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Assessing Pension System Sustainability: The Case of Ukraine

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Abstract

Keywords: pension systems, reform, Ukraine, sustainability, balanced pay-as-you-go budget equation

This Master's Thesis studies the issue of pension system sustainability in a current Ukrainian context. Sustainability is analysed in financial, political and social terms. A theoretical pension system theory framework is presented and the Ukrainian pension system and reform are described. The analysis is performed using a pay-as-you-go budget equation. The analysis suggests that the Ukrainian pension system faces severe threats to its sustainability. In the final section of the thesis, some policy recommendations targeting these threats are discussed.

List of abbreviations

CEE – Central and Eastern European (countries)

FSU – Former Soviet Union (countries)

DB – defined benefit pension scheme

DC – defined contribution pension scheme

NDC – notional defined contribution pension scheme

PAYG – pay-as-you-go pension scheme

FF – fully funded pension scheme

1 Introduction[1]

The economic transition of the 1990's in the former real-existing socialist countries - Central and Eastern European countries (CEE) and Former Soviet Union countries (FSU) – focused mainly on macroeconomic and political reforms (Müller, 2002). As a result, the social security system has remained mainly intact. This has led to a debate over the need for social policy reform, and what reform path to follow.

In Ukraine, a pension reform was adopted in 2003 but it has so far not been fully implemented. The area of social protection constitutes a great research and policy challenge to CEE and FSU countries such as Ukraine. Theoretically, these countries offer a particular social protection context, given their real socialist legacy, during which the level of social protection was very high (Kornai, 1997). Given that and the general reconstruction of the CEE/FSU economies, it is reasonable to think of the Ukrainian pension reform as an example of a double transition process.

1.1 Purpose

The purpose of this Master's Thesis is twofold: to examine the sustainability of the Ukrainian pension system and, further, to analyse different reform options. Recently, the issue of pensions system sustainability has gained terrain in the public debate on pension systems, a fact also reflected in the European Union Laeken objectives, where no less than eight out of eleven points relate to "financial sustainability of public finances"(Regeringskansliet, 2005, see Annex 5).

The core question of this thesis is *whether the Ukrainian pension system is sustainable*?

Followed by the sub-question: *what reforms could make the system sustainable?*

In the analysis, factors key to the state of sustainability will be investigated, such as dependency ratio and average benefit to wage rates. Also, political, social and financial sustainability will be analysed with respect to the four pension system objectives offered by Barr (2006): consumption smoothing, insurance, redistribution and poverty relief, and the inherent conflict between them, acknowledging a quote from the British economist and social policy theorist, Richard Titmuss: "There is no escape from value choices in welfare systems."

Both the pre-reform system and recently implemented reforms will be covered, as the outcome of the transition utterly depends on the context in which it will be carried out. The transition costs may be substantial, making the art of comparison between different outcomes problematic.

1.2 Method

For methodological considerations with respect to the practical procedure involved in the calculations, see section 4.1. In this section, metamethodological, or ontological, considerations will be commented.

1.2.1 Ontology: a comment

The ontology on which this thesis stands, is one of critical realism (see Bhaskar, 1997). This means that rather than seeking to establish universal causal *laws*, the aim is to identify causal *mechanisms* present in the system studied, and to make the knowledge of the system studied as relevant as possible (Dow 1999). In other words, the knowledge of what is studied is a product of thought, but the objects studied are assumed to exist beyond the thinking about them.

The critical realist ontology of this thesis has implications, consider Lundquist's (1993, p. 132) view of the link between analysis and ontology:

"Neither material nor results may be understood per se but are rather products of the problem, theory, method and (when it comes to the results) material."[2]

In other words, the analysis and results in this thesis may not been interpreted independently of their underlying ontology. That is, the understanding of an answer depends on how the question is defined.

1.2.3 A note on exogeneity

In the analysis of the pension system, some variables are made strongly interrelated, namely contribution rate, pension level and mean wage level, whereas other variables, namely demographics and the size of GDP, are expected are not thought of as consequences of mechanisms present in the pension scheme. In other words, a change in level of the contribution rate may, indeed, alter the demographic situation in the country. However, the causal mechanism that works in the opposite direction is more relevant. This may seem trivial, but it is nevertheless important to note that the demographic variable unlike the other, strongly interrelated ones, preconditions the pension scheme rather than the opposite[3]. Another way to refer to this would be "exogeneity", arguing that demographics would constitute exogenous variable to the closed system that is the pension scheme, or in this case, the basic calculations. However, the use of the term exogeneity is not without ontological complications[4], and will therefore not be used in this thesis.

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[2] Author's translation.

[3] In theory, a change in the contribution rate may alter the demographic situation in a country in the long run, perhaps in the form of a change in life expectancy as a result if the change in contribution rate affects the quality of life of pensioners. In practice, however, the causal mechanism that goes from demographics to pension scheme performance, and not vice versa, is a more relevant one.

[4] The term exogeneity reveals an ontological foundation in the realm of the so called "closed systems" (Lawson, 2006), within which an economy is analysed as the aggregate of event regularities, deterministic or stochastic, that occur. The debate on the relevance on formalistic economic modelling is not at focus in this thesis. That said, the author does not wish to state any implicit adherence to closed system economic ontology, as it would be in conflict with the ontological foundation of this thesis, the latter being critical realist, as stated above.

1.3 Outline of the thesis

This thesis addresses pension system sustainability, using the real world example of Ukraine. Section 2 offers a presents the analytical framework that will be used to analyse sustainability. Section 3 describes the Ukrainian pension system. Section 4 introduces the basic calculation model that will be used to analyse to analyse mainly financial sustainability and the threats against it. In section 5 a broader and more verbal analysis of sustainability is conducted. Also, some reform options are being evaluated, using the calculation model developed in section 4. Section 6 presents concluding remarks and some policy recommendations.

2 Pension system theory

2.1 Pension system objectives

A pension system[5] faces several different objectives. Barr & Diamond (2006) identify the following objectives: insurance (also referred to as longevity risk), consumption smoothing, poverty relief, redistribution, and, possibly, economic growth promotion. Typically, a pension system also has to face various requirements: the may be ideological, legal, fiscal, or other. The rationale for addressing sustainability is frequently associated with demographic developments in that populations are ageing, mainly present in Western economies so far but, increasingly, also found also in emerging economies, such as Ukraine.

This thesis will address sustainability, operationalised mainly but not only as financial sustainability, rather, but, rather, as a combination of financial, social and political sustainability, in line with Mesa-Lago (2004, see also Arenas de Mesa & Mesa-Lago, 2006) in that social and political issues of sustainability should not be made subordinate to financial sustainability. Mesa-Lago cites pension reform experience in Latin America, but the lessons are not wasted for a Former Soviet Union (FSU) country country like Ukraine: the two sets of countries, Latin American and FSU's share features, particularly when it comes to an increasingly unequal wage distribution and prevalence of a large grey economic sector, according to some estimations as high as 50 percent of GDP (Thiessen, 1997).

2.2 Theoretical pension system dimensions, their interaction

Theoretically, pension systems may be classified according to various sets of dimensions. Lindbeck & Persson (2003) identify three theoretical pension system dimensions:

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[5] Throughout this thesis, by the term pension system, a *mandatory* one is understood, unless explicitly stated otherwise. That said, voluntary pension systems, particularly occupational schemes, are not insignificant. In Sweden, some 90 percent of all wage earners have an occupational pension insurance (Regeringskansliet, 2005), for instance. The study of the impact of occupational pensions does not lie within the realm of this thesis.

- defined contribution (DC) versus defined benefit (DB)
- fully funded (FF) versus unfunded (UF or pay-as-you-go (PAYG))
- actuarial versus non-actuarial

In the view of the authors, the above dimensions are not completely uncorrelated: on the one hand, systems with a high degree of a actuarial element typically are of a defined contribution type, yet they may be both funded and unfunded. On the other hand, systems with a low degree of actuarial element may be both of a defined contribution and a defined benefit type.

Unlike the well-established pension terminology that DC/DB and FF/PAYG are part of, the term actuarial may need a clarifying note. Lindbeck and Persson use the term in what they argue to be a "microeconomic" sense, denoting the "relation (link) between contribution and benefit at the individual level" (Ibid, p. 75). The authors also make us of the term "actuarial fairness", albeit without specifying to which definition of fairness they pledge their allegiance. In this thesis, the term "fairness" will therefore be omitted, in order to avoid any implicit ontological associative readings of fairness (Konow, 2003).

The dimensional divide above is of theoretical character; however, as Persson and Lindbeck point to, in the real world, systems tend be of a mixed type. Also, the unfunded system is generally referred to as a pay-as-you-go system, where current pension disbursements are made with funds generated by current contributions, hence the name.

An object of debate is the question of how to classify the so called Notional Defined Contribution[6], currently operational in Sweden, Poland and Latvia among other countries. It sometimes argued that this system constitutes a new, unique form of pension systems (see, inter alia, Palmer, 2006), whereas the contrasting opinion, that NDC's are merely a new label for an already existing, defined contribution based pension scheme, that may be funded or unfunded, also has followers (see Cichon, 1999, for instance).

The mentioning of NDC's is made here in light of the great attention that has been drawn to these schemes over the past decade, both in academia but perhaps especially at policy

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[6] The term Notional Defined Contribution denotes a defined contribution scheme with notional individual accounts, hence the name. See Börsch-Supan (2006) for a more detailed description of the system.

institutions such as The World Bank. The scope of this thesis does not allow for a more detailed discussion of NDC schemes, however.

2.2.1 Systemic and parametric reform[7]

Weighting objectives is necessary when designing a mandatory pension system. In a real-world economic context, the systemic pension policy options are typically a pay-as-you-go (PAYG) scheme, a fully funded (FF) scheme, a combination of both or possibly an NDC scheme. In a PAYG scheme current income is used to finance current retirement benefits. In a funded scheme mandatory savings are being invested in financial assets over a period of years. While most Western European have countries opted for PAYG, some Latin American countries, and in particular Chile under Pinochet, have introduced a fully funded mandatory scheme from the 1980's and onwards.

Another systemic characteristic is the defined contribution-defined benefit (DC-DB) divide. That is, the extent to which the pension replacement are linked to personal contributions is, in theory, not dependent on systemic characteristics of the scheme, i.e. PAYG or FF. DC implies, in short, that pensioners will bear the risk in terms of possible variance of retirement benefit, depending on pensionable wage accumulated during the labour-active period. DB entitles the worker to a certain benefit level, typically provided he or she has served a stipulated number of years; here, the workers bear more of the risk.

The number of years of service required to be entitled to maximum benefits, the benefit levels, the contribution rate level – all of these are examples of parametric aspects of a pension system.

2.2.2 The concept of pension scheme transition

The term "transition" is unclear at best, perhaps occasionally even problematic. Typically, the sub-discipline transition economics is associated with stabilisation, liberalisation and

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[7] "Systemic" denotes changes in a pensions scheme that are of fundamental character, e.g. whether the system should be mandatory, publicly managed or funded or pay-as-you-go. "Parametric" denotes changes in the system that are of a more technical nature, e.g. the contribution rate, the retirement age or the indexation.

privatization policies in so called PET's in the early 1990's - planned economies in transition (for a discussion on transition economics, see Lavigne, 1996).

Other than in its own sub-discipline cited above, the notion of transition appears, inter alia, in the field of social policy, particularly in social insurance. In a pension context, the transition is the process during which one pension scheme is replaced by another (Barr, 2006). A real world and current example of pension system transition is found in Sweden: the new pension system, adopted in 1999, is not used to calculate the pension level of the entire Swedish population. All people born in 1937 or earlier continue to receive their pension according to another, older system, however according to slightly modified rules, but not from the new system. All people born in 1954 or later will be receiving their pensions entirely according to the rules of new pension system. Given that, people born 1938-1953 are a transitional cohort in the Swedish pension system and receive pension benefits from the old and the new system, the proportions being determined by the age of birth. Up until the last benefit payment has been paid out from the old system, the Swedish pension system will be in transition. Against that background, the transition periods can be very long in a pension context, reaching 40, 50 or even 60 years of length in Sweden (Regeringskansliet, 2005).

Pension system transition is associated with increased cost, as not one but two systems – possibly even more than two, if there have been other pension reforms before the first transitional period has ended, and people continue to receive pensions, perhaps also collecting benefits, from an even older system – would have to be made financially sustainable. Again, Sweden will serve as an example. One of the ingredients in the 1999 pension reform was the introduction of a notional individual accounts, to which some 7 % of the so called pensionable income is to be transferred in the form of a notional account and as such be available to the individual for financial investments. In creating the notional pillar, revenue to the pay-as-you-go pension fund decreases, ceteris paribus[8]. The reason for this is straightforward. If assuming that the level of mandatory saving in the economy is optimal – assuming otherwise may be done, but would then have to be argued for more thoroughly, a task that would go beyond the scope of this thesis – an added cost, in the Swedish case to the notional individual accounts, will immediately decrease the revenue to the pension fund, ceteris paribus, whereas

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[8] As long as the overall savings rate is not increased, that is. One of the often advocated virtues of the funded pillar is the therein lying assumption that it will increase the savings rate in the economy as a whole. This has met substantial criticism, in the policy arena but especially and more strongly so in academia. For an illustration of that debate, see Cesaratto, 2005.

expenditure will decrease gradually as the old system is being phased out. The financing of the transitional cost varies, and may be front-loaded or back-loaded in nature, determining the inter-generational redistribution. By front-loaded, the current generations will finance the transition, perhaps through an increase in the income tax followed by a budget transfer to the pension fund[9]. Back-loaded is the opposite: the financing of the pension transition is passed on to future generation, perhaps by increasing the external debt.

Regardless of whether a back-loaded or front-loaded policy is chosen, the transition costs will be dealt with come what may when implementing a new pension system. As the Swedish example above shows, identifying a transitional group constitutes a policy measure. Whereas the Swedish reform seeks to gradually phase out the old system, Kazakhstan offers another, more audacious example: at the time of the Kazakh pension reform, all workers were made parts of the new pension system, which is of a fully funded type (Hinz & al, 2005). That is, a 59-year-old – the male retirement age stands at 60 in most FSU countries, so also in Kazakhstan – who was been collecting pension benefit in the Soviet pension system for 40 years, say, will during his last working year be part of the new pension system. Aside from concerns of inter- and intra-generational solidarity, such a transition policy is quite costly, as the new system is not without introduction collection costs.

2.2.4 Accounting for transition

It is important to stress the difference between transitional and post-transitional states of pension systems, and their respective bearing on sustainability. Especially if, as noted above, the length of the transitional period is substantial, reaching the equivalent of two generations.

If a comparison is made between, say, the Swedish system initiated in 1957, that is the pre-1999 system, and the system replacing it, it may well be that the one system can be shown to be superior, but if the comparison is between a non-transitional state of the old system and a transitional state of the new one the outcome may be quite another. Rather than comparing to the theoretically pure but, in a real world context, unrealistic, even irrelevant, scenarios of one solely existing system, the comparison benefits from an inclusion of the transitional costs. The

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[9] It is worth to note that the income tax financed budget transfer is by no means the sole way to go. Verbic & al (2006) offers another hypothetical one that is VAT increases in their simulations; in so doing the admit to the potentially low political feasibility of a general VAT increase to finance pension transition, suggesting an explanation to why this has not been applied in a real world context.

problem is then of a more technical nature, as the transitional phase typically is difficult to calculate, as it may be difficult to provide a satisfactory estimate of the transitional costs.

Other than comparing between transition and non-transition, there is the case of comparing between transition and transition. That is, when more than two systems are coexisting. Even more technically challenging than the post-transitional-transitional above, it risk nevertheless to become relevant in a country that experiences another pension reform to a third system during a transitional phase from the first system to the second. (In the Ukrainian scenario, this is strictly not really the case, even though the Ukrainian independence in 1991 had a large impact on the economy as a whole, and thereby also on the pension system.)

Transitional costs may be important in the context of pension reforms, thus posing severe threats to the sustainability of the pension, as the Chilean experience demonstrates (Arenas de Mesa & Mesa-Lago, 2006), where fiscal costs associated with the pension transition remain large today, twenty-five years after the reform was implemented.

3 The Ukrainian pension system

3.1 The reform so far not fully implemented

First and foremost, a word of caution as to the labelling of "The Ukrainian pensions system", as that term may convey the reader in rather different directions. In 2003 the Ukrainian parliament adopted a pension reform. The reform is drawn upon the so called "World Bank model", at least once all the envisaged reforms have been implemented. The World Bank model envisaged in Ukraine can be described as follows: a first mandatory tax-financed defined contribution PAYG, also referred to as solidarity pillar, a second mandatory fully funded – in Ukraine managed by fund managers, not by the individual - mandatory pillar and a third, voluntary and individually managed fully funded pillar. The contribution rate to the first pillar will be 26.6 percent and paid by the employer as payroll tax. The second pillar will have a contribution rate of 7 percent, paid for by the employee. The total pension contribution rate will therefore be 33.8 percent (World Bank, 2006). The full implementation of the projected three-pillar system is currently put on hold. The voluntary third pillar is partly implemented, however very small and based on tax relieves, and will no be analysed in this thesis, as it has no direct impact on pension system revenue. The introduction of the second pillar is estimated to take place in 2008 or 2009, according to World Bank predictions.

The Soviet and Post-Soviet system described below continues to be functionally performing, albeit not without numerous parametric changes. The system projected by the reform of 2003 is so far not fully in place; rather, the two systems coexist and the exact proportions and transitional arrangements are difficult to sketch, especially since the Ukrainian government has a record interfering in the pension system by means of adjusting the minimum pensions, particularly in election times. Nevertheless, the fact that the envisaged second pillar so far is not implemented makes the mandatory system by default a parametrically modified version of the Soviet system. Against that background, this thesis will refer to the Soviet pension system as the "(current) Ukrainian pension system", and the by the reform envisaged system as "the pension reform".

3.2 The Soviet pension, its legacy

In the Soviet pension system, the state played the leading part in distributing pension benefits, and private arrangements were virtually absent (Fultz & Ruck, 2001). Put in place in 1921 and modified in 1956 and 1964 with new laws on pensions, Ukraine inherited the Soviet system after independence, that is, in December 1991. In the Soviet as well as in the Ukrainian Post-Soviet system, pensions were an integrated part of the social security program. The latter was composed of three parts:

i)   the pension fund
ii) the social insurance fund
iii) the unemployment fund

The pension fund consists of the following five programs (see table 1) measuring all pensioners and their respective proportional share (Cheikh, 1996, citing the Pension Fund of Ukraine)

Table 1 *Pensioners: Proportions and flows*

		All pensioners	New pensioners
i)	Old-age	80 %	0%
- standard		66%	55%
- preferential		14%	15%
ii)	Service	0%	1%
iii)	Disability	10%	16%
iv)	Survivor	6 %	8%
v)	Social	4%	5%

(State Statistic Committee of Ukraine: Yearbook of 2005)

3.2.1 Old-age and service pensions

The old-age pension constitutes the major program by far, comprising 80 % of the pensioners. The eligibility criteria for the standard old-age pension are as follows: the retirement age is at

60 and 55 for men and women respectively and after at least 25 and 20 years of service, respectively. As for the preferential old-age pension schemes, things are more complex, and ultimately depends on what list an occupation belongs to. A person whose occupation is on the so called "List I" is allowed to retire at 50 after 20 years of service, out of which 10 must be spent in the listed sector. Overall, the different preferential regimes allow men and women to retire some ten years earlier than usually, i.e. at 50 or 45 at the earliest. Moreover, some groups of workers are entirely exempt from retirement age requirements and their pension depends solely on the number of years served (Ibid).

The service pension program – covering 0,3 percent of all pensioners and 1 percent of the flow of new pensioners (1994), represents a preferential treatment to a number of work categories, categories that are thought to offer a shorter and possibly more hazardous career, such as sportsmen, aircraft crew and some engineers. The crucial difference between the preferential old-age pension and the service pension is that whereas the former is to be covered by the employer, at least partly[10], the latter is entirely covered by the pension fund.

The existence of listed old-age and service pensions, respectively, provides an intuitive example of the insurance objective that a pension system faces, see Barr (2006). Given the assumed lower life expectancy due to increased risk, some occupational groups are allowed more preferential retirement rules. This is however not without redistributive implications, even though the lack of preferential treatments would also constitute a redistributive measure: assuming that e.g. miners have a lower life expectancy than university teachers, an occupation neutral retirement age would mean a longer pension benefit period for the teacher. This illustrates the typically present conflict between two or more objectives, in this case insurance against longevity risk and redistribution. As for social pension, they represent the objective of poverty relief and, as such, relate to the redistribution objective in the Ukrainian scheme.

3.2.2 Disability, survivor and social pensions

Disability pension is the second largest group of pensioners, covering 10% of all pensioners and 16 percent of new pensioners. The large difference in proportions between all and new pensioners reflects a general trend in independent Ukraine but also in many other FSU

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[10] A common arrangement for the service pension is that the employer pays the pension benefit up until the beneficent reaches the normal pension age.

countries: that of decreasing life expectancy in the 1990's, especially for men. The disability pension depends on the years of employment if the disability is a general disease, but employment-related disabilities are not subject to any employment length requirements.

Survivor pensions constitute the third larges group of pensioners, covering 6 percent of all pensioners and 8 percent of the flow of new pensioners, a hardly surprising fact in a country like Ukraine where the Second World War had a great impact. A survivor pension may be drawn by the dependants of a deceased person; by dependant, all members of a family, who were fully supported by the deceased or received constant assistance, which was the main source of living, qualify as dependants. The same principle as for disability pensions applies: if the death is work-related, years of service are not considered, but if death is not work-related, the survivor pension will be in proportion to a years-of-service provision. For orphans, students and inmates special provision arrangements exist. The typical basic survivor rate of a survivor pension is 30 percent of the worker's earnings, however never lower than the social pension (see below).

Social pensions, or basic pensions, are granted to unemployed citizens that do not meet the criteria for labour (that is, old-age, disability and survivor) pensions, and cover 4 percent of all pensioners and 5 percent of the newly disbursed pensions. The level of the social pension is a function of the minimum old-age pension by category, whereby the highest category receives 200 percent of the minimum old-age pension in that respective category. The amount of the social pension benefit received ultimately depends on the deemed validity of the reasons for which the years of service was not fulfilled: if found invalid, the level is set at 30 percent, if valid at 50 percent of the minimum old-age pension of that particular category. A source of criticism has been and still is the fact that the Ukrainian pension law does not define when a social pension is valid or not.

One may view indeed view the social pension as Ukrainian pension system's instrument to deal with poverty relief, one of four pension system objective identified by Barr (2006). Cheikh (1996) expresses scepticism as to the affordability of the Ukrainian social pension arrangements, citing a fear for rising unemployment. However a valid point, the difficulty to deal with high unemployment levels is hardly system dependent, as Barr (2006) points out. Rather, a high level of unemployment poses a great challenge to any pension system. That said, the design can try to deal with this in various ways: wage sum indexation is one, where

the benefits are indexed to the sum of all wages, a sum that most likely will decrease in the case of increasing unemployment.

3.2.3 A fixed, unified pension scheme contribution rate or not

In the Ukrainian pension system, there is one social security contribution rate that is designated to cover the expenses of all the parts of the social security program, a rate that nevertheless varies across occupations. Also, each security program collects its own funding, deducted from payroll taxes, a very costly and non-transparent practice. This feature makes calculations of the Ukrainian pension system technically more difficult to carry out, as the pension contribution rate is not unified, but must be calculated to obtain an effective value. In sum, the Ukrainian pension rate is neither fixed within the social security system, nor uniform across occupations.

To illustrate the idea of a fixed and uniform contribution rate, the (notional) defined contribution scheme Sweden will again serve as an example. The total pension contribution rate is 18.5% of the pensionable wage[11], out of which 16 percentage points enter the pay-as-you-go system and 2,5 percentage points enter the individual notional accounts. The revenues to the PAYG system are used to pay out yearly pension disbursements, in accordance with respective entitlements. In the Ukrainian pension system, matters are more complex, as the overall social contribution rate is set out to cover all social security programs; that is, not only the five pension programs listed above, but also the two other social security subsystems: the social insurance fund and the unemployment fund. The effective rate pension contribution rate may be calculated for a separate year, but there is nevertheless a discretionary element in the Ukrainian social security systems that make calculations more difficult.

Finally, it should be noted that in the Ukrainian social security programs there is sometimes interaction in the granting of benefits to an individual, and that interaction is also subject to certain regulatory measures, e. g. an unemployed disabled person with disabled family members, or dependents, may receive a pension supplement, depending on what other types of pensions, social or labour, the dependant is receiving (Cheikh, 1996).

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[11] The notion "pensionable wage" needs to be commented: under Swedish pension legislation, the pensionable income is derived from the wage, subtracting the 7 percent employee contribution = 93 percent. The 7 percent together with the 10,21 percent employer contribution constitute 17,21 of the wage, i. .e. approximately 18,5 percent of the pensionable income (17,21/93 = 18,5).

3.2.4 Years of contribution and years of service

Years of service does not automatically translate into years of contribution in the Ukrainian pension system. There are several listed activities that count as service even though the person is not contributing to the pension fund by paying payroll tax. Examples of such activities are maternity leave (unpaid in Ukraine but granted to women for three years per child), secondary and higher educational training and time spent taking care of an invalid. Furthermore, some activities generate extra years when computing the years of service: underground work and some health sector employments, but also time spent in the armed forces, also for spouses of army personnel, and particularly for World War Two veterans.

The practice of listed activities that generate acquired pension benefits without paying the contribution through payroll tax is not unique for Ukraine. The Swedish pension system credits military conscripts, parents of small children, students, and persons with sickness or activity compensation with so called pensionable amounts, i. e. with pension credits financed by the state budget.

Each of the aforementioned listed activities in the Ukrainian pension system will result in a redistribution of wealth, which may be analysed in terms of progressiveness and/or regressiveness. For instance, the inclusion of university studies in the years of service category may work regressively: if the income premium on a university degree is substantial and make graduates significantly better off than non-graduates, the years of service added thanks to the having of a degree is a regressive measure.

3.3 Pension calculation

3.3.1 The Old-age pension calculation

The calculation of pensions in the Ukrainian system has been subject to a great deal of changes over the past 16 years, but in essence the calculations are based on the principles sketched below[12]

i) Average salary

The average wage is calculated on the basis of either the two preceding years or on 60 consecutive months. In the pension law, inflationary influence is left without consideration, or at least non-specified. The presidential interventions in raising the minimum pension level may perhaps been seen in the light of this serious pension legislative flaw in a country that has suffered from non-single digit inflation practically throughout the entire 1990's and 2000's so far.

An important feature of the pension law is the fact that the average wage is based on the two years preceding the *pension calculation*, and not the *retirement*. In other words, a pensioner may have their pension adjusted if they continue to work, and at least 20 percent of the Ukrainian pensioners are estimated to be working (World Bank, 2006). The first average wage adjustment may be made three years after the original pension disbursement, after which adjustments will be made every two years.

ii) Replaceable salary

The replaceable salary is the average salary, provided that the average salary is less than the equivalent of four minimum wages. If the average salary is higher than that, the replaceable salary diminishes at an increasing rate when then average salary increase. The replaceable salary reaches its cap at a level equivalent to 6.9 average wages.

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[12] The author is once again indebted to Cheikh (1996) for his excellent overview of the Ukrainian pension system, which provides a good overall description of the principles and mechanisms used to calculate Ukrainian pensions.

iii) Statutory replacement rate

The statutory replacement rate is a function of the years of service. The minimum length of service required is 25 and 20 years for men and women, respectively, for which period the statutory replacement rate is 55 percent. If the years of service go beyond 25/20 years, the statutory replacement rate increases one percentage point for each year of service, up to 85 percent for men with 55 years of service and women with 50 years of service. Given these systemic characteristics, the Ukrainian pension system is of a defined benefit type.

iv) Application of floor and ceiling

The minimum pension prior to October, 1994 was twice the minimum wage, which is set by legislation. In November 1994, the ratio of minimum pension to minimum wage was lowered from 2 to 1.5.

Currently, the minimum pension and the minimum wage are roughly on pair (World Bank, 2006), but in 2004, before the presidential elections, the minimum pension was raised to a 120 percent of the minimum wage (World Bank, 2005).

v) Supplementary pension benefits

June 1993 saw the introduction of a means-tested social assistance scheme, targeting low-income citizens, including pensioners. In practice, the scheme sets a Social Assistance Intervention Line (SAIL) and if the income of a pensioner's income is below that line, the pension fund will cover an income up to the SAIL. The pension fund thereby covers social assistance for pensioners, a policy that "unduly burdens" the fund in the view of the World Bank (Cheikh, 1996). The policy that also working pensioners get their pension adjusted up to the level of the set subsistence minimum is even more heavily criticised by the World Bank (2006).

Pension calculation is intimately linked to consumption smoothing and redistribution. In the absence of caps and minimums, consumption smoothing would be given a priority over redistribution. The Ukrainian system is an attempt of compromise, the level of which mainly

depends on the caps on the replaceable salary and on the set ratio between minimum pension and minimum wage.

3.3.2 Disability and survivor pensions

The principles for calculating the replaceable salary for the disability pension are the same as for the old-age pension, and the pension level is also subject to minimum. Unlike the old-age pension scheme, the disability pension has different minimum levels, depending on the type of disability and varying from 100 to 3000 percent of the old-age pensions. The pension law defines the disability pension as a function of the social pension, which in turn is a function of the minimum old-age pension. There is a cap for the disability pension, set at 3 minimum old-age pensions, with the exception of underground workers, who may be granted a disability pension that amounts to 4 times the minimum old-age pension.

The survivor pension is 30 percent of the replaceable salary of the deceased *per each survivor*, that is, a family consisting of 4 survivors will receive 120 percent of the deceased worker's salary. The survivor benefit also has a minimum level, set at the social pension, and a maximum, set as a function of the minimum wage. Survivors are divided into three categories: Aged Dependents; Disabled 1 and Children with Disabled Mother, and Other Disabled and Children younger than 18.

3.4 Ukrainian pension reform history in brief

The adoption by the Rada, the Ukrainian parliament, in 2003, of the Ukrainian pension reform is preceded by a large number of parametric modifications of the Pension Law enacted in 1991 following independence[13]. The 2003 reform immediately translates into parametric changes in the current system (what will be the first pillar in the system once the reform will be fully implemented), whereas more systemic changes envisaged in the reform are put on hold. As described above, the Soviet pension system inherited was of non-funded defined benefit pay-as-you-go-type whereas the reform will supply Ukraine with a defined contribution multi-pillar pension system with funded elements.

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[13] The World Bank (2006) describes characterises these many changes as being of ad hoc nature.

In 2003 and 2004, more parametric changes are made to the first pillar and in September 2004, prior to the notorious presidential elections that eventually will result in the so called Orange revolution, the minimum pensions are substantially increased. As a result, pension expenditure will rise during 2004 and 2005, reaching 15.3 percent of GDP in 2005, and so will deficits, reaching 3 percent of GDP over the same time period (World Bank, 2006).

In 2005 the pension legislation was amended with the aim to enforce better fiscal control. More measures were put in place to control deficits in 2005 and 2006. Also, the government released its Strategy for Pension System Development, which inter alia sets out to eliminate the pension deficit by 2008 and to introduce the second, funded, pillar in 2009 at the latest. The Strategy also envisages to streamline several functions of the insurance funds, and also to introduce a single contribution rate.

3.5 The reform and the pension system objectives

3.5.1 A change of pension regime

The Ukrainian pension reform constitutes a shift in the balance between the pension objectives discussed above. Whereas the current, Post-Soviet system, stresses poverty relief and redistribution, particularly given the 2004 substantial increases in minimum pensions, the reform aims at improving the level of consumption smoothing for wage earners belonging to higher wage brackets, by means of the funded pillar. Wage inequalities increased in Ukraine as well as in the rest of the CEE/FSU countries during the 1990's and, furthermore, are typically bigger in FSU than CEE countries (Milanovic, 1999). Naturally, one way of analysing the priority given to consumption smoothing over redistribution is of course this: the adaptation to an inequalities-widening reality. In terms of effects on sustainability, the outcome is not given: on the one hand, this may make employers more prone to pay their payroll tax, if they receive a higher benefit. On the other hand, growing social pension disbursements concurrent with decreasing revenue to cover said expenses puts a fiscal strain on the system, which may result in its inability to remain functional.

3.5.2 Indexation

The indexation schemes constitute perhaps the most intricate characteristic of the Ukrainian pension system: in 2005, the minimum pensions increase at the rate of inflation, whereas higher than minimum pensions are not compensated for inflation. Moreover, the indexation has been subject to ad hoc changes recently (World Bank, 2006). However, the existence of dual indexation mechanism is not unique for Ukraine.

In the Swedish pension system, the so called guarantee pension (*garantipensionen*) is indexed at a rate of consumer price index, whereas the added pension (*tilläggspensionen*) is indexed at a rate linked to wage growth, subject to a constraint in form of a break that will intervene if fiscal imbalances will occur (Regeringskansliet, 2005). The inclusion of a separate indexation for low-income pensioners can be understood in terms of an aim for stronger protection of their purchasing power. In Ukraine, high inflation rates – the country still faces double-digit inflation rates (World Bank, 2006) – makes the choice of indexation regime a central policy matter.

The argument for using consumer prices as a base is arguably the idea that the system thereby guarantees a certain level of purchasing power in terms of goods. As for any wage-related indexation, the rationale would be that pensioners are made entitled - through some kind of eligibility mechanism, typically years of service - to both current, i. e. during their working career, and future, i. e. during their period of retirement, changes in labour productivity. There are, however, different wage indexation mechanisms. The average wage can be chosen as a point of reference. If so, pension benefit would be tied to the development of the mean salary – which is in line with the argument that pensioners may be entitled to wage improvements, and deterioration for that matter. This approach is not without potential problems, especially if demography is considered. If, for instance, the size of the labour force diminishes while at the same time the mean wage increases, fewer people have to finance higher pensions. One way to tackle this is to use the sum of all wages as a base of indexation.

Another potential drawback with the mean salary indexation is the potential lack of redistributive measures achieved. It is not unreasonable to assume that a country such as Ukraine offers a substantial difference between mean and median wage, the latter being

lower. The reason for this would be the prevalence of high positive outliers in terms of people with wages markedly higher than the median wage, whereas no wage earners can be expected to be negative outliers, that is, having wages below zero. In order to study the gap between mean and median wage, the latter one would have to be available, which is not the case in this paper unfortunately. It is, however, uncontroversial that a big gap between mean and median wages, where the latter is lower, indicates an uneven wage distribution. The purchasing power of the pension benefit level may then, if calculated as a percentage of the mean salary, say, be low to the hypothetical majority of the population that are to be found significantly below the mean wage level.

3.6 Some methodological, and other, considerations

When drawing a model of the Ukrainian pension reform, one must relate to the wide discrepancy between the theoretical reform package on the one hand, and the Ukrainian bureaucratic reality on the other. When referring to the reform below, unless explicitly stated otherwise below, the process of formal implementation is in focus, not the system's actual compliance with reality.

One object of consideration is the defined benefit/defined contribution distinction. Today, the Ukrainian pension system is of a defined benefit type, as stated above. The 2003 reform, however, envisages the introduction of a defined contribution rate. As the benefit rates are currently fixed according to the (Post)-Soviet system's structure and contribution rates have seen a great number of changes, the calculations below will mostly be made assuming a defined benefit structure.

The PAYG systems found mainly in Western European welfare states had its Soviet equivalent[14]. The Soviet system, replicated in Eastern European so called satellite states after World War Two, contained some very specific features, e. g. that certain workers in some sectors of the economy were offered far better pensions than others, in an attempt to provide incentives to work in some state-favoured industries (Fultz and Ruck, 2001). An important difference between the Soviet system and some Western ones was the complete lack of

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[14] The label welfare state for the formerly real existing socialist countries is controversial, but addressing its relevance is not an objective of this thesis. For a discussion on the topic, see Kornai (1997), who argues in favour of the denomination "'premature welfare state'", for instance.

boundaries between the pension budget and the rest of the state budget in the Soviet Union (Fajth, 1999). Naturally, this will have implications for the economy's fiscal transparency and sustainability. Furthermore, the use of non-cash targeted benefits (in Russian this system is called l'gota) was and is still widespread, thus making the financial interaction between the overall state budget and pensions very complex.

4 Analysis

The calculations below will be conducted using a very robust and basic approach: statistics provided by the State Statistics Committee of Ukraine[15] on demography, average wage and pension will be used. For tax rates, contribution rate and benefit ratio, World Bank (1996, 2006) calculations and figures will be used.

The analysis will be conducted in the form of a basic budget equation. The equation examines and illustrates economic and demographic conditions present in the Ukraine, conditions that will determine the outcome of any pension reform. This way, the analysis is explicitly limited to a basic scenario, drawing on some very fundamental economic and demographic indicators that are relevant to the sustainability of the pension system. Given the low level of reliability or even complete lack of access to more detailed and complex data on the Ukrainian pension system and reform, a basic approach is necessary.

The analysis will be carried out using basic balanced pay-as-you-go calculations of the theoretical preconditions present in the Ukrainian economy: state of demography, contribution and benefit levels as well as ratios between wage and pension benefits.

4.1 The pension budget equation: introduction and assumptions

In a pay-as-you go system, pension benefits, P, are financed by a payroll (or wage, W), tax, s, that is:

$sW = P$ (Equation 4.1)

The current number of workers, L, finance current pension benefits for the current number of pensioners, N. Adding L and N to Equation 4.1 yields the following pension budget equation:

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[15] The statistical data used in this section are, unless explicitly stated otherwise, taken from the *Statistical Yearbook of Ukraine: 2005*, published by The State Statistics Committee of Ukraine.

sWL = PN (Equation 4.2)

where

s	=	the pension contribution rate
W	=	the average nominal wage per worker employed[16]
L	=	the number of people in the working age category, aged 15-60/55
P	=	the average nominal pension per retired
N	=	the number of people older than working age, 60-/55-

Or, conversely:

CR = DR * BR (4.3)

Where:

CR = contribution rate

DR = dependency ratio

BR = benefit to wage ratio (b/w)

In the basic balanced pay-as-you-go scheme equation in this thesis, some assumptions are made:

Assumption 1: the pension scheme is subject to a balance restriction. In other words, deficits and/or surpluses/buffers are assumed away in the calculation model.

Assumption 2: the old-age dependency[17] ratio fully reflects the ratio of pensioners to workers. That is, all people having reached retirement age are assumed to be retired, and no one below retirement age is assumed to be retired.

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[16] Excluding persons employed by "statistically small employers" and those employed by "natural persons" (entrepreneurs) (State Statistic Committee of Ukraine, 2005)
[17] The old-age dependency ratio, denotes the number of people having reached pension age relative to the number of workers.

Assumption 3: full employment prevails.

Assumption 4: a full payroll tax compliance is in place, i. e. no tax evasion.

Assumption 5: the average wage and the average pension determine the contribution rate, in this defined benefit scheme.

The rationale for the assumptions is to facilitate calculations, e. g. the balancing contribution rate in a defined benefit scheme such as the Ukrainian. In the basic scenario, calculations can be made from the above variables only, without taking into consideration features such as employment level, level of compliance and debt. The assumptions may and will be relaxed below, however, in attempts to add realism to the conditions calculated. The assumptions here stated will be subject to closer examination and discussion below.

The assumption will also be used to calculate effects in defined benefit and defined contribution schemes. For the former, the ratio of the average pension to the average age is held constant, allowing the contribution rate to vary. For the latter, the contribution rate is held constant, allowing the ratio of the average pension to the average wage to vary. Naturally, the dependency ratio may be altered as well, primarily through changes in the retirement age, possibly in combination with other measures.

Rearranging expression 4.1 above yields the solution for the balancing pension contribution rate in a defined benefit scheme:

$$s^* = PN/WL \quad (4.4)$$

The input values for Ukraine can be estimated as follows[18]:

W = 806 UAH[19]

L = 28 221 120

P = 316 UAH

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[18] According to the State Committee of Ukraine (2005), where the numbers of working and older than working population are used as proxies, respectively. For wage and pensions, *nominal* mean values for 2005 are chosen. Given that the analysis is conducted in one time period that does not constitute a problem.
[19] The Ukrainian currency is the *grivnya* (UAH).

N = 11 119 762

For all variables, 2005 is used as a year of reference as it is the latest year for which data have been published so far by the State Statistics Committee of Ukraine, as of October 2007.

This yields a balanced contribution rate of 0.15, i. e. 15 percent of the average income in the basic scenario, given that Ukrainian has a defined benefit scheme, which is the case. The dependency ratio is 0.394. (The benefit to wage ratio is 316/806 = 0.392.)

4.2 Relaxing the assumptions

4.2.1 Systemic balance

The Ukrainian pension system is here assumed to be in balance, a clearly reality-violating assumption but a reasonable one given the restriction of financial sustainability imposed by the purpose of this thesis. In other word, the fact that the Ukrainian pension system is currently experiencing a deficit does not make the restriction of financial sustainability irrelevant. Given that, financial balance will be assumed in the calculation model unless explicitly stated otherwise.

Calculations of the size of the deficit will not be conducted, as that is beyond the defined scope of this thesis. Rather, deficit estimations made by the World Bank will be cited and commented.

4.2.2 Old-age dependency ratio

Using the old-age dependency ratio is a rough approximation of the reality, particularly in the Ukrainian case where early retirements and working pensioners are estimated to be common (World Bank, 2006). When making calculations of the current Ukrainian pension system, data for the number of workers and pensioners, considering the dual retirement age for men and women, are available from the State Statistics Committee of Ukraine. When calculating the

effects changes in the retirement age, which will be made below, the lack of gender specific data restricts the analysis to gender neutral calculations, unfortunately.

The demographic situation in Ukraine is problematic: the old-age dependency ratio currently stands at 0.4. As for the systemic old-age dependency ratios, things are even more problematic, the employment level is low, less than 60 percent according to official statistics, and so is tax compliance. If so, the real number of contributors is very low, and that would in turn make the systemic old-age dependency ratio[20] considerably higher, i. e. increase the burden on workers when financing pension benefit payments through a pay-as-you-go scheme, be that a multi-pillar system, as in the envisaged Ukrainian pension reform, or entirely pay-as-you-go, as in the current Ukrainian pension system.

Estimations of future old-age dependency ratios in Ukraine made by the World Bank (2006) on the assumption that the pension system is not reformed, depicts a crisis scenario: the old-age dependency is projected to rise form its current level of roughly 40 percent, reaching 80 percent in 2050, while the systemic dependency will raise from its current level slightly below 100 percent, reaching 140 percent in 2050. The difference between systemic and crude ratios is explained by a number of factors, as will be demonstrated below.

Since the old-age dependency ratio enters the balance function in the form of a quotient, it is positively correlated with the balanced contribution rate: the higher the old-age dependency ratio, the higher the contribution rate needed. This may be shown mathematically rearranging equation 4, but is equally intuitive: a growing number of pensioners in relation to workers require a higher per capita contribution, ceteris paribus. If the current Ukrainian dependency ratio would rise to 0.6 (from 0.39) say, then the balancing contribution rate would be 0.23 (up from 0.15), using Equation 4.2 and holding the benefit to wage ratio constant.

4.2.3 Employment

The first crucial underlying assumption in the calculation model above is the employment rate. Without any modifications, this balanced pay-as-you-go calculation model assumes full

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[20] The systemic old-age dependency ratio denotes the number of beneficiaries relative to the number of contributors in the pension system.

employment. That is, everyone in the working age category (15-60 and 15-55 for men and women, respectively) works full-time in the formal sector.

Consider a formal employment level of 70 percent instead of 100 percent, for instance. In that case, the remaining 30 percent may be pre-retired, unemployed, however not actively and therefore not necessarily registered, and/or employed in the informal sector. In that case the balanced contribution rate, calculated as above, would be 0.22, compared to 0.15 in the basic scenario.

According to ILO figures (cited State Statistics Committee of Ukraine, 2005), the unemployment in Ukraine in 2005 was 7.2 percent, whereas the official government figure was 3.5 percent. Both numbers are low in both a Western and Eastern European perspective: overall, official unemployment has decreased to a lesser extent in FSU countries compared to CEE countries. However, hidden unemployment is likely to be abundant, especially in large, industrial FSU countries such as Ukraine (Fajth, 1999). Also, the scale of the grey economy is presumed to be large, attaining 50 percent, as noted above.

The employment level of 57.7 percent of the labour force will be assumed in a calculation model, the labour force being defined as people between 15-70 years of age. The respective retirement ages are lower than 70 and working activity could be expected to be lower than the labour force average for the pensioners. Thus, the figure most likely underestimates employment for non-pensioners, thereby offering a conservative estimate. Using the 57.7 percent figure for employment would give a systemic old-age dependency ratio of 0,69 percent, which is high by international standards. In order to illustrate how crucial the employment figure is, one could consider the Swedish policy target of 80 percent employment. If Ukraine would have 80 percent employment, the systemic old-age dependency ratio would stand at 0.49 rather then 0.69: that is, it would decrease by approximately 30 percent.

4.2.4 Tax compliance

The employment level is not the only crucial assumption when estimating the theoretical systemic old-age dependency ratio. Compliance, measured as the number of workers in the

formal sector who actually pay their contributions to the pension fund, is another. Generally, Ukraine is thought to have high tax compliance costs (World Bank, 2006), and, as a consequence, a low tax compliance. Also, the existence, and also the misuse of tax exemption schemes such as the Simplified Tax Scheme (STS), for small businesses, and Fixed Agricultural Tax (FAT), for people employed in the large agricultural sector. The two schemes offer substantially reduced, lump sum payroll tax rates, thereby contributing to the low level of contribution revenue in the pension scheme (World Bank, 2006).

Without any scientific data on estimations of tax non-compliance/tax evasion in Ukraine, Sklenar and Burger's (2006) estimations of Czech and Slovak levels of tax evasion will serve as a rough proxy, suggesting that tax evasion is at the level of 40 percent, i. e. compliance is at 60 percent. Again, this estimate is conservative, as the tax compliance in Ukraine may be assumed to be lower in a FSU country such as Ukraine compared to the two EU member countries.

Tax compliance is central to the financial stability of the pension fund, as numerical calculations will show. Assuming a scenario with a 60 percent compliance rate, the following results are obtained:

- the contribution rate leapfrogs from 0.15 to 0.25, ceteris paribus.

As in the example above, featuring the relaxation of the assumption of full employment, the fully realistic adding of tax non-compliance changes the theoretical performance of the pension scheme dramatically.

4.2.5 Average benefit to average wage ratio

The use of arithmetic mean values is problematic, as it discloses nothing about the distribution of wage and pensions. A suspension of the cap on pensions combined with a lowering of the minimum pensions may well yield the same average pension, for instance, but threatening the social sustainability. Also, the Ukrainian pension system practices dual indexation rules, according to which minimum pensions are indexed to price inflation whereas higher than minimum pensions are not indexed to inflation at all. In a dynamic analysis using mean

pensions and wages, the result emerging may be misleading, due to the existence of the dual indexation mechanism (this is one of the reasons why the World Bank in cooperation with the Academy of Sciences of Ukraine developed a Ukraine specific pension simulator, UPSIM).

The reasons why average wages nevertheless are used in the calculations in this thesis are mainly the low availability of data and information on the pension formula. As a consequence, no dynamic calculations featuring inflation are made, thereby acknowledging the inherent limitation of mean wage and pension as input values.

As demonstrated in the calculations, the ratio of the average pension benefit to the average wage has a crucial impact on the finances of the pension fund. If one would like to lower the contribution rate, a drop in pension benefits will be technically easy to implement, however potentially politically difficult, depending on how the pensioners, and future pensioners, will respond to such a cut. To illustrate the numerical impact in the basic scenario above, consider the following: a decrease in the average benefit to average wage rate from 0.39 to 0.30 would shift the contribution rate from 0.15 to 0.12.

4.2.6 Relaxing employment and tax compliance assumptions: the systemic dependency ratio

When relaxing both the employment and the compliance at the same time, a systemic dependency ratio is obtained. The systemic ratio is of greater relevance when assessing the sustainability of a pension system, as it relates revenue to expenditure.

Assuming an employment level of 57.7 percent and a payroll tax compliance of 60 percent, the systemic old-age dependency ratio becomes 1.13. That is, more than one pension beneficiary per contributor systemically. This result is itself a great threat to Ukrainian sustainability. Given a systemic old-age dependency ratio of 1.13, the balanced contribution rate becomes, holding the average benefit to average wage ratio constant, no less than 0.44, a very high figure by international standards (World Bank, 2006). Adding other social security contributions to that number (see section 3), Ukraine would have a social payroll tax above 60 percent, if not higher.

4.3 A dynamic perspective: the importance of growth

So far, all the calculations have been made within a static framework, choosing 2005 data as a point of reference. That is, no time dynamics have been applied. One may, however, include dynamics, i. e. various growth scenarios, in order to further increase the level of realism but also to illustrate the importance of economic growth to pension system finances (see Barr, 2006, for a discussion on economic growth and pensions).

Consider the optimistic scenario again, where all the five assumptions are thought to hold, and add to that a real wage growth rate of 2 percent. Assuming the 2 percent growth rate will be constant for 10 years yields an accumulated real wage growth of 22 percent. In the Ukrainian DB scheme, that would allow a increase in the contribution rate of 2 percentage points, ceteris paribus, from 0.15 to 0.13 in the balanced optimistic scenario..

Consider furthermore that an increase in the contribution rate, from 15 to 17 percentage points is projected. Such an increase may be unnecessary, however, if real wage growth occurs that has the corresponding opposite impact on the contribution rate. Using the budget equation again, the corresponding real wage growth needed to cancel out a two percentage point increase in the contribution rate, is 10 percent[21]. The latter figure may appear as substantial and unrealistic, but it should be stressed that a 10 percent real wage growth is the same as ten consecutive years of an average of 1 percent real wage growth, as noted above. In other words, if the 2 percentage point increase was projected to occur gradually over 10 years, then a 10 percent accumulated real wage growth would cancel out the need for an increase, i. e. making it unnecessary.

Naturally, real wage growth may also differ from projections. If a 1 percent real wage growth is projected, thereby cancelling out an otherwise – that is, in the absence of real wage growth -

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[21] The reasons why a 10 percent real growth rate roughly corresponds to the equivalent of a 10 percent increase in the wage to benefit rate are two: the numbers are rounded up to two decimals, and, most importantly, the benefit to wage and pensioners to workers ratios are the same (0.39), when using official Ukrainian data for 2005.

needed 2 percentage point increase in the contribution rate, but instead a 3 percent real wage growth occurs. Again, a period of ten years is assumed, i.e. the accumulated real wage growth will be 34 percent. Given this, the contribution rate could instead be decreased from 0.15 to 0.13, ceteris paribus.

4.4 Results

As the calculations above show, the Ukrainian pension system is currently facing major threats to its financial sustainability, induced by the low level of employment and low compliance mainly. The threat to the financial sustainability in the system is easily observed in terms of the high dependency ratios.

Economic growth may improve the financial state of the system, but to rely on economic growth alone is not an attractive option, as economic growth depends on factors on which the pension system has little bearing. Also, the calculations above suggest that the impact from economic growth on the pension system finances is relatively small, at least when realistic growth scenarios are considered. That said, and in line with Barr (2006), economic growth can be of central importance to the pension system in assisting an adjustment.

Given the high systemic dependency ratios suggested by the calculations above and the defined benefit nature of the Ukrainian pension system, contribution rates will have to be raised, unless cuts in the benefit to wage ratio are made. Higher social security contribution rates, however, makes employment more costly for the employer, thereby threatening employment, creating a vicious circle, as the calculations suggest that the low level of employment appears to be an important causal mechanism behind the high balanced systemic dependency ratios and contribution ratios. Regardless of what policy is chosen, the stated options actualise the issue of the political sustainability, which will be investigated in the following section.

5 Political sustainability: the existence of political risk

The issue of political sustainability is frequently debated in pension economics, see for instance Kruse (2006), since as effective a system might be in theory, it is of little use if it fails to survive in the political environment within which it has to operate. Against that background, one may indeed refer to political sustainability as the system's challenge to deal with a political risk, the latter being defined by Kruse (Ibid, p. 392) as

"a decrease in the rate of return that individuals [think they] have been promised, a decrease caused by politically decided changes in the system."

Typically, in a defined benefit (DB) system such as the Ukrainian one, as observed by Kruse (Ibid), any adaptation of the system is likely to be financed by the workers, and not by the pensioners, mainly in terms of an increase in the contribution rate. This has important implications in terms of intra-generational solidarity, as an increase in the contribution rate today makes current pensioners better off and future pensioners worse off, given that the benefit rate remains the same and that discount factors are constant. In other words, current pensioners got the same benefit more cheaply than will be the case for current workers.

The Ukrainian case provides a slightly more complicated but nevertheless intuitive example of this mechanism: when the Presidential decree ordered the substantial increase in minimum pensions in 2004, as discussed above, the financing of that reform was made by budget transfers, not through an increase in the contribution rate. An increase in the state budget nevertheless affects workers, either in terms of increased expenditure or through redistribution if the increase in financed by other cuts. Financing by mans of increasing the foreign debt could theoretically alter the inter-generational distribution, if the debt were to be covered by current pensioners only but that is mainly a theoretical scenario. Regardless, the use of budget transfers is a policy option that is not recommended in the long run, as it will erode the state of public finances in Ukraine.

5.1 The political risk in Ukraine

Currently, the general state of Ukrainian politics is unclear at best, and chaotic at worst. Over the past year and a half two parliamentary elections have been held, resulting in weak and unstable governments. This is particularly alarming from a pension system perspective, as the long time horizons involved in a pension system and its reforming require a stable political situation.

The use of the pension system as an election tool in the 2004 presidential elections had severe consequences for the financial sustainability of the system and actualises the question of the adequate level of minimum pensions. Herein, a lesson for Sweden and other countries with relatively recent pension reform experience may prove pertinent: in order to avoid sudden and unexpected hikes in the minimum pension, the choice of level for the minimum pension is imperative, as a level beyond the subsistence minimum de facto ignores the poverty relief objective. Hence, the minimum pension adequacy constitutes an imperative pension policy area in terms of social sustainability, a fact also reflected in the EU Laeken objectives. It also corresponds to one of the four pension system objectives identified by Barr (2006) and cited above: poverty relief. Particularly in Ukraine, with its low level of formal employment that leaves a large proportion of the labour force outside the pension system, this issue is of great importance. The balance between workers with and without benefits, respectively, represents perhaps the greatest challenge currently facing the Ukrainian pensions system. The drastic increase in 2004 of the minimum may indeed be interpreted as an indication that the level of minimum pensions were at a level that was not socially sustainable.

The establishing of the level of minimum pensions offers a good illustration of the interaction between social, political and financial pension system sustainability. Consider that a level below the subsistence minimum is chosen and that a large number of Ukrainians are eligible for minimum pensions only. If so, the poverty relief objective would not be met. Furthermore, if people estimate that they will receive a pension that will be impossible to live on, they may choose not to work in the formal sector and to pay payroll taxes, but, rather, to work in the informal sector, thereby contributing to a decrease in pension fund revenue. As for the pension fund expenditure, the picture would be less clear: the people working in the informal sector will either receive a social pension, if they have no pension credits at all, or a minimum

pension, if they have few pension credits gathered, perhaps a result of working in both the formal and the informal sector. As the minimum pension is covered by the pension fund but social pensions by the state budget, the be or not to be of acquired pensions credits is essential.

Even though social pensions are covered by the state budget, they are still part of the pension system. As such, choosing their level constitutes a policy choice that ultimately determines the degree of universalism in the Ukrainian welfare state, as a level set under the subsistence minimum represents a value or ideological choice, as it in practice subordinates the objective of poverty relief to another objective, be that consumption smoothing, insurance or redistribution.

The issue of the level of minimum and social pensions constitutes only one potential conflict between two or more pension objectives. Access to individual data would make it possible to analyse the distribution of benefits in the Ukrainian pensions system, given the undertaking of different reforms. To analyse political sustainability beyond the chosen definition of political risk here, applied to political outcome of any allocations induced by the pension system, assumptions about the causal mechanisms between allocations and political outcomes would have to introduced, which is not within the scope of this thesis.

5.2 Operationalising political risk in Ukraine

When analysing the threats to the political sustainability, the definition of political risk offered by Kruse will be considered together with the pension system objectives listed by Barr. The objectives will be analysed jointly, measuring their respective relevance in the Ukrainian context as well as the potential conflicts between them. As for financial sustainability, it will be considered as a *restriction* to which the objectives are subject, but not as an *objective* in its own right, as, arguably, financial sustainability does not define a pensions system, but, rather, is a requirement imposed on the system.

With the projected shift from a purely PAYG scheme to a multi-pillar scheme with a funded dimension, Ukraine will indisputably change its pension regime. In terms of Barr's pension objectives, it may be argued that the reform stresses individual consumption smoothing at the

expense of poverty relief and redistribution. To analyse the full extent of that transformation, individual pension benefit data would have to be examined. The impact of the reform on public finances is the short run is equally predictable: once the funded pillar is in place, fiscal costs will increase during the transitional period.

The very high systemic dependency rates achieved in the calculations in section 4 suggest that the employment level is central to the functioning of the pension system in Ukraine. Higher employment figures is not mainly a goal for the pension policy, but rather something that the pension system will benefit from once it will occur. In the meantime, at the current low employment and also, presumably, compliance levels the, sustainability of the Ukrainian pension system will be exposed to great pressure, both in terms of financial limitations and political risks, as a deteriorating state of pension fund finances makes a new reform more likely, i.e. makes people concerned about changes in benefit levels for the worse.

Weller (2004) argues that the main threat to pension system sustainability is not demographic, as often argued, but political, namely the inclusion of additional pension objectives, such as "a stronger reliance on capital markets". In other words, the pension system becomes an instrument, rather than an intrinsic phenomenon with own objectives. Instead, if the objective is to increase the importance of the capital market and to facilitate the access to capital, the pension system represents the control over accumulated capital, a control that may be public (in an unfunded, PAYG system) or private (through the capital market, in a funded scheme).

Finally, the envisaged funded Ukrainian pillar raises concern about possible mismanagement of funds. Miller (2005) shows that corruption is currently heavily present in Ukraine. Furthermore, the capital markets in Ukraine are underdeveloped in an international perspective (Claessens & al, 2000). Against this background, the introduction of a funded scheme in Ukraine could well represent a reversion of the presumed causal forces, given Arenas de Mesa & Mesa-Lago (2006) finding that a funded scheme requires the existence of a mature capital market. Even though Ukraine differs from Latin American countries in some respects, given its Soviet experience and other, the Latin American experience suggests that the introduction of a funded pension scheme represents an institutional challenge, in terms of eliminating corruption and mismanagement, both in the public as well as in the private financial sector (see Valdés-Prieto, 1998, for a discussion on corruption and funded pensions). Barr (2006) cites good government as a key prerequisite to a private pension system, that is,

an ineffectively regulated funded scheme will not be sustainable. In the light of this as well as the above debated features and consequences of funded pensions a scheme, the implementation of a funded pension scheme in Ukraine is not to be recommended.

5.3 Calculations of the impact of two selected reform measures

Below, two reform measures are considered using the same basic calculation model as in section 4.1.

5.3.1 The introduction of a funded pillar and the search for higher national saving

Aside from the parametric reforms planned in the Ukrainian pension scheme, the 2003 reform package also, as mentioned above, contains changes of a systemic matter. Particularly, the envisaged shift from a purely pay-as-you-go scheme, which the Soviet and the post Soviet Ukrainian was and is practicing, to a multi-pillar scheme containing a fully funded pillar, constitutes a firm systemic change[22].

So far not implemented, the second, funded pillar in the envisaged Ukrainian pension reform will once in place receive 7 percent of the employee wage income. This enables a comparison between the current Ukrainian pension system and a transitional scenario after the funded pillar has been implemented. As noted above, the total pension contribution rate will be constant at 33.8 percent in the new defined contribution system, out of which the contribution rate to the first pillar will be 26.8 percent (33.8-7).

With a PAYG contribution rate of 26.8 rather than 33.8 percent, the average pension will drop 21 percent and the benefit to wage ratio will drop 18 percentage points, ceteris paribus. In order to maintain the pension levels, one would have to add funding to the PAYG system.

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[22] The third and voluntary pillar is not an unimportant ingredient in the envisaged Ukrainian pension reform, but its non-mandatory character makes the question less relevant in terms of financial stability at least, as it would be unreasonably to assume a financial breakdown of voluntarily saved assets due to exogenous factors such as political stability, demography and the like. That said, the voluntary third pillar is potentially of great interest to financial economists and when making assessments of the maturity of the Ukrainian financial market.

This could be made in several ways: for example through budget transfer, borrowing from the funded pillar scheme[23]. Alternatively, pension benefits may be cut. Regardless of what policy option is chosen, this illustrates the existence of the significant transitional cost that will be imposed by the introduction of a second funded pillar.

One alleged rationale for the funded pillar (see Cesaratto, 2006) is its ability to generate a higher national savings rate. Higher savings rates are not a task for the pension alone, but are of great importance for the state of pension finances. A main argument behind the fully funded schemes is their potential to increase propensity to save in the economy. This argument is very controversial, however, for several reasons.

Above all, real-world experience with fully funded system is inconclusive in terms of increased saving or not. Arenas de Mesa & Mesa-Lago (2006) shows in his study of the Chilean fully funded scheme, put in place in 1981 and covering the entire population safe the armed forces, that the reform has had a negative impact on national saving, partly due to initial underestimation of fiscal costs from the transition. Also, the fully funded system in Chile has had an undisputed regressive character, due to the existence of fixed commission rates that.

Drawing from the experience of funded schemes in Latin America, some words of caution seem sensible for the Ukrainian reformers. In Latin America, many different types of funded arrangements are in operation but a strong tendency stands out: labour force coverage[24] has diminished in ten economies studied, contrary to what reformers and World Bank officials assumed (Ibid), an outcome of great importance when considering the Ukrainian pension reform. Given the presumed already very low level of labour force coverage in Ukraine, further draining of the revenue to the pension fund would severely endanger the sustainability of the Ukrainian pension system.

In addition to lowered labour force coverage, the shift to funded schemes in Latin America offers other features that may be painfully relevant to the perseverance of sustainability in the Ukrainian pension system if the funded pillar is implemented. Gender and income inequalities

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[23] Perhaps seemingly unorthodox, but relevant in practice: in ten Latin American funded pension systems, as of 2004, public debt accounted for 53,3 percent of the investments on average (Arenas de Mesa & Mesa-Lago, 2006).

[24] Labour force coverage denotes the proportion of the labour force that is contributing to the pension system.

are reported to have experienced increases in Latin America (Ibid). In the Ukrainian system, inequality growth poses a serious threat to the pension system's sustainability, as already noted above, since thus, the number of people drawing minimum pensions may increase, resulting in more funds being needed from the State Budget, Against this background, it is of great importance to fight benefit inequalities in the Ukrainian system in order to insure sustainability, both financial and social.

So far the alleged virtue of a funded scheme – the increase of national saving – has been assumed not to prevail. If such an increase did occur the outcome may not be positive for the economy as a whole, however, as illustrated by Cesaratto (2006), with a reasoning owing to Keynes and Sraffa. In the presence of the so called "Keynesian saving paradox", the increase in saving may not translate into increased capital accumulation, but, rather, in a fall in employment and aggregate wage income, due to decreased demand, or consumption, a result of the increase in saving. As wage income is the basis of the current PAYG/projected first pillar in Ukraine, the introduction of the funded scheme risks to have a negative impact on the financial sustainability of the pension system, even if the funded pillar delivers in terms of increased national saving.

Another argument behind the funded pillar is actuarial; in Ukraine, and as a consequence of the increase in minimum pensions, more than 95 percent of the pensioners receive almost flat benefits (World Bank, 2006). From an actuarial point of view, this may disincentive labour for high wage earners. For low wage earners, however, the affect on labour supply from the introduction of funded pensions may be the opposite than for high wage earners, i.e. negative, as commented above: if their expected pension becomes lower than the subsistence minimum, as a result of the transitional costs imposed by the introduction of the funded pillar, they may choose not to work in the formal sector, as their opportunity cost of working in the formal sector would be substantial. They may, however, also choose to work more in the formal sector, but only if such a choice is possible. In order to establish which effect is more relevant, individual data and behavioural assumptions are needed. Regardless of the outcome of such an analysis, this again demonstrates the inherent objective conflict present when designing pension systems, in this case between consumption smoothing on the one hand and poverty relief and redistribution on the other hand.

It is important to stress that a funded pillar is not the only policy measure available if one wants to increase the actuarial element in the pension system. Parametric reform of the current defined benefit PAYG system could achieve the same result. An NDC scheme of the Swedish type could also make the pension system more actuarial, if such an outcome is desirable.

The degree of development of the financial system in the country is an important precondition to any introduction of a funded scheme. The hypothesis that a matured capital market is not needed for a private, funded pension reform is rejected in Chile and other Latin American countries (Arenas de Mesa & Mesa-Lago, 2006). In the Ukrainian pension reform the funded capital will not be privately managed, but controlled by governmental fund administration bodies, a condition not adding to the maturity of the capital market.

An alternative to the mandatory funded pillar are the sector-based occupational pensions, which may be funded or unfunded. Occupation pension schemes are present in many countries, such as the U.S. and Sweden. More than 90 percent of all wage earners in Sweden are covered by some, mostly collective, occupational pension (Regeringskansliet, 2005)

Increased reliance on occupational pensions represents a more promising policy option than a mandatory funded pillar for Ukraine, yet not one without possible pitfalls. In the Swedish case, labour unions take active part in the shaping of occupational pension agreements (Ibid). In Ukraine, labour unions do not exert any significant influence with respect to employers. In the absence of an organising body for the workers, i.e. labour unions, occupational agreements may be company-based instead. Hence, there would be a risk of bad asset-spreading, in that companies would use accumulated pension capital to "invest in themselves".

Furthermore, occupational pensions may prove discriminatory, however, inter alia with respect to gender. Women, who typically work less and for a smaller wage, may be losers in an occupational scheme, as a study using data on Britain, where occupational pensions are widespread, shows (Sunley, 2000).

In sum, the funded pillar faces severe challenges in Ukraine, other than the formal ones required for its implementation cited above. In light of the experience in Latin America, Ukrainian policymakers have reasons to harbour only modest an amount of hope when it

comes to the prospects of introducing a funded pillar. As demonstrated above, the funded pillar will represent a substantial revenue loss for the PAYG system once implemented in Ukraine. Given that, and its problematic track record in Latin America, the raison d'être of the funded pillar in the Ukrainian pension reform is far from evident.

5.3.2 Longer working lives – tried out through higher retirement age

In order to estimate the effects of a change in the retirement age, the same equation described in 4.2 may be used, making it subject to one more assumptive restriction: the retirement age is assumed to be gender neutral. The same assumptions as stated above are to hold.

In the optimistic scenario, assuming full employment and payroll tax compliance, the retirement age has the following impact on the replacement rate and, as a consequence, on the contribution rate, given the fixed average benefit to average wage at 0.39:

Retirement age:	55 years	60 years	65 years
Dependency ratio:	0.45	0.31	0.23
Contribution ratio:	0.17	0.12	0.09

If the employment level is assumed to be 57,7 percent and the payroll tax compliance 100 percent, the following scenario is obtained:

Retirement age:	55 years	60 years	65 years
Dependency ratio:	0.77	0.54	0.40
Contribution ratio:	0.30	0.21	0.15

Finally, an employment level of 57.7 percent and a tax compliance of 60 percent is assumed, yielding the following scenario:

Retirement age:	55 years	60 years	65 years
Dependency ratio:	1.29	0.90	0.67
Contribution ratio:	0.50	0.35	0.26

Regardless of the degree of realism in the assumption that all workers younger than the retirement age are working, and of the accuracy of the estimations of the employment level and tax compliance[25], one conclusion is obvious: the retirement age has a great impact on balanced dependency and contribution ratios. Given that, changing the retirement age represent a very powerful policy option, a fact also reflected in the World Bank policy papers covering the Ukrainian pension reform (see, inter alia, World Bank (2006)).

Another, perhaps more abstract, aspect of a change in the retirement age in Ukraine is the issue of expected length of the pension period. With the average lengths of the pension period standing at 3 and 19 years for men and women, respectively, an increase in the retirement age is mainly a policy option when it comes to the female retirement age, see below, if one wants to avoid the current Russian scenario, where men on average are pensioners for -2 years[26]. It should be noted that the life expectancy at birth may be higher for the cohorts born in the 1940's than for the newborn babies of today, in which case the average Russian male pension period may have a non-negative length. Unfortunately, no such data have been found available throughout the work with this thesis.

One striking feature of the Ukrainian pension system is the low retirement age for women. A possible reform path would be to make the retirement age gender neutral. Using the demographic figures of 2005, the gender neutral retirement age would shift the old-age dependency rate from 0.39 to 0.35. When applying the restriction of the estimated employment level, that is 57.7 percent, the hypothetical old-age dependency ratio with gender

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[25] As noted before, those are clearly unrealistic assumptions in a Ukrainian real world context, particularly due to the existence of STS and FAT tax schemes well as numerous early retirement provisions, see section 3.2, and the great uncertainty associated with the estimations of the employment and compliance levels. When analysing the impact of a change in the retirement change, however, the degree of realism is of little relevance, as the changes is being made *given* a certain set of input values, be what they may be.

[26] The expected length of the pension period is based on the current life expectancy at birth (WDI), which in 2006 in Ukraine was 63 years for men and 74 for women.

neutral retirement age of 60 years stands at 0.62 instead of 0.69, the latter being the old-age dependency ratio under the regime of 55 years retirement age for women and 60 years for men, respectively. The difference is not dramatic, yet substantial.

The calculations made here confirm the previous picture: compared to the drastic change that would take place if Ukraine enjoyed 80 per employment but with current age retirement rules, whereby as shown above the old-age dependency ratio would drop to 0.49. With 80 percent employment rate and gender neutral retirement age at 60 years of age, the ratio would be 0.44, down from 0.62 at 57.7 percent employment. Thus, the calculations suggest that the employment level has a much greater impact on the old-age dependency ratio than the retirement age. Practically, however, raising the retirement age is evidently a more uncomplicated matter compared to achieving a 30 percent increase in employment.

Although heavily favoured by the World Bank, the raising of women's retirement age in Ukraine is not without problems. The low retirement age for women in Ukraine has its origin in the Soviet social security system, where grandmothers were expected to assist their children in child upbringing. If the women's retirement age is to be risen, child care will most likely constitute a problem in the short run, unless a welfare solution is presented that compensate for the fall in child care supply. Quantifying the demand for child care and thereby estimating the loss inflicted on the economy if the age group of women aged 55-60 substitute working for looking after their grandchildren will require a greater data availability and a different focus than the one find in this thesis, and will therefore not be examined here.

6 Concluding remarks

Fultz and Ruck (2001) suggest three factors that together shape the pension reform in the CEE countries (they use the term CEE but also include some FSU countries): characteristics of the pension system they have inherited; the impact of economic and policy changes during the transition; and the likely influence of demographic developments in the years to come. Throughout this thesis, these three factors have been reflected in the analysis with respect to the sustainability of the Ukrainian pension system and below a few policy recommendations will be made for Ukraine.

A central policy choice stands between the level of minimum pensions versus the degree of coupling of individual benefits to contribution. If the financial responsibility for paying out minimum pensions lies on the pension fund, a redistributive scheme is needed, thus reducing the actuarial element. If minimum pensions are to be covered by the state budget, budget transfers will have to be made to the pension expenditure post, thereby making feasible the creation of a more purely income-related scheme financed by the pension fund. As noted above in reference to Mesa-Lago (2004), the policy conflict typically stands between social and financial sustainability and the possible subordination of the one to the other. Ultimately however, the balance between redistributive and actuarial goals constitutes an ideological question.

In order to conduct a more elaborate analysis of the sustainability of the Ukrainian pension system and reform, access to individual wage and pension benefit data along with more detailed statistics of demographics would be required – a task undoubtedly better suited for a Ph D dissertation. That would also enable a more sophisticated inclusion of time dynamics in the analysis, featuring different growth, inflation and discount factor scenarios. Nevertheless, the basic pension budget equation method used in this thesis suggests an emerging pattern of sustainability mechanisms: The Ukrainian experiences severe threats to its sustainability, particularly in terms of increased dependency ratios and political risks. The overall economic situation constitutes a threat to pension revenues, mainly due to low employment, and will most likely require fiscal transfers to the pension fund during a transitional period. Alternatively, benefit cuts will be necessary.

The pay-as-you-go system in Ukraine is in great need of reform. The introduction of a funded pillar, however, will rather deteriorate pension stability than improve it, as this thesis shows.

The most difficult policy task concerns the pension arrangements for people having gathered very small or no amounts of pension credits, making them eligible for minimum or social pensions, respectively. The Ukrainian social pensions are also problematic in that the eligibility criteria are unclear, leaving room for discretionary and arbitrary policies. The Swedish solution, whereby the equivalent to social pension are not covered by the pension fund, but by the state budget, offers one solution. The presumably large number of Ukrainians, given the current low levels of employment and contribution, becoming eligible for social and minimum pensions raises questions as to both the relevance of a comparison with Sweden, and as to the feasibility and the fiscal costs imposed on the state budget associated with such a solution. A possible remedy could be a reduction of benefits, however a problematic option given that minimum pensions, as noted above, are on pair with the subsistence minimum. Alternatively, increased financial costs could be covered by higher public spending, but that is not a solution sustainable in the long run. Rather, policies aiming at increasing the contribution revenue as well as its safeguarding appear as more recommendable solutions to the problem.

Below, a set of policy recommendations targeting the threats to Ukrainian pension system sustainability are sketched:

- The suspension of the introduction of the funded pillar, due to its bad track record and poor theoretical funding and the infant state of the financial markets in Ukraine. This would increase the balanced average pension by 26 percent and balanced average benefit to wage ratio by 18 percentage points in the basic, optimistic scenario, ceteris paribus. It would also increase the pension fund revenue by 21 percent, ceteris paribus, thereby improving sustainability, at least in the short and medium run.

- Increase the female retirement age to 60 years. This would decrease the old-age dependency ratio from 0.39 to 0.35 in the basic, optimistic scenario, using the 2005 official figures.

- Tie the indexation of pension benefit to a weighted index of the wage sum and the individual average replaceable wage.

- Clarify the pension law and remove the discretionary element concerning the validity of a social pension claim.

- Introduce various measures that will increase contribution revenue, such as the suspension of payroll tax-exemption regimes. The system needs to be made revenue-universal and mandatory in practice, as the calculations suggest. Hence, increasing labour force coverage and payroll tax contribution is central.

In conclusion, this thesis suggests that the sustainability of the Ukrainian pension system faces substantial threats, in financial as well as political and social terms. The future of the pension system will depend on its ability to ensure the Ukrainians' right to age. This in order to avoid a scenario like the one described by the notorious Viktor Chernomyrdin, Russia's current ambassador to Ukraine and former Russian prime minister, reflecting Soviet-style cynicism: *"Хотели как лучше, а получилось как всегда" (*We meant to do better, but it came out as always.)

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