair distribution, but groups of interests had done their best to failure the government's attempts to changes. Main studies provided in that time showed that Social security system was inadequate; they criticized the system and concluded that it was

⁴ Basic monthly salary

costly to maintain such number of „cajas“ and thus there was inefficient administration. Consequently, this system faced problems that consisted of little coverage of population and if somebody were covered, their benefits differed from sector to sector. It could be observed that some of them had significantly high pension payments in contrast to other sector workers.

The second period in pension development was “welfare redistribution” system with universal coverage. It’s well-known as pay as you go system, i.e. PAYG system, which has covered higher percent of population in contrast to previous where only special groups had eligibility to deserving old age and most part population was uncovered by Social security. Retirement payouts depended on work years and calculated by the formula that again benefited some sector workers. In order to find the solution on this situation there were made different studies. They were indicated that Chile needs radical reform even before 1980’s when the reform was launched. It was showed on the historical data that system would fall under financial imbalance in future. Thus there would be social security deficit equal to 10.3-16.1% of GDP in 2000 and government would have to make payouts equivalent to 21.5% of GDP. These estimations were redoubtable but there wasn’t any step taken to reform the system before 1980’s.

3.2.1 Financing the system

It was assumed that presently economically active workers contribution in old system would cover already retired population part. So the measure of system adequacy was in proportion of active worker which make contributions. But because of inefficient management and existed different privileges for government employees, politicians and powerful labour unions accumulated resources were insufficient. Consequently contribution rate had been increasing and reached 50% of worker’s wages in 1974 including pensions, health and industrial accidents charges. As it is well known that part of the taxes fall on employers, so in Chile, employers begun to perceive the increased tax burden and thus they limited hiring the new labour force. And this led to rising unemployment in formal sector of economy, so active contributors number had dropped.

But suffering from unemployment population turned to seek jobs in the informal sector, that’s why population’s illegal activity had raised.

If there will be supposed *ceteris paribus* constant replacement rate and constant contribution rate, the contribution ratio will depend on demographic factor. It means that it will depend on how many people will be working to how many people will be retired. And with low

retirement age how it was in Chile and high life expectancy it could be shortly observed that under these circumstances pension provision system was inconsistent. There observed a declining tendency in years 1955-1979 in contributors to pensioners ratio, which were measured to be 12.2 in the beginning and dropped to 2.5. Accordingly to this level, benefit eligible ratio had fallen.

The active contributors had decreased from some period as shown in Table 2. After some activities of the government in order to fix social system there was a tendency in growing active contributors' number...

Table 2. *Active contributors to cajas*
(In thousands of persons, as of December of each year)

Year	Total	Year	Total
1961	1,531	1975	2,299
1965	1,888	1976	2,305
1970	2,141	1977	2,267
1971	2,213	1978	2,235
1972	2,263	1979	2,291
1973	2,391	1980	2,227
1974	2,387		

Source: SAFP

But from the middle of the 1970's had observed the declining contribution rate.

It was caused by increasing of amount of unemployed population, in reality high percent of population moved to informal sector of economy. Thus people had evaded taxation which was too high and levied undesirable tax burden on employers. But nobody had to choose or claim on something. And people realized that hadn't been the owners of their contribution, which they won't get them in return in far future.

3.2.2 Coverage of the PAYG system

Over the years only three major funds had maintained almost three forth of the whole population of Chile during the old system. The maximum coverage was in the year 1974, when it reached 79% of population. But later with system collapsing this ratio fell till 64% when the reform had started. This drop in contributors' quantity, on the one hand, was explained by higher unemployment, but on the other hand there was declining even among employed population, as it is shown in Table 3 (Appendix). Supposing these given data it could be seen the workers willingness to contribute to the system and their perception of its adequacy. Also

there had existed the factor of increasing of private sector, so persons in this sector were defined as self-employed and thus they had not contributed.

Generally it was accepted so that this PAYG system was unfair and served only in favour of rich and well-being persons. That's why almost one third of population tried to evade tax payments because levied taxes were perceived as privileged persons' enrichment taxes. In such unfair and worsen economical situation when inflation were strictly rising there do not existed mechanism of pension adjustment and this led to increasing poverty among pensioner with average and lower pensions. Also there were such imperfections in regulation so the newly unemployed person, who had been before regularly contributed to the system, could not obtain old-age benefit if he was at the moment of applying unemployed.

Another reason of tax collection impediments was higher contribution rate. The higher was tax rates the lower were contributors' quantity.

Due to previous reasons collected taxes were inadequate, where taxes were usually indicator of system's consistency. To all of these collected contributions had to be redistributed into the different programs of Social security including early retirement pensions. So only a share of population was de facto "eligible" for due to reasons above even more insufficient old age pensions. And of course this share was defined by powerful negotiations of the labour unions. And all power of pension redistribution had concentrated in their hands.

3.3 Privately administered defined-contribution system

The last period of pension development period is nowadays' system that can be called "self-assurance" system. It is today well-know self capitalization system, when the employee collects some funds in his saving account during working ability age. The pension benefits are usually proportional to the contributions. So employees are able to influence the size of their future payouts by working intensity or by legislatively allowed additional contributions over given 10% of mandatory one. Beneficiaries are also entitled to open the supplementary saving account so that when they would retire all or partial amount from that account could be transferred to the main saving account. By these means individuals' pensions again increased.

With launching the new social security system there were immediately stated the retirement age: 65 year for men and 60 years form women. This step was undertaken on the threshold of the reform, ii 1979. These served as the first step of the new Social security system

with unifying the retirement conditions. There also was created institution INP, institute of pension normalization which was responsible for further developing of the reform.

Even though this pension system is based on self-defined contributions, it may happen that accumulated funds on the individual's account won't be enough to provide him deserving old age, so the other institutions of the state sector were engaged to the system providing anti-poverty politics within this system.

3.3.1 Warranted minimum pensions

Sometimes it happens so that beneficiaries haven't accumulated such amount on their account to provide themselves by minimal consumers' needs. That's why Chilean government determined such a notion as minimum pensions. So every year the government fits the size of minimum pensions by the means of consumer's basket. In the case if the individual haven't got enough resources government provide him by the subsidies that are calculated by the difference between minimum pension and the individual's savings at his account.

But there was a requisition that said that beneficiary at the moment of retire should contribute to the system at least 20 years. And it was supposed that this requisition will prevent state budget from "deadheads" and stimulates to work even that part population income of each won't insure appropriate old age in future. It was supposed that only active contributors would be eligible to the minimum pension and person in deep poverty that works only few hours a week or month cannot meet the requirement. And these requirements would meet only women or part-time workers. The amount of guaranteed minimum pension was US\$163 a month in 2006 and equalled to 22%⁵ of GDP.

But there was undertaken reform in 2008. There was reformulated the first tier of the social security system. And requirements of being active contributor were soften, precisely they were abandoned. So every person who reached 65 years independently on his contribution history is entitled to minimum pension today. And it amounted to US\$118 a month from the middle of 2008.

3.3.2 Freedom for personal preferences

⁵ Salvador Valdés-Prieto

The new pension system in Chile left for contributors the choice of choosing the accumulation fund and at any moment to change it. There are also free to select the pension payouts' form, it could be lifetime rent, annuity or monthly payout from the APF or from insurance company. So, coming pensioners are able to select not only the accumulative pension fund but also the pension regime. Insurants may leave themselves the right to control their accumulations or transfer this right in favour of insurance company. Also exists possibility of mixed regimes when the insurant during certain period of time is under one regime, and later he leaves the control over his savings on his personal accumulation account to insurance company.

Under some circumstances future pension beneficiaries are able to retire before the defined by law age. For men it is before 65 and for women before than 60. It can happen in case if future pensioners accumulated funds won't be less than average wage during last 10 years and would be more than 110% of minimal pensions.

Considering all these circumstances, beneficiaries so coming pensioner play active role in the system. And only they can consider how and how much they will get from the system.

3.4 Advantages of the new system

Chilean system is considered to be one of those that is inherited by different state. And this phenomenon cannot be happen without its advantages. It has fundamentally changed social security view. One of the edges is lighten the state burden: every person assures his old age himself. There was abolished employers' mandatory contribution to the funds that were equalled to 20%. So there disappeared employers' additional cause to dismiss their worker because of non adequate taxes.

The 1980's were exactly years of growing of Chilean economy. And accumulative pension funds' contribution could not be substituted in that time. They provided economy with additional investments. They gave birth to new companies which led to decreasing share of some monopoly companies.

Investment yield on accumulation had provided 13-14% annual yield in real calculation what is the main difference from other systems where contributors only suffered from inflation without any compensation.

Contributors of the system could be sure that their accumulation de facto belongs to them. So nobody have the right to alienate.

3.5 Conclusion

Chile was the first state who has implemented such a radical reform for social security.

From that new stage in the economy and social security of the state the economic and social security of population and the government are not considered as independent in-between, but as indivisible merged.

The economy was given the resources of capital accumulation, which is characterized by the following features. It is stable, as tied to processes that are almost "demographic" sustainability. It is an internal, allowing growth to avoid dependency on fluctuations in world financial markets.

Another importance of pension reform implemented in Chile is a fundamental change of perspective on the human class-role substance. Obviously, capitalizing part of their income, each worker solves the problem of choice becoming, therefore, the owner of his own destiny.

4. The case of Kazakhstan

The period of transformation of Kazakh society from centrally planned into the liberal economy with developing of market relations was distinguished by changes in the social protection of the population. Especially it was marked in the pension system, the reform of which involves 2.5 million people, including the old age pensions, disability, occupational illnesses and loss of breadwinner pensions.

Kazakhstan has reached its independency in 1991 after the dissolution of Soviet Union and has become the first among former Soviet Union states who initiated the reform of social protection system based on generation solidarity to the one which was founded on self-accumulated accounts.

The basic document has become the law “About social protection in the Republic of Kazakhstan”, initiated in 1997, which lead off building of the accumulated pension system. So Kazakh pension reform was built up in 1997 and implemented from January 1998.

4.1 How did it come to the reform?

The old pension system was traditional system with defined payouts based on conception of “reward for the effort”. But this system was crashing all over the world because of that time false understanding of human behaviour. And Kazakhstan wasn't exception in this case.

Kazakhstan's minimum age was at very low limit. Usual retirement age was set at the 60 year for men and 55 for women. Payouts were calculated by the formula which was constructed dependently on wages and duration of the social tax payments period or just working age.

Pension actives weren't invested, so they've been used to cover different state expenditures part of which constructed the old age payouts.

The system's basic characteristics:

1. Too wide coverage. There was to widespread coverage of population due to low retirement age and special privileges.
2. High tendency of population ageing. Modern society has a problem of decreasing rate of population growth because of low birth rate. And Kazakhstan falls into those society groups with decreasing fertility rate. But there existed also other main factor of population ageing related to the region. After the dissolution of Soviet Union and reaching independency in the post-Soviet countries there had began a high wave of migration. And Kazakhstan was in that category of countries with high tendency of emigration. Mostly the emigrated population part was under the working age, so it

led to the situation of high proportion of old-aged people and low of youngest ones. The results were that there was decreasing worker to retiree ratio which led to situation when whole burden of pensioners supporting was laid on fewer and fewer workers.

3. Low pension age. 55/60 It was set up in Soviet Union that the retirement age began for men at 60 and for women at 55. In many practices there is tendency in increasing this limit because of efficiency. But in the Soviet Union it remains at the same age. So the usual working experience was equal to 40 years at the best case, 35 for women assuming that the person start his careers at the age of 20 and doesn't suffer from unemployment, i.e. there may take place only short run unemployment, because of structural changes or getting new job, but this period shouldn't last more than one year. But this does not answer the reality.
4. Low pensions. Replacement rate was equal to approximate amount of 39% of the wage in 1998, although officially it was set up at the point of 60% of the highest wage over past 12 months plus 1% for extra year of service over 25 years for men and 20 years for women. The reason for so low pension replacement rate was that old age benefit formula didn't include indexation. So formally generous pension calculation formula was in reality only statistics. Furthermore there could be observed a significant declining tendency in this ratio as it shown in Table 4.

Table 4. During and estimated replacement rate of the old system.

	1996	1997	1998	1999	2000	2001	2002
Ratio of an average pension to an average wage	0.405	0.406	0.394	0.351	0.310	0.285	0.285

Source: World Bank

5. Yearly pension benefits possibilities. It created special facilities for certain social groups - interest groups and lead to non-equal wealth distribution. Workers could retire at yearly ages but with reduced benefits that they received till the normal retirement age when it had been increased to usual benefits. So these groups created additional burden on the state budget. Due to this privilege groups average pension age could be counted as 52 years⁶. These interest groups received about 23% of all old age payments. According to survey of 1996 there were about 32% of pensioners

⁶ World Bank, 1998

under the normal retirement age, i.e. younger than 60. And there weren't any strict restrictions, so most of them could continue to work.

Old-age benefits had been paid to 2.1 million⁷ retirees in the middle of 1996. So special groups received more than 480 thousand tenge, but advantage was in their quantity which gave them opportunity to receive higher pensions than average one.

The other point of this system was the social tax collection that served as resource of pension payments. So tax collection led to sensibility of the system to business cycles, especially to recession when tax collection ability decreases. It could be observed in the end of 90's when there was a crisis in Russia which involved Kazakhstan. Bank sector was in difficulty, most banks had bankrupted. Unemployment had risen with consequent enlargement of informal sector. So contributions had fallen because informal sector isn't regulated and it's impossible to calculate wages and tax base. So people were using advantages of tax evasion.

The pre-reform system was perceived as unfair distributed system, which served in favour of privileged persons. Because of absence of any link between contributions and payouts people ceased to believe in fair distribution and deserving their days. In most cases pension payouts were delayed. For contribution collection was responsible local pension fund departments in raions⁸ which was answerable to local departments of social protection for auditing and redistribution. Part of contribution was sent to oblasts⁹ and the left part which calculated for 70% remained in those departments for further usage. But this arose the problem of interest, because local authorities didn't want to redistribute own resources to higher level before all pensioners in relevant locality had been paid. Considering the situation of pension payment arrears and insufficient funds due to tax evasions and unemployment local departments couldn't assure even "own" retirees.

The whole situation in social protection is described so that how many workers support pensioners. This called system dependency ratio and calculated as pensioners over contributors. There is only a one fifth part of working ability population contribute to system as it shown in Table 5. And the contributors' quantity in relation to old age pensioners was only 2 contributors to 1.8 pensioners in 1996.

But in the framework of all discussed there is importance in old age beneficiaries, due to this is calculated old age dependency ratio which in Kazakhstan was equal to 0.18 in 1995 that stands for very low ratio.

⁷ Emily S. Andrews

⁸ Administrative unit. They consist of municipal and rural localities.

⁹ Higher administrative unit than raion

Table 5. Demographic statistics

	1996	1997	1998	1999	2000	2001	2002
Population 20-59, thousands	7990.8	7922.1	7785.1	7689.9	7703.0	7722.1	7809.2
Contributors, thousands	2771.1	2670.3					
Contributors/Old age pensioners	1.8				2.0		3.2

Source: World Bank

Due to better life condition, medicine and low fertility rate old age dependency ratio was changing. It was estimated that old age dependency ratio will increase in future and create 27.1% in 2030. So that retirees will amount to one forth of working population in 2030.

Table 6. Old age dependency ratio estimates

	2000	2010	2020	2030
Ratio	16.5%	15.9%	21.7%	27.1%

Source: www.actuary.ru

Unpleasant demographic situation and mentioned reasons caused system's inevitable insolvency. Ineffective decentralization and additional obligations about redistribution provoked inefficient tax collection which increased payroll tax even to 25% of the wage which led to higher tax evasions and increased the volume of informal sector of economy. Actual collections were equal only to 45-52%.¹⁰ So state budgets should to refill the local budgets what has increased the state burden and led to crash of the system. Arrears from enterprises had been growing and had increased from 14 billion in 1995 to 40 billion¹¹ in 1996. Additional to this existed problem of so called "envelope wage", i.e. the situation when wages are paid in "envelopes" and are underreported. Arrears in contributions led to arrears in pension payments, which are the reason why pension payment arrears had reached 26 billion in 1996. And supposing even partial extinction of contribution arrears could eliminate pension payments arrears. But actually the government had given to pension fund amount to cover arrear and administrative expenses which equal in to 36 billion in 1997. Amounts for covering state

¹⁰ Baimatayeva G.K.

¹¹ Emily S. Andrews

expenses to cover pension payments were equal to 2.5% of GDP in 1997 with growing tendency.

And Kazakhstan began searching the new way of social security, how to unload the state budget, decrease arrears, how to enforce people for contributions and comprehension of importance of the system.

4.2 Concept of pension system in Kazakhstan

The decision of pension system transformation, taken 12 years ago by the government, had historical meaning to the whole country. Kazakhstan was the first among CIS countries who has begun reforming the solidarity based old pension system with the planed transition to accumulated pension system. This reform was conceived and realized to lighten budget burden and create fair system of pension security. Also there were determined its basic goals: maintenance and hoarding pension accumulations of the contributors.

Considering all problems and characteristics of the solidarity system, allowing for changed human minds and behaviours President settled a prosecution of developing or adopting new social security system which would solve existed problems of the old system. Arisen shortages had to be eliminated, so it considered that moderate reform wouldn't take effect. After half year of reflection government decided to perform fundamental changes in the existing system and provided a draft conception of the reform. In the mid-1997 relevant authorities afforded to draft new legislation of the system.

In November 1996 there were made first proposals about the reform.

As a base of the system was taken well known but at that time existed only one and a half decade Chilean pension system. The reason for that decision was similar initial situations before the fundamental reform. But Chilean pension system couldn't be universal for every state with similar initial conditions because every country has its own specifications: either in politics, social situation, and demographics, legislative or institutional features.

Most important criterion of transition to the new system was the government's determination and ability to fulfil own responsibility in the frame of the old system. So persons who had received their old age benefits before the reform had remained in that solidarity system while Chilean system had adopted payment certificates that serves as annuities. That's why during the creation new legislative authorities had to consider mixed system until there would remain only new system recipients.

In order to increase the efficiency there had to be undertaken more effective pension reform than in Chile, where participants had a choice between two systems: the solidarity

system and accumulative pension fund system. Thus mandatory participation in the new system was implemented. And new conceptual document was introduced in February 1997 what led to public discussions. Thereafter revised version was transmitted to affirmation in May 1997.

4.3 Transition period to the new system

The decision about the reform of pension system, that was taken more than 10 years ago, had important mean for the Kazakh population and became historical for the whole state. The main goals of the reform, that intended to solve the budget burden, were saving and maximizing accumulated pensions of the contributors. The government has created three-tier mechanism of protection in order to save the pensions:

- It has created supervision over accumulated pension system with the help of governmental institutes: Accumulated Pension Fund Activity Regulation Committee, securities market regulation by National Bank and State Pension Payment Centre,
- Legislative demarcation between functions of the three participants of the new system: accumulative pension funds, asset management companies and custodian banks.
- Strictly defining the list of instruments for pension active investments.

Reform was implemented under time in comparison with other countries. The main legislation of the reform and following whole social security system was enacted in June 1997.

In January 1st, 1998 had been launched new pension system changing all social security as it was decided in the framework of the law “About pension security in the Republic of Kazakhstan”. The Social Security system was divided into 3 pillars and called “three-pillar system”. The first pillar is old solidarity system, the second one is accumulated pension fund system and the last is complementary optional pillar.

Nowadays the system exists 11 years but Kazakhstan still hadn’t transited wholly to “pure” accumulative pension system regime while there is still first pillar. And it’s expected using the pure accumulative pension fund system only by year 2038.

The whole history of pension reform evolution in the Republic of Kazakhstan could be divided precisely into 2 stages.

The first one was so called pre-reform period which lasted from 1991 till 1997. The government insisted on remaining of socially oriented society. Thus the social security was under law “About pension security of the citizens of the RK” from 17th July 1991. During this

stage the pension system operated by the rule of solidarity inherited from Soviet Union with all its components and rules. In this system the only resource of the pension payments was the government or state which replenished its pension funds by social taxes from employers. The pensions were based on the state subsidy, that's why the burden of pension payments had fallen on state budget.

The social taxes were equivalent to certain percent of general wage funds. So every employer should to indirectly "finance" not only "own" retired employees. But that payments went through the state budget, so despite the economic situation and unemployment rate government had to take the responsibility of paying pensions and to indices them accordingly to inflation rate.

Coming to pre-reform pension system in Kazakhstan it can be observed that this system was based on computation that related to the highest wages earned last working period and amount of years spent in work during capable age.

The second stage was understanding the insolvency of the pre-reform system and refusal of solidarity distributive system and transition into accumulative insurance system. Admitted in March 1997 "Concept of reforming pension system in the Republic of Kazakhstan" and later in June 1997 passed Law of RK "About pension security in the Republic of Kazakhstan" established the bases of pension security reform.

There wasn't any mid-period, because the reform was under timed. Thus there was only one and a half year from the incipience of the first ideas till the system's whole implementation.

The main step of the reform was structural one. There was created State Pension Payment Centre (SPPC) to centralize tax collection. Because before it was decentralized and less efficient, so now all the responsibility of tax collection and pension payouts are on its duty. Thus considering more efficient work of the collections and incentives it was decided to reduce payroll tax of 25.5% from the old system to the new limit of 10% which will pay employees in the new system. But contrary to the old system contributions became property of the contributors although in limited use. They acquire right of "ownership", because contributions are transferred to individual's personal account.

The essence of transformations was creating new multi-tiered pension system based on self-responsibility. This social security system had to develop the local capital market and had become incentive I creating strong insurance branch.

Initially, the reform was thought and instrumented to unload the budget burden and to create more equitable system of social protection. Accumulated pensions allowed carrying out most of the government programs. But despite the considerable and important results of the reforming the system it's unknown whether the pension reform was successful.

Another step was reducing amount of privileges and increasing retirement age. That's why retirement age was raised to 58 years for women and 63 years for men. This was move in order to decrease number of retiring persons and somehow lighten the state budget.

Due to still existing old system in the first pillar pension payment calculation formula had to be recalculated and reformulated. Otherwise it would be considered as mixed system reform, because there wouldn't be any improvements. If the old formula was:

$$PP = \frac{\sum_1^T w_t}{T} \times (60\% + 1\% \text{ for every extra year of working period over 20 years for women and 25 years for men, max 15\%}), \quad (1)$$

where

PP – pension payouts,

T – years of wage calculation, T=3,

w_t – contributor's average wage during any 3 years.

Then consider individual who had received wage X during 3 years. Assume there weren't wage growth, inflation. If individual's work experience was 30 years, then his pension payout would be 65% of X for man and 70% of X for woman (because of different extra year calculation formula). But with wage indexation their pension payouts would steadily decrease under average wage.

The new formula was recalculated as

$$PP = \frac{\sum_1^T w_t}{T} / w_{branch, last year} \times (60\% + 1\% \text{ for every extra year of working period over 20 years for women and 25 years for men, max 15\%}) \times (\text{previous year's average wage in the branch when the individual retired}). \quad (2)$$

Where additional component is average wage in branch $w_{branch, last year}$. But if this recalculation reduces individuals' pension payout they are recalculated from the old formula. In result pension were increased by 22% in June 2003 what had partly improved the first pillar by reducing disproportional and unfair distribution in the branch.

4.4 Accumulated pension fund system in Kazakhstan

Every new system that had turned over the previous one should have its own new "infrastructure". So the financial defined contribution scheme had totally changed old system's institutional structure.

The financial defined scheme is based on interaction of three financial institutions: accumulative pension funds, asset management companies and custodian banks.

The main part of the new scheme became funds - the new socially financial institutions – initially their amount counted for 20. But after defining the minimal charter capital at 180 million tenge some accumulation funds had merged.

Accumulative pension fund is financial institution of contractual saving type which attracts contributions and provides their proper investment. Thus accumulation funds does not redistribute but yield in favour of contributors.

The essence of the accumulated pension fund system is maintenance and maximizing contributors' means by investing into the real production. Its functioning mechanism consists in following: every month employers transfer 10% of the wages including all types of wages, different bonuses and premiums in the form of mandatory pension fund contribution to personal accounts. From these resources are cumulated pensions of the contributors of accumulated pension funds. Contributors or their employers can supplement mandatory pension contributions by the voluntary pension contributions, the amount of which is not limited; they can be contributed non-recurrent or frequentative, regularly or sporadically, in cash or by money transfer.

Pension contributions were directed to state accumulative pension fund or to the non-state accumulative pension fund by the choice of contributors, which has individual account in one of them, set up by the pension contract, and social individual number (SIN). Accumulated contributions of the workers pension funds transfer through the custodian-bank to the asset management company (AMC), which allocates resources into securities, deposits in the banks and other financial instruments. Received yield from such allocations is called investment yield, and it is distributed to the individual contributors' accounts according to the accumulated means and funds' commissions. Thus individual accumulated pensions are formed, which paid out by contributors' retirement age.

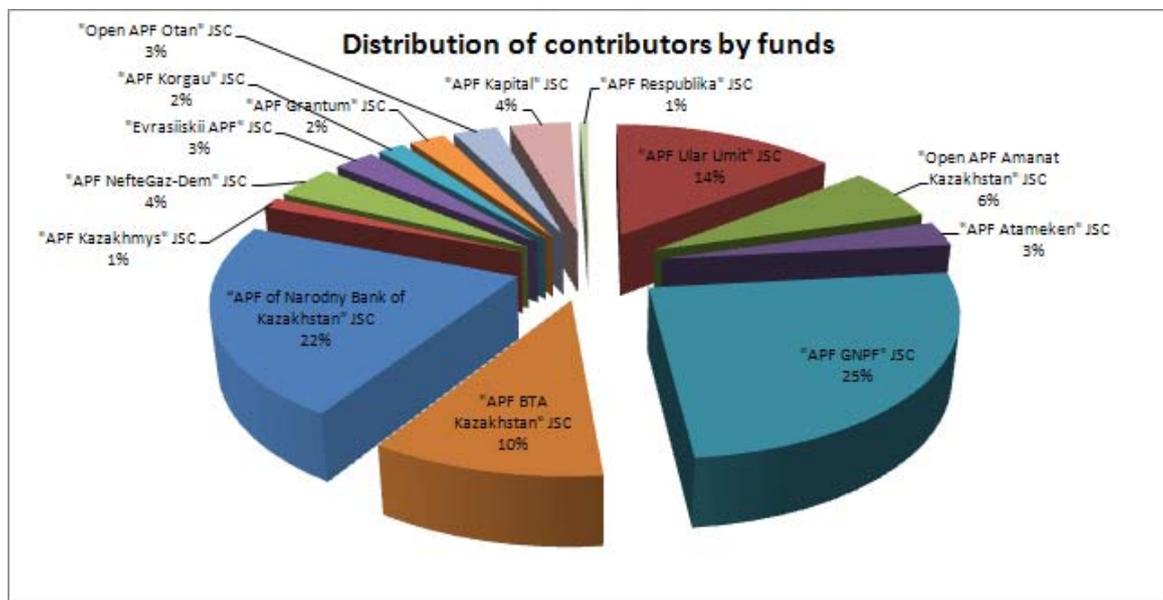
They are created as closed Joint Stock Companies of two types: open pension funds and corporate pension funds.

One of the accumulative pension funds is GNPF; it is primarily state accumulation fund and has to attract only mandatory contributions. Today stakeholders of the fund are National Bank of Kazakhstan with share of 57.61%, government with 32.40% and IBRD 9.99%. It's the only pension fund with foreign share. Primarily essence of this state pension fund was being an intermediary institution, which would promote increment of credibility of population for accumulative pension fund system and gradual transfer of contributors into non-state funds. There were spread contribution's safety state guarantees on this fund. And there were

restrictions on its investment activities. The lion's share of its resources had to be invested into government securities. But later it was planned to be privatized and so there will be one more step to the market economy.

In order to obtain population's credibility were used so strict measure. Such scepticism and distrust remained in population's mind since the beginning of 1990's. Therefore most contributors chose the state fund where government warranted pension payout. So the division of pension system participant was set as following: on the 1st January 1999, i.e. one year later as the reform was launched, participants' share of 79% preferred state accumulation fund, so the minor part of 11% ¹² had chosen private ones. But with development of capital market and increasing of population credibility in government and market economy the distribution of contributors by funds had changed. Even though one fourth of the contributors' population belongs to state-APF, there are other 3 funds that have also dominant position on this market: they are "APF Narodny Bank of Kazakhstan", "APF Ular Umit" and the less share of population has "APF BTA Kazakhstan" with share of 10% by January 1st, 2009. Thus 71,3% of contributors are concentrated in 4 of 14 funds.

Figure 2. Amount of individual accounts on contributors' mandatory contributions by January 1st, 2009

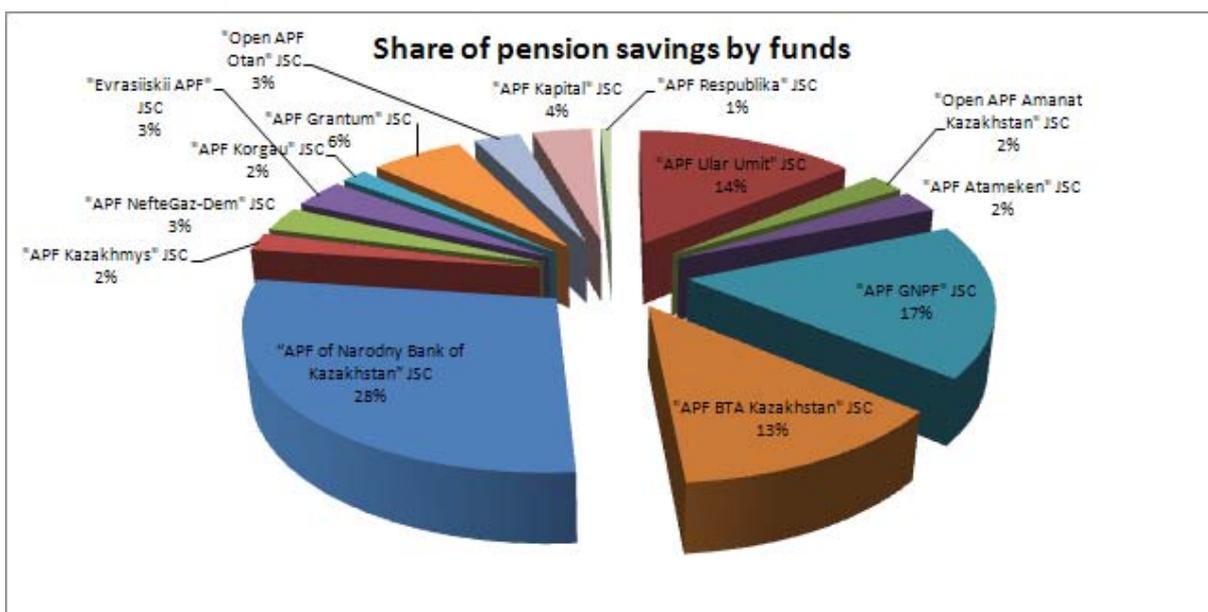


Source: AFN

Even though the major part of contributors are cumulated to the GNPF pension fund but by the share of pension savings thus fund is on the 2 position:

¹² Vestnik KazGU. Economic Issue, 1999, №4

Figure 3. Share of pension savings by funds.



Source: AFN

So the first place in pension accumulation receives APF Narodny Bank of Kazakhstan with the share of 28% of total accumulation. This difference may be caused by different portfolio creations, so the GNPF's portfolio is consisted mainly from state securities.

Other 13 pension funds are also closed joint stock companies and from their creation are non-state funds. Non state accumulation fund are divided into 2 groups:

- 1) open pension funds;
- 2) corporative pension funds.

There are 12 open pension funds and 1 corporative pension fund – “Kazakhmys”. The founders of open funds could be legal entities and individuals who are the residents of the RK. The founders of the corporative accumulative pension fund can be legal entities of the RK. But state enterprises and organizations with state share are not allowed to be founders or shareholders of the non-state accumulation funds.

Open pension funds receive payments from mandatory contribution independently from contributor's work. But corporative accumulation funds are created in favour of beneficiaries who work for one or several legal entities that are founders or shareholders of those funds.

Due to market economy funds are in competition not only for the new members but also for the existing old ones. Part of their expenses goes into marketing and obligatory reporting the contribution on the state of their accounts.

4.5 Institutional structure (AMC, Custodian banks, SPPC, AFN)

The pension fund system was fully restructured. If the base of the system had become APF then there should emerge other institutions which would regulate and mediate transaction between funds and beneficiaries. So the second key institution in establishing the system had become Asset management companies (AMCs). AMCs are special institutions that were created to manage pension funds assets. They founded as closed-end joint stock companies. Their minimum charter capital is defined by AFN. AMCs participate in auctions of government's blue chips sales.

A priori pension funds and AMCs were supposed to be independent organizations, but there appeared some link in-between: it led to creation of concerns, so today there are 14 APFs and 14 AMCs. Accumulative pension funds can hire only one AMC, while every AMC can manage several pension funds.

Table 7. The amount of AMCs in Kazakhstan in 1998-2009

Month	Year	# of AMCs
June	1998	4
February	1999	6
August	2001	7
May	2002	6
July	2009	14

Source: Baimatayeva G.K, www.afn.kz

Now investment portfolios of accumulative pension funds include more than 100 financial instruments. The major part of pension assets is allocated to internal financial instruments, mainly in securities of Kazakhstan's emitters. About 35% of total investment portfolio of non-state pension funds is disposed to non-government securities.

There were stated that accumulative pension funds cannot invest its assets in order to propose better transparent system. That's why each pension fund has to hire asset management company (AMC). But every rule has an exception, so state pension fund GNPf received license to manage its own assets in 1999. Nowadays all 14 AMCs are organizations that are included to concerns.

The function of the AMCs is to create appropriate portfolio so that it will meet regulations about diversification and risk stated in Pension Law and will yield hire profit.

Non-state pension funds' assets' average weighted real yield corrected to inflation was 17.8% in 1998, 32.9% in 1999, 6.7% in 2000, 8.2% in 2001 and 7.2% in 2002.

Investment assets were invested into strictly defined percentages of financial instruments. From the beginning of pension reform, i.e. from 1998, it was supposed that pension fund assets would promote development of capital markets in the republic. In particular, it was planned that private pension fund assets would induce development of corporate securities. However by results of the first year of pension reform 99.3% assets were invested in government securities, namely in Eurobonds 15.53%, in short-, mid- and long-run Ministry of Finance securities 81.78%, National Bank notes 2%. There weren't other alternatives for pension fund investments portfolio restrictions were held.

From 2008 the share of foreign emitters' securities in accumulative pension funds' cumulative portfolio had been increased and today is almost 10%. As well share of domestic companies' foreign currency bond had arisen from 0.21% to 2.73%¹³.

Table 8. Jointing Accounting of APFs October 1st, 2008

Financial Instruments	Million tenge	%
Government securities	360520	26.69
Foreign emitters' non government securities	167672	12.42
Foreign government's securities	32345	2.4
Gold	17778	1.31
Local non government securities	593586	43.96
Bank deposits (second degree banks)	171358	12.69
Derivatives	7121	0.53
Total	1350380	100

Source: AFN

So according to the funds' joint balance the most priority was given to republic's non government securities, where was invested almost 44% of the assets. The second priority was given to government securities which has stable yield and secured.

According to legislation AMCs could invest pension assets in following investment instruments:

Government securities – minimum 40%;

Municipal securities – maximum 5%;

International banks' securities – maximum 10%;

¹³ AFN

Corporate equities – maximum 30%;
Corporate bonds – maximum 5%;
Bank deposits – maximum 20%;
Foreign corporate securities – maximum 10%; (only with rating AAA)
International financial organizations' securities – maximum 10%.
But this restrictions were removed from 2007.

The following institution that ensures proper work of the system is Custodian bank. This special institution's role is to service for asset management companies. And there is strict condition on its establishment: the custodian bank shouldn't be affiliated with APF and AMC. They are licensed by AFN. But initially licenses were given by National Commission on Securities, but by 2001 the Commission was reformulated and its functions were passed to AFN and National Bank. The amount of custodian banks numbers 11 by July 1st, 2009 (Table 9, Appendix). The main functions of the custodian banks are keeping count of operations and allocation, gaining investment yield on accumulated pension assets and provide information for funds about their account balances and AMCs activity. So during this, custodian bank have to control objective use of resources and observance of legislation about investment limits.

State Pension Payment Center (SPPC) is also one of those pillars that create adequate social security system. It is the institution which provides the “first pillar” of the system, the pillar that based on state funding. SPPC were created in 1998 with the launching the reform. And it only provided pensions payments for pensioners from solidarity system. But after small but very important reformation of the system the SPPC has obtained new function from April 1st, 2009: it have to keep all pension assets records. If there was such problem that one contributor had two or more accounts in different funds while there allowed only one by legislation, after this reformation all accumulations are transferred to one account by the contributor's preference or automatically to the last fund. And this does not make a problem to SPPC, because it serves now as large “data bank”. New function of SPPC also eased usual account transfers that allowed by legislation (not more than twice a year).

4.6 The legal base of the new system

As with the previous Soviet Union's solidarity system so with the accumulative pension funds system the state reserved the right to regulate. For this purpose was developed the current Law «About pension security in the Republic of Kazakhstan», which consists of five sections.

This Law includes measures to ensure the preservation of retirement savings, the order of pensions from the SPPC, as well as from accumulative pension funds.

Pension fund system was created as independent financial banking system and its resources aren't included into state budget. Pension funds do not substitute agencies of social security. That's why there still remaining Ministry of Labour and Social Security with its local representations. Pension funds are allowed to invest accumulation into short-run and long-run government securities. They are also allowed to set up branches and representations with coordination of authority, but accumulative pension fund cannot be a founder of other accumulative pension fund.

Governing organ of the pension fund is executive board with the chairman.

Asset management companies are obliged:

1. Invest pension funds assets straight following legislation;
2. Regularly make an evaluation of pension assets;
3. Report their activities to the date and form stated by law;
4. Inform about their activities to proper accumulative pension funds and authority;
5. Publish information about their activities.

Let us turn to some articles of the Law.

In accordance with Article 27, the contributor of accumulative pension funds have the right to choose the pension fund, to obtain information on the state of his contributions and yield, to carry out voluntary pension contributions in favour of third parties and to seek judicial review of the actions of the fund. But along with that contributor must make mandatory pension contributions only in one of the accumulative pension funds, report to the accumulative pension fund about any changes affecting the performance of obligations, within 10 days from the date of change.

The beneficiary in turn is entitled to receive pension benefits from the cumulative funds upon reaching the retirement age and in other cases stipulated in the Law, to transfer their pension savings from one pension fund savings in the other no more than two times per calendar year, to bequeath their savings, and also has the right to withdraw them when leaving for permanent residence outside the territory of Kazakhstan.

In accordance with the Law, citizens have the right to pensions:

- from 1 January 1998 - the men on reaching 61 years, women - 56 years;
- from 1 July 1998 - the men reached 61.5 years, women - 56.5 years;
- from 1 July 1999 - to men upon reaching the age of 62, women - 57 years;
- from 1 July 2000 - the men reached 62.5 years, women - 57.5 years;
- from 1 July 2001 - to men upon reaching age 63, women - 58 years.

So as it was described above nowadays' retirement age is 63 years for men and 58 years for women. It wasn't increased instantly, so there wasn't any shock for population. And there still remained some "privileges" to some groups of population. Rather it was compensation for living or working conditions than "advantages". Example for this is early pensions for those who lived at Semey's testing ground during 1949-1963 (50/45 years).

Pension payment regulations and population transfer or division had no small part in the legislation. Pensions are implemented as follows: if the person's work experience started after 1 January 1998, upon reaching retirement age he (she) will receive benefits only through his own retirement savings from his accumulative pension fund. For those who were working at this period at least 6 months, according to the law, their pension will consist of two parts. The first part is from SPPC. Its size is calculated in proportion to seniority. The second part is paid from the accumulative pension fund, and its size will directly depend on the value of retirement savings. All who received a pension before 1 January 1998 will continue to receive pension payments from the State Pension Payment Centre in conjunction with a contribution defined scheme.

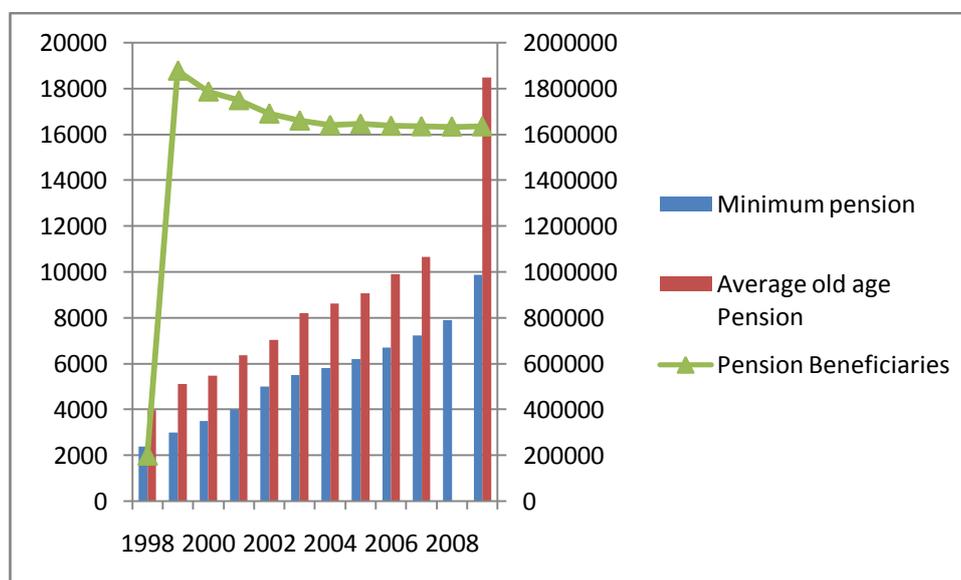
One substantial innovation of the reform was introduction of minimum pension notion. Every person with full working age period (20/25 years) is entitled for minimum pension. It's state guaranteed pension amount. The other novelty is social benefit which engages those whose pension are less than $3 \times \text{MRP}$ (3 base enumerate¹⁴). Usually minimum pension is derived as 70% of previous year substantial living minimum standard and indexed for inflation. And they are announced annually.

According to Program of further deepening of the social security reform in the Republic of Kazakhstan on 2005-2007 years, from June 1st, 2005 was introduced state base pension payout which allowed to increase pension payouts from solidarity system and simultaneously provide social guarantee for youngest population, i.e. participants of the accumulative pension system. The basic pension is one type of pension that decreases population poverty and financed from state budget. It is a pension that gets every citizen who has reached retirement age, regardless of seniority and salary levels and its amount had increased from to 5388 tenge in 2009. The amount of basic pension augmented to 40% of the substantial minimum in 2009 and by 2011 the basic pension payment will be not less than 50% of the substantial minimum. By legislation, a basic pension, regardless of seniority and salary could be received in addition to the labour pension by all pensioners, so this one of the way how the average pension is increased.

¹⁴ MRP for 2009 was set at 1273 tenge

Improving of pensions, based on the adjustment of income received in the calculation of pensions, is provided every 5-10 years depending on the economic opportunities the country.

Figure 4. Old age pensions, benison beneficiaries and minimum pensions dynamics.



Source: Ministry of Labour and Social Protection, AFN

Minimum pension has increased from the launching the program, but it partially caused also by inflation. So nowadays there is increase from 2400 tenge to 9875 tenge. While there was move in minimum pensions weighted for 4.11 times, the rise in average old age pensions is 4.7 times. Coming to amount of pension beneficiaries' tendency, there was a sharp raise of the benefit eligible person from the start of the reform, but later there is slight decreasing tendency.

The point that can't be left without attention is state guarantee of actual contributions corrected by inflation and minimum investment yield. If the nominal rate of return of accumulative pension fund on pension assets amounts to a value less than the minimum values of yield, the accumulative pension fund recovers the difference between the nominal rate of return and minimum return at the expense of equity capital. In its turn fund have to require this amount from Asset Management Company. The minimum rate of return is set up by authorized body.

The activity of AMCs is also regulated, but this legislation was developed and adopted not so long ago. For, example the Law «About investment funds», was adopted in July 7th, 2004 and the Law «On securitization» just in February 20th, 2006. And the main regulation authorities are remains AFN and Central Bank.

The legal system is a guarantee of operation of the new pension system. So every year there developed new improvement of the existing laws or are adopted the new ones.

The innovation of this system the concept of which was adopted 10 years later after the launching the fundamental reform is the **choice of the portfolio**. From the year 2010 will be entered three investment portfolios: conservative, moderate and aggressive. These changes seem to affect the younger generation. Pre-retirement age people will not have a choice by law, because they will retire soon. So their accumulation will automatically go into a conservative portfolio. Thus the fund will not have a right to risk their money.

All these will give the contributors broad freedom in own investment management. But they will acquire an additional point of responsibility thus they will choose appropriate financial instruments.

In order to provide such policy there should be renovated software; staff should trained and resolved legal enquiries.

4.7 Link between pension funds' assets and economic growth

The contribution defined scheme of pension system gave birth to the new institutional investors, those are accumulative pension funds. Pension system of Kazakhstan simultaneously fulfills two functions. On the one hand it allows making payouts in good time, i.e. plays role of social security of the population. On the other hand, resources of the accumulative pension fund are used like source of investments to the economy of the country, i.e. investment possibility of the country is increasing.

This year contributors accounts in the accumulative pension funds amounts 9 567 355, and the accumulated assets had reached 1 616 milliard tenge¹⁵ what is 9.7% of GDP. During this year monthly average of pension contributions was equal to 23.8 milliard tenge or more than similar data from the previous year, so difference is 16.1%.

Table 10. Role of pension sector in the Republic's economy

Dynamics of basic measures	1.01.05	1.01.06	1.01.07	1.01.08	1.01.09	1.06.09
GDP, mlrd tenge	5870.1	7453.0	10139.5	12849.8	15936.5	16724.1
Ratio of accumulated pension to GDP, %	8.2	8.7	9.0	9.4	8.9	9.7

¹⁵ Equivalent to 10.77 milliard US dollars, taking into account the devaluation in March, 2009

Ratio of contributions to GDP, %	6.5	6.9	6.7	7.1	7.4	7.8
Ratio of net investment yield to GDP, %	2.0	2.1	2.5	2.6	1.9	2.4
Ratio of funds' aggregated capital to GDP, %	0.1	0.2	0.2	0.2	0.3	0.4

Source: AFN

From year to year funds' accumulated capital is rising roughly by 0.3-0.5% of GDP. Accumulative pension funds are massive investors and play a key role of development of Kazakhstan capital market. Due to the new contributors in the system, their contributions to GDP ratio is also increases, even the mandatory contribution rate is still remains on 10%. Starting new social security system was the trigger in development of financial sector of economy, so investments in basic stock in the republic have increased by 14,9%¹⁶ in 2009 in comparison to previous year. There is visible role of pension funds in developing of stock market, whereas APFs invest their financial resources in long-term prospects, accounting contributors' interests.

The sum of net investment yield from investments that was credited in favour of future beneficiaries was 408.9 milliard tenge on 1 June 2009. From the beginning of the year growth of net investment yield was 101.9 milliard tenge.

The size of contributors' accumulated pensions on period from 1.01.2008 – 1.06.2009 is overviewed as following:

Table 11. *Accumulated pensions and investment yield, in milliards tenge*

Data	1.01.08	1.01.09	1.06.09	Increment to the beginning of the year	Increment to the beginning of the year (%)
Pension	1208.1	1420.5	1621.2	200.7	14.1

¹⁶ Interfax Kazakhstan

accumulations					
Pension contribution	912.1	1184.7	1302	117.3	9.9
Net investment yield (NIY)	339.3	307	408.9	101.9	33.2
Share of NIY in sum of pension accumulations	28.1	21.6	25.2	-	3.6

Source: AFN

It's seen from this table that increment of accumulated pensions from the beginning of the year is 200.7 milliard tenge. Monthly average growth of pension accumulations is 40.1 milliard tenge. Role of pension accumulations in the economy so that pension accumulation created 8.2% of GDP in 2005 with following annual growth of 0.2-0.4%. This indicator had reached 9.7% ¹⁷ of GDP in June 2009 and investment yield was 2.4% of GDP.

In July 1st, 2009 the cumulative pension assets that were under AMC's management has created 1620.4 milliard tenge, incrementing by 53.2 milliard tenge during May. Financial investments in account of funds' own assets in June were 58.8 milliard tenge or 82% of funds' cumulative assets. Funds their own assets invested in government securities of the Republic of Kazakhstan – 29.7%, foreign governments' securities – 5.53%, local emitters' non-government securities – 40.96%, international financial organizations' securities – 5.79%, operation «reverse repo» - 4.5%, second level banks' deposits – 5.45%, foreign emitters' non-government securities – 12.35% from total investments.

It's still so that investment strategy of APFs is directed in favour of government securities. But the major priority is turned in favour of non government securities helping the national companies' developing.

There also was favourable precondition of steady increasing dynamics of pension accumulations. If the total increment of accumulated pensions in 2006 was 10-13 milliard tenge in monthly base, then in 2007 there was other picture of 13-15 milliard tenge. Upon record republic's monthly monthly average growth of pension assets indicates that pension funds are one of the basic investors on stock market, and on the of corporate securities take the major share.

¹⁷ AFN

There was an increase in net investment yield upon 270 milliard tenge in 2009. The increasing of this indication is one of those factors of successful development of pension system in the country.

Upturn of the pension assets' amount requires additional investment objects. This is especially needed so that money from accumulated pensions is important component of internal investment market sources of the country. By means of pension funds contributors' money creates capital that is invested in different local projects. Further they fulfill the stabilizing function in financial system of the republic. Due to this, today accumulative pension funds in Kazakhstan are real institutions that are in possession of such huge financial resources.

On the date the most important goal is pension assets' investment, capitalization of APFs. Nowadays development of pension sector depends on sufficient amount of profitable financial instruments that cover rate of inflation.

Therefore financial policy of the state is built on increasing real content of pension accumulations and reaching macroeconomic stabilization in the country. Pension reserves allow providing increment of production of goods and services that are necessary for alimentation of future retirees. The more goods and services would be produced on invested reserves the higher would be real content of future pensions and the higher would be the standard of living of those pensioners.

The President Nursultan Nazarbayev in his Addresses to the nation from February 6th, 2008 specially remarked that regular improvement of social situation of all strata and all social groups of our society will be one of the priorities of the government policies.

4.8 Notion and principles of the insurance in the RK

Pension payouts and transfers into insurance organizations from the funds is 110.5 milliard tenge on June 1st, 2009. It was increased 2.8 milliard tenge during May on 2.8 milliard tenge or 2.6%.

Transfers of pension accumulations into insurance companies according to contract about pension annuity from the beginning of the year were made by 309 contributors with the total amount of 508.4 million tenge. The total amount of pension accumulations transfers into insurance companies in according to contract of pension annuity is equal by this date to 956.5 million tenge.

The role of insurance companies: as a subject of pension insurance, as administrator of accumulative pension funds; as a subject of other risks insurance that APFs cannot assure; as a

subject of APFs' financial risks insurance, so the role of guarantor of APFs' stability is very important and essential.

The aim of any insurance company, independently from its form is extension of insurance protection for their clients from possible dangers and fortuity. With this aim there was devised insurance of additional pensions which envisages accumulation of funds by the insurer for lifeless stable additional income self secure in old age. So the younger is insurer the easier is to solve this problem.

While the man is young and is able to earn substantial amount of resources, he is allowed to conclude an additional pension insurance treaty. He should to contribute onto his chosen company. Treaty conditions are: either non-recurrent to make total pension contribution by single payment with considerable discount or to take advantage of payment instalments on years without discount. And then insurer has not to worry about anything. Then on the person's behalf starts to actuarial calculation. In 10-15 years paid-in sum turns into such an amount that prevents the person from inflation and assure him (her) the normal old-age.

Insurance of pension assets is prerogative of insurance companies of non-risk type of insurance, but long time life insurance. The alternative way of receiving additional pension income is purchase of pension rent (annuity) from insurance companies. Annuity is implied to be agreement between insurance company and individual, according to which insurance company from some preconditioned moment bounds itself to make perpetual or temporarily payouts on certain sum for given individual. There are two types of annuity: fixed and variable.

According to fixed annuity the person makes payment to insurance company précised sum of money as a single payment or instalment one. Then insurance company is performed as investor till the end of insurer's life or during certain time pointed out in the contract.

According to variable annuity insurance company makes payouts the amount of which may fluctuate dependently from efficiency of investments. Generally variable annuities are more efficient in long-run, therefore they more often used in pension planning.

Consequently, in those states that launched private pension system a long time ago, life insurance companies buy all accumulations of individuals in pension funds in return of annuity payouts, i.e. in return of lifelong rent. The person in his retirement can choose different variants of pension payouts: either there will be annuities or payouts immediately from pension funds that are calculated on number of years that person may outlast.

As concerns conditions of additional pension payouts, then there are lots of varieties: both insurance by the means of lifelong rent that ends with insurer's death, and transfer of pensions in reduced amount to the insurer's inheritors, and possibility of preterm pension

payouts in connection with disablement or job loss few years before the retirement age, and combination of additional pension payouts with funeral's insurance. The only difference is in defining the rate, backed by qualified actuarial computations. Correctly calculated rate should assure not only insurer's old age but also make this way of insurance profitable for insurance company.

Here was introduced only individual's self insurance but there could be so that employer could assure individual's additional pension. If the employer (company) does not have enough resources to make an insurance treaty in favour of all employees, then it can be made gradually, for example, by departments. Further additional pension insurance for account of employer (company) is desirable economical lever for prevention of unwanted dismissals of valuable employers.

Thus there are some principles in contracting pension insurance that should provide proper functioning of the system. They are:

- free declaration of will that assumes companies and individuals' right for making a pension insurance treaty with insurance companies;
- state's full financial control of insurance companies' activity;
- creation of equal economical and legal conditions for all participants of this market.

Formation of these conditions supposes that pension insurance payments included into companies' (employers') expenditures report in accounting.

In conclusion there should be pointed out that joint work of legislative and executive authorities' representatives, accumulative pension funds and insurance companies, as well as non-state pension security markets' all other engaged participants should lead to the situation when in Kazakhstan would be created efficient pension system which will be able to assure to Kazakhstani citizens deserving standard of living in retirement age.

There is system of obligatory state social insurance of working persons for the cases of losses of employability, losses of breadwinner or job losses in Kazakhstan. It was launched from 2005 as a second level of working citizens' social secure. Nowadays all companies and corporations independently of their pattern of ownership make payments to the fund of social insurance (state fund of social insurance, SFSI) in behalf of their employers, that amount is equal to 3% of the object of calculus. But it's supposed that that it will be increased to 5% in 2010. But the expenses on social payment to the SFSI are made from the sum of accrued social tax, so there is no additional tax burden on employers or employees.

5. Regression analysis of the pension system and payouts estimations in fully funded system

In this chapter I will try to analyze the system's adequacy and according to this analysis' conclusion to determine the appropriate indicators that could be improved. The built regression model will include data from 1998 from there when the new social security system was launched. But due to not so far away country independence and thus institutional making there will be used not only internal data and data from international institutions but also estimates for some years. This model is one kind of empirical research based on data given.

Let me calculate the average future payouts from new contribution system. There will be considered only payments from the new system, thus there is eliminated the first pillar by setting period of work start. Men and women usually work in their 22-23 years after graduating. So if they start their work in 1998 when the new pension system had launched, they will fully fall under and they are obligated to make mandatory pension contribution into their accounts that is equal to 10% of their salary. They will retire at 60 years for men and 58 years for women. Beneficiaries pensions will depend on salary level and pension funds' investment yield corrected on inflation. So let us consider that voluntary pension contributions are equal zero, i.e. future beneficiaries do not wish to make any additional contributions (because as a matter of fact there is only 40 617 voluntary accounts in republic, whereas mandatory ones are 9 567 355).

Table 12. Nominal income 1998-2008

Year	The monthly average nominal wage, tenge	Year	The monthly average nominal wage, tenge
1998	9683	2004	28329
1999	11864	2005	34060
2000	14374	2006	40790
2001	17303	2007	52479
2002	20323	2008	60734
2003	23128	-	-

Source: Agency of Statistics

The nominal wage was increasing, so as the inflation. And due to increase in nominal wage there was growth in contribution, so as it was invariable part of the wage, i.e. 10%.

Table 13. Contribution in system 1998-2008

Year	1998	1999	2000	2001	2002
Monthly contribution	968.3	1186.4	1437.4	1730.3	2032.3
Annual contribution	11619.6	14236.8	17248.8	20763.6	24387.6
Year	2003	2004	2005	2006	2007/2008
Monthly contribution	2312.8	2832.9	3406	4079	5247.9/ 6073.4
Annual contribution	27753.6	33994.8	40872	48948	62974.8/ 70880.8

Source: Agency of statistics.

These are calculated 10% of the average monthly wage, and thus on this base the annual one also. If there wasn't any inflation it could be possible to say that a person annually is forced to save one month's wage. But because there an inflation in the real world we observe devaluations of the savings. In order to restore its value these funds are financed, so the funds gets positive investment yield, however it happens that there is lost in funds. But moreover the discounted accumulations are restored. So if we consider that there is constant nominal wage. Let us fix it at the level of 2008, i.e. at the amount of 60 000 tenge. So the retiree's pension will be in 60's with life expectancy of 24 years. The person will earn 2 400 000 tenge, and contribute only 240 000 tenge. The given amount of annual pension is 10 000 tenge. This ridiculous number could be obtained only in that case that there wasn't any investment policy of the funds that brings additional income. So the general future pension will consist of only contributor's investment.

5.1 Regression analysis of the future pension

It is usually assumed that the amount of future pensions depends on today's workers contributions. As it said above, nowadays these contributions are created by mandatory 10% of the wage. But by simple logic we can find out that the amount person used to his expenditures during 40 years of his life cannot be equal to the one that he had to save by mandatory saving plan. So if somebody annually earns X tenge, then he spends 0.9X and contributes 0.1X. After

simple calculus there is obtained that the person spends 36X and contributes 4X during his 40 year work careers. And his saving will be enough only for 1.1 year. That is why the basic component of the pensioners' future payouts is investment yield. And in this chapter will be dedicated to estimating the net investment yield which is given in regulatory authorities' reports and calculated as 85% of gross investment yield. There is roughly assumed that the macroeconomic indicators that have impact on the net investment yield on pension assets are gross domestic product growth rate, expenditures per capita in us dollars, investments to basic capital per capita given in us dollars and poverty depth that shows the overall rough economic situation. So there are indicators that impacts overall economy thus and investment yield on pension funds because of their contribution to the economy.

So I will use the function

$$YP_t = A \times IBC_t^\beta \times PovDepth_t^\gamma \times Expend_t^\delta \times GDP_t^\theta \times v_t, \quad (3)$$

$$t = 1998, \dots, 2008$$

where is

YP_t – investment yield calculated to each account (overall investment yield to total contributors) in usd in the period t ;

IBC_t – investment to basic capital per capita in usd in the period t ;

$PovDepth_t$ – poverty Depth the period t ;

$Expend_t$ – expenditures per capita in usd in the period t ;

GDP_t – GDP growth rate in percent in the period t ;

v_t – disturbance in the model;

A – constant and

$\beta, \gamma, \delta, \theta$ – parameters which should be estimated.

It is generally assumed that disturbances have zero mean.

Because of lack of statistics all data were combined from sources which National Bank of Kazakhstan, CIA World Fact book, National Agency of Statistics and Agency of Financial Control (AFN). All monetary indicators are given in national currency – tenge, unemployment rate is given in percents. Data are given Appendix.

As an assumption of using the Method of Ordinary Least Square (OLS) the investigated function should be given in additive form whereas we have it in multiplicative form. So we can use logarithmic transformation to reach the additive form:

$$\log YP_t = \log A + \beta \times \log IBC_t + \gamma \times \log PovDepth_t + \delta \times \log Expend_t + \theta \times \log GDP_t + \log v_t, \quad (4)$$

$$t = 1998, \dots, 2008$$

Received equation corresponds to regression equation which is linear in parameters, thus we can use OLS method to estimate the parameters of the model. Because of transformation there is appears new condition to the equation: disturbances v_t should be non-negative.

For the analyzing the parameters there will be used freely accessible software R which downloadable on www.r-project.org. Using this program I will estimate that

Table 14. *Linear regression model estimates*

Intercept...logA	1.7041	δ...logExpend	-2.3555
β...logIBC	2.2777	θ...logGDP	-0.4946
γ...logPovDepth	-0.7316	-	-

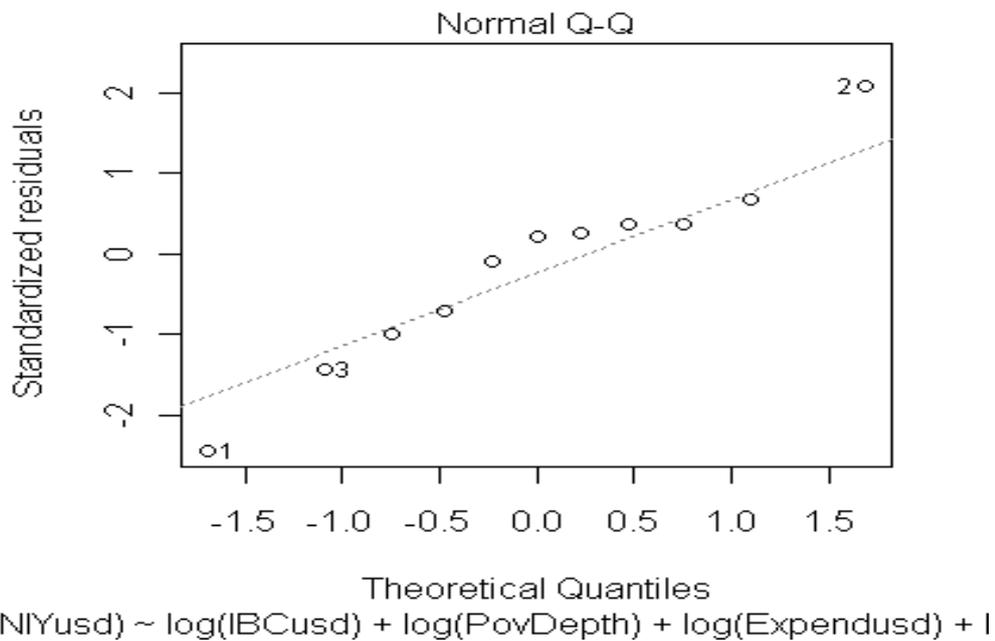
Because of logarithmic transformation all data represent elasticities from microeconomic point of view, so every percentage change in independent variable may cause a certain percentage change in dependent one according to the Table 14.

The coefficient of determination representing the model's ampliative ability is equal to 86%. This is a quite good model indicator. But before fully trusting the model there should be verified some assumptions of the OLS method. We assume that data are not correlated in between, so there are from random selection. The other assumption is normality of disturbances. We will check it through the Shapiro-Wilk test:

$$W = 0.9456, p\text{-value} = 0.5878,$$

the value of which indicated that disturbances are normally distributed.

Figure 5. *Normality of disturbances*



The graphical test is also showing that normality of disturbances cannot be rejected. Observed data are located along the line.

The other assumption is disturbances non-correlation that can impact results of the estimation. In order to recognize whether there disturbances are correlated I use Durbin-Watson test.

So I will construct the model of residuals:

$$v_t = \rho \times v_{t-1} + \varepsilon_t, t=1998, \dots, 2008 \quad (5)$$

where is ε_t is non correlated disturbance with zero mean.

Obtained coefficient is $\rho = (-0.6285)$. Then the Durbin-Watson statistics is

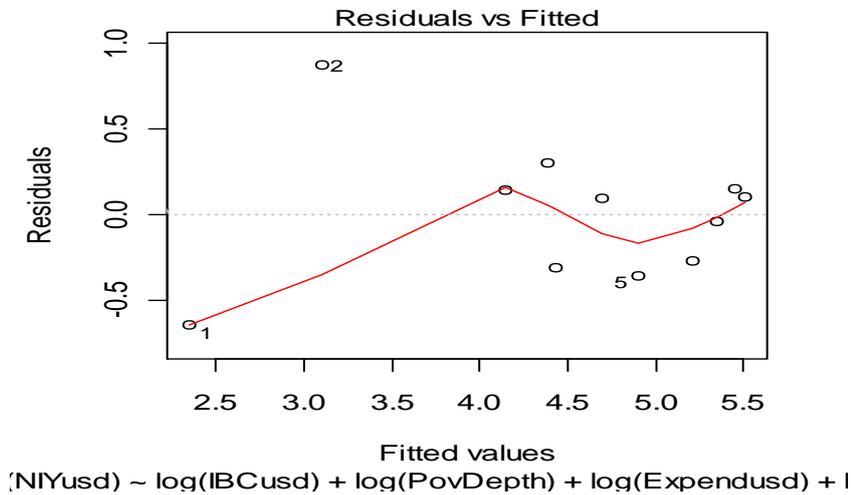
$$d = 3.257$$

whereas the upper bound is $d_U = 2.030$ and lower bound is $d_L = 0.286$. The obtained Durbin- Watson statistics is higher than upper bound, so we can assume that there is no autocorrelation at significance level of 5%.

In order to check the multicollinearity which indicates dependence between regressors I use condition number, value of which is $\eta = 89$. It indicates that there may be some dependence, and special treatment had to be used. So there is wide variance of estimations. But we rely on given results because of this is simple model of wide variety economic data that can be included to the model and are dependent in-between.

The following assumption that should be checked is homoscedasticity of disturbances. This is an assumes that disturbances have the same variance. Will provide only graphical test which is

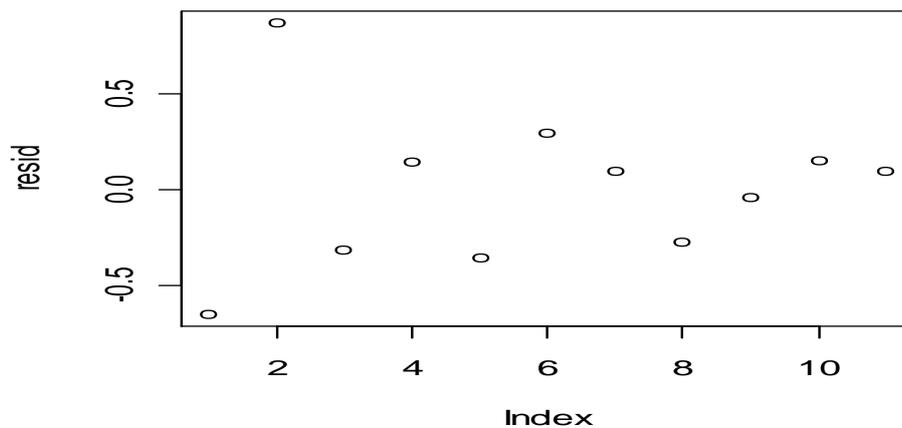
Figure 6. Homoscedasticity test



The test indicates that one observation's residual outliers and there is some trend in range of -0.5 to about 0.2.

Disturbances' randomness is also important assumption, and I check it by the graphical tools. As it shown, there is no any trend, so we can rly that they are from random selection.

Figure 7. Randomness of disturbances



After checking all assumptions I can finally introduce the full model but there is still awareness of broken assumption of multicollinearity and suspicion on heteroscedasticity. So the final model is

$$\log YP_t = 1.7041 + 2.2777 \times \log IBC_t + (-0.7316) \times \log PovDepth_t + (-2.3555) \times \log Expend_t + (-0.4946) \times \log GDP_t + \log v_t, \quad (5)$$

$$t = 1998, \dots, 2008$$

The result of the model estimation shows that investment in basic capital and expenditures per capita are significant at the level 1%, but other determinations seem not to be significant. But we cannot exclude them from the model because of their important impact on general economy, so to the investment yield performance. The value of coefficient of investment in basic capital which indicates on the elasticity shows that 1% change in this indicator will impact as 2.2% change in investment yield on pension accumulation. But there is quite weird performance than 1% increase in GDP growth will negatively impact on the investment yield. This may be caused by broken assumption of multicollinearity because usually increasing in macroeconomic performance has to bring higher yields.

So having the model of investment yield we can predict the future value of the investment yield on pension accumulation. Setting investments in basic capital equal to 4000 usd (very good improving of today indication), poverty depth to 1.3% and expenditures per capita to 170 usd and GDP growth rate to 9%, we can obtain the prediction interval of future yields on 90% prediction interval:

Table 15. Prediction of future yield on pension accumulations.

Fit value	Lower Value	Upper value
1365	291	6413

Then the future investment with such data are 1365 usd roughly on each account. But this could be increased to even to 6413 usd dollar dependently on economic performance of the country. So the future retirees could get deserving pensions.

5.2 Conclusion

It was widely discussed whether the new pension system is adequate and what there will be when we retire. But nowadays in Kazakhstan exists system that is consisted of three pillars: the solidarity pension, APF pensions and voluntary pensions system. The advantages from adopted system in Kazakhstan how it was mentioned in thesis are:

- State regulation of the pension system;
- Assurance of population the right of APF choice;
- Direct state guarantees of minimal pension provision;
- Obligation of every citizen to participate in system;
- Personal responsibility of pension secure in old age;
- Efficiency of pension accumulations investments combined with their safety;
- Secure of heirship on accumulations in APFs;
- Rights on additional pension provisions;
- Contribution into economy through the population's savings.

Those are the best features admitted from the Chilean one. The system provided economy with additional investments that wasn't created from petrodollars. The state burden has been lightened. And new institutions were created to provide better system.

The introduced program is latent forced savings program. It was properly set in the social life because of some similar initial condition. But in distinction from Latin American state it wasn't fully copied. Even though the reform was launched in 1998, i.e. 12 years ago, the social security system is still reforming. There is improving some principles of the reform, the legislation.

So nowadays pensioners can rely on future good investment yield on their accumulation and today's one can also claim pension from first pillar and basic pensions.

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APPENDIX

Table 3. *Active Contributors to all workers ratio*

Year	Active Contributors/ People in work (in %)	Year	Active Contributors/ People in work (in %)
1960	75	1974	83
1961	65	1975	86
1965	74	1976	83
1970	77	1977	79
1971	79	1978	76
1972	78	1979	75
1973	83	1980	71

Source: SAFP

Table 9. *Custodian banks. July 1, 2009*

#	Custodian Bank	Pension Fund	#	Custodian Bank	Pension Fund
1	“Alians Bank” JSC	-	7	“Kazakhstan national savings-bank” JSC	“APF NefteGaz-Dem” JSC “APF Atameken” JSC “APF Ular Umit” JSC “APF Kazakhhmys” JSC “APF Korgau”, JSC
2	“ATF Bank” JSC	“APF Kapital” JSC “APF Amanat Kazakhstan” JSC	8	“Tsesna Bank” JSC	-
3	“Bank CenterCredit” JSC	“Open APF Otan” JSC	9	“Citybank Kazakhstan” JSC	“APF of Narodny Bank of Kazakhstan” JSC
4	“BTA Bank” JSC		10	“HSBC Bank Kazakhstan” JSC	“APF Grantum” JSC
5	“Evrasiiskii Bank” JSC	“APF Respublika” JSC “APF BTA Kazakhstan” JSC	11	“Temirbank” JSC	“Evrasiiskii APF” JSC
6	“Kazkommercbank” JSC		12	National Bank of Kazakhstan”	“APF GNPF” JSC

Source: AFN

Regression Data

Year	IBC usd	Expend usd	GDP growth	PovDepth	NIYusd
1998	158.9258	38.21201	2.5	12.8	5.469487
1999	154.9967	27.841	2	13.7	52.6961
2000	245.0977	27.82548	1.7	10.3	61.36625
2001	355.5928	33.50136	10.5	7.8	72.79237
2002	524.0116	36.99282	12.2	6.1	94.08677
2003	566.0771	44.6123	9.5	10.2	107.6046
2004	752.3865	55.10654	9.2	8.3	120.8296
2005	1100.609	66.2152	9.1	7.5	139.4719
2006	1464.188	99.93656	9.5	3.9	201.8298
2007	1756.209	129.7324	10.6	2.4	270.2856
2008	1626.706	124.7137	8.5	2.3	272.5923